BOARD MEETING DATE: January 8, 2021 AGENDA NO. 25

PROPOSAL: Certify Final Environmental Assessment and Adopt Rule 1407.1 - Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations

SYNOPSIS: Proposed Rule 1407.1 will reduce hexavalent chromium, arsenic, cadmium, and nickel emissions from chromium alloy melting operations. Proposed Rule 1407.1 establishes point source emission limits, housekeeping requirements, building enclosure provisions, source testing requirements, and monitoring, reporting, and recordkeeping requirements.

COMMITTEE: Stationary Source, November 20, 2020; Reviewed

RECOMMENDED ACTIONS:
Adopt the attached Resolution:
1. Certifying the Final Environmental Assessment for Proposed Rule 1407.1 - Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations; and
2. Adopting Rule 1407.1 - Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations.

Wayne Nastri
Executive Officer

PMF:SN:MM:UV:CN

Background
Proposed Rule 1407.1 - Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations (PR 1407.1) is a new rule and fills a regulatory gap to regulate toxic air contaminant emissions from chromium alloy melting operations. PR 1407.1 was initially presented to the Board in 2018 as an information-gathering rule to obtain emissions data to quantify hexavalent chromium emissions generated from chromium alloy melting operations. The California Metals Coalition (CMC) presented

an alternative approach that would allow staff to collect emissions data from volunteer facilities provided they remained anonymous. Work on PR 1407.1 was suspended, and staff contracted with a third party to conduct source testing in January 2019. The source tests were completed in February 2020 and confirmed that hexavalent chromium is formed from the melting of chromium alloys and that HEPA filtration systems can reduce hexavalent chromium emissions below acceptable health risk thresholds.

PR 1407.1 will reduce point and fugitive hexavalent chromium, arsenic, cadmium, and nickel emissions from chromium alloy melting operations (e.g. smelting, die-casting, and other miscellaneous processes where metals are processed in molten form). Hexavalent chromium, arsenic, cadmium, and nickel are classified by the California Office of Environmental Health Hazard Assessment as toxic air contaminants. Chromium alloys are metals that contain at least 0.5 percent chromium content by weight, including, but not limited to, alloy steels, chromium non-ferrous alloys, stainless steel, and superalloys.

Public Process

Development of PR 1407.1 was conducted through a public process. Staff held twelve working group meetings. The first seven working group meetings were held at South Coast AQMD on the following dates: September 5, 2017; November 9, 2017; January 30, 2018; April 25, 2018; June 6, 2018; July 10, 2018; and August 9, 2018. Staff held five additional working group meetings remotely on the following dates: April 8, 2020; July 9, 2020; August 6, 2020; August 27, 2020; and September 10, 2020. Two Public Workshops were held on the following dates: August 30, 2018 and October 14, 2020. Staff also visited 10 of the 11 facilities identified that will be affected by the proposed rule.

Proposal

PR 1407.1 establishes facility-wide aggregate mass emission limits based on the distance to the nearest sensitive receptor for hexavalent chromium emissions for chromium alloy melting furnaces. The emission limits will reduce hexavalent chromium, arsenic, cadmium and nickel emissions below acceptable health risk thresholds for the nearest sensitive receptor for the facilities subject to PR 1407.1. In addition, PR 1407.1 requires periodic source testing to demonstrate compliance with proposed emission limits, parameter monitoring requirements to ensure proper operation of emissions collection systems and control devices, and additional source testing after failure of a parameter monitoring provision. PR 1407.1 also requires material testing to verify arsenic and cadmium content limits, reporting of source test results, notification of parameter monitoring failures, and recordkeeping.

To address fugitive emissions, PR 1407.1 establishes building enclosure and housekeeping requirements that are similar to other metal toxic air contaminant rules. PR 1407.1 requires chromium alloy melting operations to be conducted within a building and requires minimization of cross-drafts by closing one of any two openings on opposing ends of buildings housing chromium alloy melting operations and closing roof openings above chromium alloy melting, pouring, and cooling activities. PR 1407.1 also includes housekeeping provisions that require routine cleaning of areas near chromium alloy melting operations, roof areas of buildings housing chromium alloy melting operations, and inspection and cleaning of vent openings and ducting of emission control devices.

Small operations, specifically educational facilities, jewelers, and facilities that melt less than one ton of chromium alloys per year, equipment and operations subject to Rules 1420.1 or 1420.2, brazing and soldering operations, and metal cutting or metal grinding conducted for maintenance on equipment and structures unrelated to chromium alloy melting operations are exempt from most or all PR 1407.1 requirements.

Key Issues and Responses

Through the rulemaking process, staff has worked with the stakeholders to address comments and resolve key issues. Staff is not aware of any remaining key issues.

California Environmental Quality Act

PR 1407.1 is considered a "project" as defined by the California Environmental Quality Act (CEQA) and the South Coast AQMD is the designated lead agency. Pursuant to South Coast AQMD's Certified Regulatory Program (Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110) and CEQA Guidelines Section 15070, the South Coast AQMD has prepared a Final Environmental Assessment (EA) for PR 1407.1, which is a substitute CEQA document, prepared in lieu of a Negative Declaration. The environmental analysis in the Final EA concluded that PR 1407.1 would not generate any significant adverse environmental impacts. The Final EA is included as an attachment to this Governing Board package (see Attachment H).

Socioeconomic Analysis

There are 11 facilities subject to PR 1407.1 which include nine foundries, one iron and steel mill and ferroalloy manufacturing facility, and one fabricated metal product manufacturing facility. Currently, there are no regulatory requirements to control hexavalent chromium emissions from chromium metal melting. PR 1407.1 will fill this regulatory gap. The estimated total average annual cost of PR 1407.1 is $2.7 to $2.8 million from 2021 to 2041 assuming a 1 and 4 percent real interest rate, respectively. The nine foundries and one iron and steel mills and ferroalloy manufacturing facility are expected to incur about 77 percent and 17 percent of the total average annual cost of PR 1407.1, respectively, while the one fabricated metal product manufacturing facility is expected to incur about six percent of the total average annual cost of PR 1407.1. The majority of predicted costs, about $2.0 million annually, is attributed to annual operation and maintenance of baghouses, HEPA systems, and ULPA systems installed.

Two of the 11 affected facilities are classified as small business per South Coast AQMD Rule 102.

PR 1407.1 is expected to result in approximately 98 to 100 jobs on average forgone annually from 2021 to 2041 assuming a 1 percent and 4 percent real interest rate, respectively. The projected job forgone impacts represent about 0.001 percent of total employment in the four-county region for both the low- and high-interest-rate scenarios.

AQMP and Legal Mandates

Pursuant to Health & Safety Code Section 40460 (a), South Coast AQMD is required to adopt an AQMP demonstrating compliance with all federal regulations and standards. South Coast AQMD is required to adopt rules and regulations that carry out the objectives of the AQMP. PR 1407.1 is an air toxics control measure (TXM-06) in the 2016 AQMP, but is not a control measure for attainment of state or federal regulations and standards. PR 1407.1 is needed to reduce emissions of hexavalent chromium, arsenic, cadmium, and nickel from chromium alloy melting operations.

Implementation and Resource Impacts

Although there will be an increased workload for implementation of PR 1407.1 to conduct compliance inspections, process permits and review source tests, existing staff resources are sufficient at this time to implement the proposed amendments.

Attachments

A. Summary of Proposal
B. Key Issues and Responses
C. Rule Development Process
D. Key Contacts List
E. Resolution
F. Proposed Rule 1407.1
G. Final Staff Report for Proposed Rule 1407.1
H. Final Environmental Assessment
I. Socioeconomic Impact Assessment
J. Board Meeting Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations
<u>Applicability</u> • Applies to melting operations of metals that contain greater than 0.5 percent chromium content <u>Requirements</u> *Emission Control* • Emissions from furnaces and associated emission control devices to meet aggregate hexavalent chromium emission limits by July 1, 2024 • Operate emission collection systems at the minimum capture velocity specified in *Industrial Ventilation: A Manual of Recommended Practice Design* by July 1, 2024 • Limit visible emissions from chromium alloy melting operations • Submit permit applications for furnaces and emission control devices subject to the rule by January 1, 2022 *Prohibitions* • Melting chromium non-ferrous alloys with more than 0.002 percent arsenic or 0.004 percent cadmium by weight *Housekeeping* • Conduct routine cleaning using an approved cleaning method in areas near chromium alloy melting operations by July 1, 2021 • Allows for use of approved alternative housekeeping measures *Building* • Conduct chromium alloy melting operations within a building by July 1, 2021 • Minimize cross-drafts by January 1, 2022 • Allows for use of approved alternative building compliance measures when there is conflict with worker safety requirements *Testing and Monitoring* • Initial source testing by July 1, 2024 and periodic source testing every 60 months after the initial source test • Parameter monitoring including installation of baghouse leak detection systems and pressure gauges equipped to confirm proper operation of emission control devices • Source testing within 6 months after failing a parameter monitoring provision <u>Recordkeeping and Reporting</u> • Maintain records and notify of source test results and parameter monitoring failures

Exemptions

- Facilities that melt less than one ton of chromium alloys per year
- Educational facilities and jewelers
- Equipment and operations subject to Rules 1420.1 and 1420.2
- Brazing, dip soldering, and wave soldering operations
- Metal cutting and metal grinding conducted for maintenance purposes on equipment and structures unrelated to chromium alloy melting operations

ATTACHMENT B

KEY ISSUES AND RESPONSES

Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations
Throughout the rulemaking process, staff worked with stakeholders to address their comments and have resolved all key issues. Staff is not aware of any remaining key issues.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations

Initiated Rule Development: November 2015

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Working Group Meetings (7):
As Proposed Amended Rule 1407 (4) – September 5, 2017, November 9, 2017, January 30, 2018, and April 25, 2018
As Proposed Rule 1407.1 (3) – June 6, 2018, July 10, 2018, and August 9, 2018

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1st 75-Day Notice of Public Workshop: August 17, 2018

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1st Public Workshop: August 30, 2018

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Stationary Source Committee Briefings (2):
September 21, 2018 and November 16, 2018

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1st 30-Day Notice of Public Hearing: October 2, 2018

↓

1st Set Public Hearing: October 5, 2018

↓

1st Public Hearing: November 2, 2018

↓

Re-Initiated Rule Development: February 2020

↓

Working Group Meetings (5):
April 8, 2020, July 9, 2020, August 6, 2020, August 27, 2020, and September 10, 2020

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2nd 75-Day Notice of Public Workshop: September 18, 2020

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2nd Public Workshop: October 14, 2020

↓

Stationary Source Committee Briefing: November 20, 2020

↓

2nd Set Public Hearing: December 4, 2020

↓

2nd 30-Day Notice of Public Hearing: December 9, 2020

↓

2nd Public Hearing: January 8, 2021

Five (5) years and two (2) months spent in rule development.
Two (2) Public Workshops.
Three (3) Stationary Source Committee Meetings.
Twelve (12) Working Group Meetings.

ATTACHMENT D

KEY CONTACTS LIST

Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations

ACE Clearwater
Advanced GeoEnvironmental
Almega Environmental
Alta Environmental
Arrowhead Brass and Plumbing
Associates Environmental
Atlas Pacific Corporation
BlueScape Environmental
Bodycote Thermal Processing
The Boeing Company
C & M Metals
California Air Resources Board
California Metals Coalition
California Metal-X
California Small Business Alliance
California Steel & Tube
California Steel Industries
Cal Poly Pomona
Cast Metals Services Inc.
Cast-Rite Corporation
Certified Alloy Products
CMC Steel California
Coalition for Clean Air
Commercial Casting Company
Commercial Metal Forming
Consolidated Precision Products
Custom Alloy Light Metals
E4 Strategic Solutions
Edelbrock Foundry Corporation
Exponent Consulting
Fenico Precision Castings
Griswold Industries
HBA
Heraeus
HWC
IMS Recycling Services
JE Compliance Services
Kaiser Aluminum Fabricated Products
Keramida
Kramer Metals Inc.
Lynwood Pattern
Magnesium Alloy Products Company
Marathon Petroleum
Mattco Forge
Miller Castings
Montrose Air Quality Services
Oregon Department of Environmental Quality
Pacific Alloy Casting Company
Pro Cast Industries
Ramboll Environ
SA Recycling
Scott Sales Company
Sierra Aluminum Company
SLR International
So Cal Air Quality Alliance
SoCalGas
Standard Metals
Strategic Materials Corporation
Techni-Cast Corporation

Total Clean
Trinity Consultants
TST
Upper Room Consulting
Vista Metals Corporation
West Coast Foundry LLC
Whittingham Public Affairs Advisors
Yorke Engineering

ATTACHMENT E

RESOLUTION NO. 21-____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) certifying the Final Environmental Assessment (EA) for Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations.

A Resolution of the South Coast AQMD Governing Board adopting Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Rule 1407.1 is considered a "project" as defined by the California Environmental Quality Act (CEQA); and

WHEREAS, the South Coast AQMD has had its regulatory program certified pursuant to Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l), and has conducted a CEQA review and analysis of Proposed Rule 1407.1 pursuant to such program (South Coast AQMD Rule 110); and

WHEREAS, the South Coast AQMD Governing Board has determined that the requirements for a Negative Declaration have been triggered pursuant to its Certified Regulatory Program and CEQA Guidelines Section 15070, and that an Environmental Assessment (EA), a substitute document allowed pursuant to CEQA Guidelines Section 15252 and South Coast AQMD's Certified Regulatory Program, is appropriate; and

WHEREAS, the South Coast AQMD prepared a Draft EA pursuant to its Certified Regulatory Program and CEQA Guidelines Sections 15070 and 15252 setting forth the potential environmental consequences of Proposed Rule 1407.1 and determined that the proposed project would not have the potential to generate significant adverse environmental impacts; and

WHEREAS, the Draft EA was circulated for a 32-day public review and comment period from November 13, 2020 to December 15, 2020, and two comment letters were received; and

WHEREAS, the Draft EA has been revised to include the comment letters received on the Draft EA and the responses, so that it is now a Final EA; and

WHEREAS, it is necessary that the South Coast AQMD Governing Board review the Final EA prior to its certification, to determine that it provides adequate information on the potential adverse environmental impacts that may occur as a result of adopting Proposed Rule 1407.1, including the responses to the comment letters received relative to the Draft EA; and

WHEREAS, pursuant to CEQA Guidelines Section 15252 (a)(2)(B), since no significant adverse impacts were identified, no alternatives or mitigation measures are required for project approval; thus, a Mitigation, Monitoring, and Reporting Plan pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097, has not been prepared; and

WHEREAS, Findings pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15091 and Statements of Overriding Considerations pursuant to CEQA Guidelines Section 15093 were not prepared because the analysis shows that Proposed Rule 1407.1 would not have a significant adverse effect on the environment, and thus, are not required; and

WHEREAS, the South Coast AQMD Governing Board that is voting to adopt Proposed Rule 1407.1 has reviewed and considered the information contained in the Final EA, including the responses to the comment letters, and all other supporting documentation, prior to its certification, and has determined that the Final EA, including the responses to the comment letters received, has been completed in compliance with CEQA; and

WHEREAS, Proposed Rule 1407.1 and supporting documentation, including but not limited to, the Final EA, the Final Staff Report, and the Socioeconomic Impact Assessment, were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

WHEREAS, the Final EA reflects the independent judgment of the South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board finds and determines that all changes made in the Final EA after the public notice of availability of the Draft EA, were not substantial revisions and do not constitute significant new information within the meaning of CEQA Guidelines Sections 15073.5 and 15088.5, because no new significant effects were identified, and no new project conditions or mitigation measures were added, and all changes merely clarify, amplify, or make insignificant modifications to the Draft EA, and recirculation is therefore not required; and

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (codified as Section 30.5(4)(D)(i) of the Administrative Code), that the modifications to Proposed Rule 1407.1 paragraph (l)(3) since the notice of public hearing was published are clarifications that meet the same air quality objective and are not so substantial as to significantly affect the meaning of the proposed rule within the meaning of Health and Safety Code Section 40726 because: (a) the changes do not impact emission reductions, (b) the changes do not affect the number or type of sources regulated by the rule, (c) the changes are consistent with the information contained in the notice of public hearing, and (d) the consideration of the range of CEQA alternatives is not applicable because Proposed Rule 1407.1 does not cause significant impacts and therefore, alternatives are not required; and

WHEREAS, the South Coast AQMD conducted source tests at two metal melting facilities and found that melting chromium alloys can result in the formation of hexavalent chromium and other toxic air contaminant emissions; and

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to adopt Proposed Rule 1407.1 to reduce toxic air contaminant emissions from chromium alloy melting operations, specifically hexavalent chromium, arsenic, cadmium, and nickel; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Socioeconomic Impact Assessment of Proposed Rule 1407.1 is consistent with the March 17, 1989 Governing Board Socioeconomic Resolution for rule adoption; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Socioeconomic Impact Assessment for Proposed Rule 1407.1 is consistent with the provisions of Health and Safety Code Sections 40440.8 and 40728.5, and that Health and Safety Code Section 40920.6 is not applicable to rules regulating toxic air contaminants; and

WHEREAS, the South Coast AQMD Governing Board has determined Proposed Rule 1407.1 will result in increased costs to the affected industries, with a total annualized cost as specified in the Socioeconomic Impact Assessment; and

WHEREAS, the South Coast AQMD Governing Board has actively considered the Socioeconomic Impact Assessment and has made a good faith effort to minimize such impacts; and

WHEREAS, the South Coast AQMD staff conducted two Public Workshops regarding Proposed Rule 1407.1 on August 30, 2018 and October 14, 2020; and

WHEREAS, Proposed Rule 1407.1 will not be submitted for inclusion into the State Implementation Plan; and

WHEREAS, Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the Final Staff Report; and

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to adopt Proposed Rule 1407.1 to further protect public health by reducing emissions of hexavalent chromium, arsenic, cadmium, and nickel from chromium alloy melting operations; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend or repeal rules and regulations from Sections 39002, 39650 et. seq., 40000, 40440, 40441, 40506, 40510, 40522, 40702, 40725 through 40728, 41508, and 41700 of the Health and Safety Code; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Rule 1407.1 is written or displayed so that the meaning can be easily understood by the persons directly affected by it; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Rule 1407.1 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions or state or federal regulations; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Rule 1407.1 does not impose the same requirements as any existing state or federal regulations, and the proposed rule is necessary and proper to execute the powers and duties granted to, and imposed upon, South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board, in adopting Proposed Rule 1407.1, references the following statutes which the South Coast AQMD hereby implements, interprets, or makes specific: Health and Safety Code Sections 39659, 39666, 41700 and Federal Clean Air Act Sections 112 and 116; and

WHEREAS, Health and Safety Code Section 40727.2 requires the South Coast AQMD to prepare a written analysis of existing federal air pollution control requirements applicable to the same source type being regulated whenever it adopts, or amends a rule, and the South Coast AQMD's comparative analysis of Proposed Rule 1407.1 is included in the Final Staff Report; and

WHEREAS, a public hearing has been properly noticed in accordance with the provisions of Health and Safety Code Section 40725 and 40440.5; and

WHEREAS, the South Coast AQMD Governing Board has held a public hearing in accordance with all applicable provisions of state and federal law; and

WHEREAS, the South Coast AQMD specifies that the Planning and Rules Manager overseeing the rule development of Proposed Rule 1407.1 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of the proposed rule is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE BE IT RESOLVED, that the South Coast AQMD Governing Board has considered the Final EA for Proposed Rule 1407.1 together with all comments received during the public review period, and, on the basis of the whole record before it, the South Coast AQMD Governing Board: 1) finds that the Final EA, including the responses to the comment letters, was completed in compliance with CEQA and the South Coast AQMD's Certified Regulatory Program, 2) finds that the Final EA and all supporting documents were presented to the South Coast AQMD Governing Board, whose members exercised their independent judgment and reviewed, considered and approved the information therein prior to acting on Proposed Rule 1407.1, and 3) certifies the Final EA; and

BE IT FURTHER RESOLVED, that because no significant adverse environmental impacts were identified as a result of adopting Proposed Rule 1407.1, Findings, a Statement of Overriding Considerations, and a Mitigation, Monitoring, and Reporting Plan are not required and were not prepared; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Rule 1407.1 as set forth in the attached, and incorporated herein by reference.

DATE: _______________ ______________________________

CLERK OF THE BOARDS

ATTACHMENT F

(Adopted January 8, 2021)

PROPOSED RULE 1407.1. CONTROL OF TOXIC AIR CONTAMINANT EMISSIONS FROM CHROMIUM ALLOY MELTING OPERATIONS

[*Rule Index to be included after adoption*]

(a) Purpose

The purpose of this rule is to reduce emissions of toxic air contaminants from chromium alloy melting operations.

(b) Applicability

This rule applies to an owner or operator of a facility conducting chromium alloy melting, including smelters (primary and secondary), foundries, die-casters, mills, and other establishments conducting miscellaneous melting processes.

(c) Definitions

(1) AGGREGATE HEXAVALENT CHROMIUM MASS EMISSIONS means the sum of hexavalent chromium mass emissions in milligrams per hour from all chromium alloy melting furnaces and associated emission control devices.

(2) ALLOY STEEL means a steel that contains a variety of elements, such as manganese, silicon, nickel, titanium, copper, chromium, and aluminum, in total amounts between 1.0 and 50 percent by weight, in addition to iron and carbon.

(3) APPROVED CLEANING METHODS means cleaning using wet wash, wet mop, damp cloth, or low pressure spray; sweeping with use of dust suppressing sweeping compounds; or vacuuming with a vacuum equipped with filter(s) rated by the manufacturer to achieve a 99.97 percent control efficiency for 0.3 micron particles.

(4) BAG LEAK DETECTION SYSTEM means a system that monitors electrical charge transfer based on triboelectric or electrostatic induction to continuously monitor bag leakage and similar failures by detecting changes in particle mass loading in the exhaust.

(5) BUILDING means a type of enclosure that is a structure, enclosed with a floor, walls, and a roof to prevent exposure to the elements (e.g. precipitation or wind).

(6) BUILDING OPENING means any opening that is designed to be part of a building, such as passages, doorways, bay doors, wall openings, roof openings, vents, and windows. Stacks, ducts, and openings to accommodate stacks and ducts are not considered openings.

(7) CAPTURE VELOCITY means the minimum hood induced air velocity necessary to capture and convey air contaminants into an emission collection system.

(8) CASTING means the process of pouring molten metal into a mold or core assembly and then allowing to solidify.

(9) CASTING MATERIAL means any material that is used to form the die, mold, or core assembly in the casting process, including but not limited to, sand, plastic, ceramic, plaster, and clay.

(10) CHROMIUM ALLOY means any metal that is at least 0.5 percent chromium by weight, including, but not limited to, alloy steel, chromium non-ferrous alloy, stainless steel, and superalloy.

(11) CHROMIUM ALLOY MELTING FACILITY means any facility that is conducting chromium alloy melting where the facility is located on one or more contiguous properties within the South Coast AQMD, in actual physical contact or separated solely by a public roadway or other public right-of-way, and is owned or operated by the same person (or by person(s) under common control).

(12) CHROMIUM ALLOY MELTING FURNACE means any apparatus in which chromium alloy(s) is brought to a liquid state, including, but not limited to, blast, crucible, cupola, direct arc, electric arc, hearth, induction, pot, reverberatory, and sweat furnaces, and refining kettles.

(13) CHROMIUM ALLOY MELTING OPERATION means any process conducted where a chromium alloy is melted, poured, casted, and finished including melting in a furnace, casting, casting material removal, metal grinding, and metal cutting.

(14) CHROMIUM NON-FERROUS ALLOY means any alloy that contains less than one percent iron by weight and at least 0.5 percent chromium by weight.

(15) DIE-CASTER means any facility, operation, or process where molten metal is forced under pressure into a mold cavity.

(16) DROSS means the impurities discharged, in solid state, from the metal melting process.

(17) DRY SWEEPING means cleaning using a broom or brush to collect and remove dust, dirt, debris, trash, and any solid particulate matter from a surface without the use of water or dust suppressing sweeping compounds.

(18) DUCT SECTION means any length of duct, including angles and bends, which is contiguous between processes, emission collection systems, emission control devices, or ventilation inlets or outlets. Examples include ducting between a furnace

and heat exchanger; baghouse and scrubber; and scrubber and blower or the exhaust stack itself.

(19) DUST SUPRESSING SWEEPING COMPOUND means non-grit-, oil- or waxed, hygroscopic, or water-based materials used to minimize dust from becoming airborne during sweeping.

(20) EMISSION COLLECTION SYSTEM means any system, including the associated ducting, installed for the purpose of directing, taking in, confining, and conveying an air contaminant, and which, at a minimum, conforms to design and operation specifications given in the most current edition of the *Industrial Ventilation: A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists at the time the permit application is deemed complete by the South Coast AQMD.

(21) EMISSION CONTROL DEVICE means any equipment installed in the exhaust ventilation system of a chromium alloy melting furnace or after the emission collection system for the purpose of collecting and reducing metal emissions.

(22) ENCLOSED STORAGE AREA means any space used to contain materials that has a wall or partition on at least three sides or three-quarters of its circumference, that is at least six inches taller than the height of the materials contained in the space, and that screens the materials stored therein to prevent emissions of the materials into the air.

(23) FINISHING means a metal removal or reshaping process in order to achieve the desired dimensions, physical shape, or surface finish for the metallic parts or casts including, but not limited to, cutting, grinding, sanding, or machining.

(24) FOUNDRY means any facility, operation, or process where metal or a metal alloy is melted and cast.

(25) FUGITIVE METAL DUST EMISSIONS means metal emissions generated from chromium alloy melting operations that enter the atmosphere without passing through a stack or vent designed to direct or control their flow or escape from a stack or vent designed to direct or control their flow without passing through an emission control device.

(26) FURNACE CHARGE means all materials that are added to a chromium alloy melting furnace and brought to a molten state.

(27) HEXAVALENT CHROMIUM means the form of chromium in a valence state of +6.

(28) LOW PRESSURE SPRAY means a liquid stream with a pressure of 35 pounds per square inch or less.

(29) MAINTENANCE AND REPAIR ACTIVITY means a routine process conducted on equipment and/or machinery to keep such equipment in working order or to prevent breakdowns. It also includes an operation or activity to return a damaged or an improperly operating object, to good condition, and it includes any of the following activities that generates or has the potential to generate fugitive metal-dust emissions:

(A) Maintenance or repair activities on any emission collection or control device that vents a chromium alloy melting operation;

(B) Replacement or removal of any duct section associated with a chromium alloy melting operation; or

(C) Metal cutting, metal grinding, or welding that penetrates the metal structure of any equipment and its associated components, used to process chromium alloy(s), such that metal dust within the internal structure or its components can become fugitive metal dust.

(30) METAL CUTTING means a process used to abrasively cut or saw chromium alloy-containing materials, including, but not limited to, ingots, logs, billet stocks, castings, or formed parts, not conducted under a continuous flow of metal removal fluid.

(31) METAL GRINDING means a process used to grind chromium alloy-containing materials, including, but not limited to, ingots, logs, billet stocks, castings, or formed parts, not conducted under a continuous flow of metal removal fluid.

(32) METAL REMOVAL FLUID means a fluid used at the tool and workpiece interface to facilitate the removal of metal from the part; cool the part and tool; extend the life of the tool; or to flush away metal chips and debris. This does not include minimum quantity lubrication fluids used to coat the tool workpiece interface with a thin film of lubricant and minimize heat buildup through friction reduction. Minimum quantity lubrication fluids are applied by pre-coating the tool in the lubricant or by direct application at the tool workpiece interface with a fine mist.

(33) MOLTEN METAL means metal or metal alloy in a liquid state, in which a cohesive mass of metal will flow under atmospheric pressure and take the shape of the container in which it is placed.

(34) RERUN SCRAP means any material that includes returns, trims, punch-outs, turnings, sprues, gates, risers, and similar material intended for remelting that has not been coated or surfaced with any material and was:

(A) Generated at the chromium alloy melting facility as a result of a casting or forming process; or

(B) Generated at another facility as a result of a casting or forming process from materials generated at the chromium alloy melting facility, prior to resale of the product or further distribution in commerce, and includes documentation confirming that the materials were generated at the chromium alloy melting facility.

(35) SCHOOL means any public or private school, including juvenile detention facilities with classrooms, used for the education of more than 12 children at the school in kindergarten through grade 12. A school also includes an Early Learning and Developmental Program by the U.S. Department of Education or any state or local early learning and development programs such as preschools, Early Head Start, Head Start, First Five, and Child Development Centers. A school does not include any private school in which education is primarily conducted in private homes. The term school includes any building or structure, playground, athletic field, or other area of school property.

(36) SCRAP means any metal or metal-containing material that has been discarded or removed from the use for which it was produced or manufactured, and which is intended for reprocessing. This does not include rerun scrap.

(37) SENSITIVE RECEPTOR means any residence including private homes, condominiums, apartments, and living quarters. A sensitive receptor also includes schools, daycare centers, health care facilities such as hospitals or retirement and nursing homes, long-term care hospitals, hospices, prisons, and dormitories or similar live-in housing.

(38) SLAG means the by-product material discharged, in melted state, from the metal melting process.

(39) SMELTER means any facility, operation, or process where heat is applied to ore in order to melt out a base metal.

(40) STAINLESS STEEL means a steel alloy with a minimum of 10.5 percent chromium content by mass.

(41) STEEL means a metal alloy of iron and carbon and other elements.

(42) SUPERALLOY means a heat-resistant metal alloy based on nickel, iron, or cobalt.

(43) USED CASTING MATERIAL means any material that has been exposed to molten metal in the casting process, including but not limited to, sand, plastic, ceramic, plaster, and clay.

(d) Emission Control Requirements

(1) On and after July 1, 2024, an owner or operator of a chromium alloy melting facility shall not exceed the limits listed in Table 1 – Aggregate Hexavalent Chromium Emission Limits for all chromium alloy melting furnaces and associated emission control devices as demonstrated through source tests pursuant to subdivision (h).

Table 1: Aggregate Hexavalent Chromium Emission Limits

Distance to Sensitive Receptor (meters)	**Aggregate Hexavalent Chromium Emission Limit (milligrams per hour)**
Less than 50	0.40
50 to 100	1.5
Greater than 100	1.8

(A) The distance to the sensitive receptor in Table 1 shall be measured from the stack or centroid of two or more stacks to the nearest property line of the closest sensitive receptor, rounded to the nearest meter.

(B) The distance to the nearest sensitive receptor in Table 1 shall be measured at the time the permit application(s) pursuant to paragraph (d)(5) is deemed complete with the South Coast AQMD.

(C) If the location of the emission point of the stack or centroid of the emission points of two or more stacks changes or the throughput of chromium alloys processed in a Permit to Operate increases, the owner or operator shall:

(i) No later than 90 days after the change in stack or centroid of stack emission point location or increase in chromium alloy processing throughput, submit to the Executive Officer a South Coast AQMD permit application(s) to reconcile their permit(s) with the requirements of this rule;

(ii) Re-measure the distance to the nearest sensitive receptor at the time the permit application(s) pursuant to clause (d)(1)(C)(i) is deemed complete with the South Coast AQMD; and

(iii) No later than 18 months after the change in stack or centroid of stack emission point location or increase in chromium alloy processing throughput, not exceed the limits listed in Table 1 – Aggregate Hexavalent Chromium Emission Limits for all chromium alloy melting furnaces and associated emission control devices as demonstrated through source tests pursuant to subdivision (h).

(2) On and after July 1, 2024, an owner or operator of a chromium alloy melting facility shall operate the emission collection system associated with an emission control device at a minimum capture velocity as specified in the most current edition of the *Industrial Ventilation: A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists, at the time the permit application(s) pursuant to paragraph (d)(5) is deemed complete with the South Coast AQMD.

(3) An owner or operator of a chromium alloy melting facility shall not allow any activity associated with chromium alloy melting operation(s) at a facility, including emission collection system operation and the storage, handling, or transfer of any chromium alloy-containing materials, to discharge into the air any air contaminant, other than uncombined water vapor, for a period aggregating more than three minutes in any one hour which is:

(A) Half as dark or darker in shade as that designated as Number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines Information Circular No. 1C8333, (May 1967), as specified in the Health and Safety Code Section 41701 (a); or

(B) Of such opacity as to obscure an observer’s view to a degree equal to or greater than smoke as described in subparagraph (d)(3)(A) or 10 percent opacity.

(4) An owner or operator of a chromium alloy melting facility shall ensure visible emissions from a chromium alloy melting furnace do not escape from the collection location(s) of an emission collection system(s).

(5) On or before January 1, 2022, an owner or operator of a chromium alloy melting facility shall submit the following South Coast AQMD permit applications to the Executive Officer:

(A) An application for a change in permit conditions for permitted chromium alloy melting furnaces and emission control devices to reconcile their permit(s) with the requirements of this rule;

(B) A permit application for chromium alloy melting furnaces and emission control devices installed before *[Date of Adoption]* that previously did not require a written permit pursuant to Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II; and

(C) A permit application to construct new or modify emission control devices for chromium alloy melting furnaces installed before *[Date of Adoption]*.

(e) Prohibitions

(1) An owner or operator of a chromium alloy melting facility shall not melt chromium non-ferrous alloys which have more than:

(A) 0.002 percent arsenic by weight; or

(B) 0.004 percent cadmium by weight.

(2) An owner or operator of a chromium alloy melting facility shall not install a new stack or modify any existing stack to allow emissions associated with chromium alloy melting operations to be released in a horizontal or downward direction.

(3) On and after January 1, 2022, an owner or operator of a chromium alloy melting facility shall not utilize a weather cap that restricts the flow of exhaust air for any vertical stack that is a source of emissions associated with chromium alloy melting operations.

(f) Housekeeping Requirements

(1) On and after July 1, 2021, an owner or operator of a chromium alloy melting facility shall:

(A) Store in closed leak-proof containers, unless being stored within a building at least 20 feet away from any building opening, chromium alloy-containing materials generated as a result of a chromium alloy melting operation that can form any amount of fugitive metal dust emissions including, but not limited to, slag, dross, ash, trash, debris, used casting material, and rerun scrap, and any waste generated from the housekeeping requirements of this subdivision, construction activities of subdivision (g), or any maintenance and repair activity. Chromium alloy-containing material that has been prepared for delivery to a customer is excluded from this requirement;

(B) Store scrap in an enclosed storage area or in a building at least 20 feet away from any building opening;

(C) Transport in closed leak-proof containers, unless being transported within a building, chromium alloy-containing materials generated as a result of a chromium alloy melting operation that can form any amount of fugitive metal dust emissions including, but not limited to, slag, dross, ash, trash, debris, used casting material, and rerun scrap, and any waste generated from the housekeeping requirements of this subdivision, construction activities of subdivision (g), or any maintenance and repair activity. Chromium alloy-containing material that has been prepared for delivery to a customer is excluded from this requirement;

(D) Keep containers with chromium alloy-containing materials pursuant to subparagraphs (f)(1)(A) and (f)(1)(C) closed at all times, except when material is actively deposited into or actively removed from the container;

(E) Keep containers with chromium alloy-containing materials pursuant to subparagraphs (f)(1)(A) and (f)(1)(C) free of liquid and dust leaks;

(F) Collect material(s) captured by an emission control device into sealed leak-proof containers to prevent any fugitive metal dust emissions, except when material(s) are actively removed from the container or being prepared for disposal;

(G) Enclose all filter media of emission control devices associated with chromium alloy melting operations at all times except for unused filter media;

(H) Conduct daily cleaning, using an approved cleaning method, of all floor areas within 20 feet of where chromium alloy melting operation(s) occur, except for areas where metal grinding or metal cutting is conducted under a continuous flow of metal removal fluid;

(I) Conduct weekly cleaning, using an approved cleaning method, of all floor areas within 20 feet of:

(i) Placement or storage of chromium alloy-containing materials, including, but not limited to, ingots, scrap, rerun scrap, dross, slag, ash, and finished products;

(ii) Operation of an emission collection system and emission control device associated with chromium alloy melting operation(s);

(iii) Operation of equipment for handling, mixing, reclaiming, or storing casting material;

(iv) Storage, disposal, recovery, or recycling of waste generated from used casting material, housekeeping requirements of this subdivision, construction activities for subdivision (g), and any maintenance and repair activities, and material(s) captured by an emission control device; and

(v) Any entrance or exit point of a building that houses chromium alloy melting operation(s) and an enclosed storage area;

(J) Conduct quarterly inspection of vents, openings, and ducting of each chromium alloy melting operation emission control device for blockage from accumulated dust and clean blockages from accumulated dust using an approved cleaning method;

(K) Conduct cleaning, at least once every six months, using an approved cleaning method, of all floor areas outside of the building that are subject to foot or vehicle traffic;

(L) Conduct cleaning, at least once every 12 months, using an approved cleaning method, of the entire facility, including any area not specified in subparagraphs (f)(1)(H) through (f)(1)(K), excluding all roof areas;

(M) Conduct cleaning, at least once every 24 months, during the months of June through September, using an approved cleaning method, of all roof areas of the building(s) housing chromium alloy melting operation(s); and

(N) Within one hour of the conclusion of any construction or maintenance and repair activity or event, including, but not limited to, accidents, process upsets, or equipment malfunction, that results in the deposition of fugitive metal dust emissions, conduct cleaning, using an approved method, of the area where the construction or maintenance and repair activity occurred.

(2) On and after July 1, 2021, an owner or operator of a chromium alloy melting facility shall not conduct cleaning using dry sweeping or compressed air in areas where chromium alloy melting operation(s) occur and any area specified in subparagraph (f)(1)(I).

(3) For the housekeeping requirements specified in subparagraphs (f)(1)(H) through (f)(1)(N), an owner or operator of a chromium alloy melting facility may use an alternative housekeeping measure that has been approved, in writing, by the Executive Officer that meets the same air quality objective and effectiveness of the

housekeeping requirement it is replacing. The owner or operator shall submit the request for an alternative housekeeping measure to Rule1407.1@aqmd.gov.

(A) Approved alternative housekeeping measures may not be used retroactively from the date of their approval.

(B) Compliance with the approved alternative housekeeping measures shall constitute compliance with the applicable provisions of subparagraphs (f)(1)(H) through (f)(1)(N).

(g) Building Requirements

(1) On and after July 1, 2021, an owner or operator of a chromium alloy melting facility shall conduct all chromium alloy melting operations in a building.

(2) On and after January 1, 2022, if the building contains building openings to the exterior that are on opposite ends of the building where air can pass through any space where chromium alloy melting operations occur, an owner or operator of a chromium alloy melting facility shall close building openings on one end for each pair of opposing ends of the building, except during the passage of vehicles, equipment, or people, by using one or more of the following:

(A) Door that automatically closes;

(B) Overlapping floor-to-ceiling plastic strip curtains;

(C) Vestibule;

(D) Barrier, such as a large piece of equipment, except if used for a chromium alloy melting operation, that restricts air from moving through the building;

(E) Airlock system; or

(F) Approved alternative method to minimize the release of fugitive metal dust emissions from the building that an owner or operator of a facility has demonstrated to the Executive Officer is an equivalent or more effective method to prevent fugitive metal dust emissions from escaping a building.

(3) On or after January 1, 2022, within 48 hours of discovery of an unintended or accidental breach in a building that results in air passing through any space where chromium alloy melting operations occur, the owner or operator of a chromium alloy melting facility shall notify the Executive Officer and repair the breach within 72 hours of discovery of the breach. If repair of the breach exceeds 72 hours, the owner or operator shall notify the Executive Officer with the estimated time to repair the breach. The owner or operator shall make such notifications to 1-800-CUT-SMOG.

(4) On and after January 1, 2022, an owner or operator of a chromium alloy melting facility shall close all building openings in the roof that are located 15 feet or less above the edge of a chromium alloy melting furnace and where molten metal is poured and cooled, except during the passage of equipment or parts.

(5) On or after January 1, 2022, within 48 hours of discovery of an unintended or accidental breach in a roof that is located 15 feet or less above the edge of a chromium alloy melting furnace and where molten metal is poured and cooled, the owner or operator of a chromium alloy melting facility shall notify the Executive Officer and repair the breach within 72 hours of discovery of the breach. If repair of the breach exceeds 72 hours, the owner or operator shall notify the Executive Officer with the estimated time to repair the breach. The owner or operator shall make such notifications to 1-800-CUT-SMOG.

(6) If implementation of the building requirements specified in paragraph (g)(2) or (g)(4) cannot be complied with due to conflicting requirements set forth by the United States Department of Labor Occupational Safety and Health Administration (OSHA), the California Division of Occupational Safety and Health (Cal/OSHA), or other municipal codes or agency requirements directly related to worker safety, an owner or operator of a chromium alloy melting facility may use an alternative building compliance measure that has been approved, in writing, by the Executive Officer that meets the same air quality objective and effectiveness of the building compliance requirement it is replacing. The owner or operator shall submit the request for an alternative building compliance measure to Rule1407.1@aqmd.gov.

(A) An owner or operator of a chromium alloy melting facility shall implement the approved alternative building compliance measures, no later than 90 days after receiving notification of approval.

(B) Approved alternative building compliance measures may not be used retroactively from the date of approval.

(C) Compliance with the approved alternative building compliance measures shall constitute compliance with the applicable provisions of paragraphs (g)(2) and (g)(4).

(h) Source Testing Requirements

(1) An owner or operator of a chromium alloy melting facility shall submit to the Executive Officer for approval a source test protocol. Unless otherwise approved in writing by the Executive Officer, the source test protocol shall be submitted:

(A) No later than 90 days prior to the source tests required pursuant to subparagraphs (h)(4)(A), (h)(4)(D), and (h)(4)(E);

(B) Within 90 days after the Permit to Construct is issued for new or modified chromium alloy melting furnaces and/or associated emission control devices installed or modified on or after *[Date of Adoption]*; and

(C) Within 90 days after the Permit to Construct or Permit to Operate is issued for a change in stack or centroid of stack emission point location or increase in chromium alloy processing throughput pursuant to clause (d)(1)(C)(i).

(2) The source test protocols required pursuant to paragraph (h)(1) shall include the following:

(A) Source test criteria, all assumptions, and required data;

(B) Calculated target hexavalent chromium emissions in milligrams per hour;

(C) Planned sampling parameters, including the total sample volume for each sample sufficient to demonstrate compliance with the aggregate hexavalent chromium emission limits pursuant to paragraph (d)(1) at the method reporting limit;

(D) Evaluation of the capture efficiency and velocity of the emission collection system(s); and

(E) Information on equipment, logistics, personnel, and other resources necessary to conduct an efficient and coordinated source test.

(3) An owner or operator of a chromium alloy melting facility shall notify the Executive Officer, in writing, of the intent to conduct source testing, at least seven days prior to conducting any source test required by paragraph (h)(4).

(A) The owner or operator of a chromium alloy melting facility shall report a change in the source test date to 1-800-CUT-SMOG at least twenty-four hours prior to the scheduled source test date, except for changes in the source test date due to inclement weather or unforeseen circumstances beyond the control of the owner or operator. The owner or operator shall report a change in the source test date due to inclement weather or unforeseen circumstances as soon as feasible and before the start of the scheduled source test.

(B) The owner or operator of a chromium alloy melting facility shall reschedule the source test date so that the Executive Officer is notified of the rescheduled source test, in writing, at least seven days prior to conducting the rescheduled source test.

(4) An owner or operator of a chromium alloy melting facility shall conduct the following source tests of all chromium alloy melting furnaces, including chromium alloy melting furnaces without emission control devices, and associated emission control device(s) to determine compliance with the applicable aggregate hexavalent chromium emission limit pursuant to paragraph (d)(1), smoke test pursuant to paragraph (j)(3), and the capture velocity or face velocity of each intake of the emission collection system pursuant to paragraph (j)(4):

(A) An initial source test, on or before July 1, 2024, for chromium alloy melting furnaces and/or associated emission control devices permitted before *[Date of Adoption]*;

(B) An initial source test pursuant to subparagraph (h)(1)(B), no later than 120 days after the approval of the source test protocol or within 120 days after construction is completed, whichever is later, for new or modified chromium alloy melting furnaces and/or associated emission control devices installed or modified on or after *[Date of Adoption]*;

(C) An initial source test pursuant to subparagraph (h)(1)(C), no later than 120 days after the approval of the source test protocol or within 120 days after construction is completed, whichever is later, for a change in stack or centroid of stack emission point location or increase in chromium alloy processing throughput pursuant to clause (d)(1)(C)(i);

(D) Periodic source tests, within 60 months after the most recent source test, and once every 60 months thereafter; and

(E) A source test, within six months, if an owner or operator of a chromium alloy melting facility:

(i) Does not conduct any parameter monitoring requirement by the effective date, at the required frequency, or with a monitoring device that is calibrated and in proper working condition as specified in subdivision (j);

(ii) Does not cease operation of furnace(s) associated with the emission control device(s) or emission collection system(s) within 24 hours after discovery of failure and until the emission control device(s) or emission collection system(s) passes the required parameter monitoring as required by paragraph (j)(6); or

(iii) Fails any one parameter monitoring requirement pursuant to subparagraphs (j)(6)(A) through (j)(6)(E) three consecutive times.

(5) An owner or operator of a chromium alloy melting facility shall notify the Executive Officer within five calendar days of receiving source test result(s) that exceeded any of the aggregate hexavalent chromium emission limits specified in paragraph (d)(1), failed the smoke test pursuant to paragraph (j)(3), or does not maintain the velocity of the emission collection system specified in paragraph (j)(4). The owner or operator of a chromium alloy melting facility shall make such notifications to 1-800-CUT-SMOG and shall follow up in writing to the Executive Officer with a copy of the result(s) of the source test(s) within 10 calendar days of notification.

(6) An owner or operator of a chromium alloy melting facility shall conduct source tests representative of typical operating conditions, and in accordance with California Air Resources Board (CARB) Method 425 – *Determination of Total Chromium and Hexavalent Chromium Emissions from Stationary Sources*.

(A) The total sample volume for each sample shall be sufficient to demonstrate compliance with the aggregate hexavalent chromium emission limits pursuant to paragraph (d)(1) at the method reporting limit. Alternatively, run the test for a minimum sampling time of eight hours for each sample, assuming a method reporting limit for hexavalent chromium of 0.05 micrograms per sample or less.

(B) For the purposes of this rule, if at least one test run is below the method reporting limit, the following quantification procedures shall be used:

(i) In situations in which all test runs and analyses indicate levels below the method reporting limit, the compound may be identified as "not detected."

(ii) In cases in which one or more of the test runs and analyses show measured values above the method reporting limit, the runs or analysis that were below the method reporting limit shall be assigned one half of the method reporting limit for that compound.

(7) An owner or operator of a chromium alloy melting facility may use alternative or equivalent source test methods, as defined in United States Environmental Protection Agency (U.S. EPA) 40 CFR Part 60, Section 60.2, if approved in writing by the Executive Officer, in addition to the CARB or the U.S. EPA, as applicable.

(8) An owner or operator of a chromium alloy melting facility shall use a test laboratory approved under the South Coast AQMD Laboratory Approval Program for the test methods cited in this subdivision. If there is no approved laboratory, then approval

of the testing procedures used by the laboratory may be granted by the Executive Officer on a case-by-case basis based on South Coast AQMD protocols and procedures.

(9) An existing source test conducted on or after *[36 months prior to Date of Adoption]* for a chromium alloy melting furnace or associated emission control device existing before *[Date of Adoption]* may be used as the initial source test specified in subparagraph (h)(4)(A) to demonstrate compliance with the emission limits of subdivision (d), so long as the source test meets the following criteria:

(A) The source test conducted is the most recent since *[36 months prior to Date of Adoption]*;

(B) The source test demonstrated compliance with the emission limit requirements of subdivision (d);

(C) The source test demonstrated compliance with emission collection system requirements of paragraphs (j)(3) and (j)(4);

(D) The source test was conducted using applicable and approved test methods and test laboratories specified in paragraphs (h)(6) through (h)(8); and

(E) The report from the source test was evaluated and approved by the Executive Officer.

(10) An owner or operator of a chromium alloy melting facility shall submit reports from source testing conducted pursuant to subdivision (h) to the South Coast AQMD within 90 days of completion of the source testing.

(i) Material Testing Requirements

(1) Using the test method(s) identified in paragraph (i)(2), an owner or operator of a chromium alloy melting facility shall conduct material testing, for each furnace charge, to determine the weight average percentages of arsenic and cadmium contained in materials melted in chromium non-ferrous alloy melting furnaces, excluding rerun scrap. In lieu of material testing pursuant to paragraph (i)(2), the owner or operator may use documentation confirming the weight average percentages of arsenic and cadmium including, but not limited to, metallurgical assays, certificates of analysis, and material specification sheets.

(2) An owner or operator of a chromium alloy melting facility shall use the following test method(s) most applicable to the sample matrix, method detection limit, and interferences:

(A) U.S. EPA-approved method(s);

(B) Active ASTM International method(s); or

(C) Alternative method(s) approved, in writing, by the Executive Officer.

(j) Parameter Monitoring Requirements

(1) Bag Leak Detection System

On and after July 1, 2024, an owner or operator of a chromium alloy melting facility shall operate, calibrate, and maintain a Bag Leak Detection System (BLDS) for all baghouses subject to this rule, regardless of size and position within a series of emission control devices, pursuant to the Tier 3 requirements of Rule 1155 – Particulate Matter (PM) Control Devices.

(2) Pressure Across the Filter Media

On and after July 1, 2024, for each emission control device, an owner or operator of a chromium alloy melting facility shall:

(A) Use a gauge to continuously monitor the pressure drop across each filter stage of the emission control device;

(B) Ensure that the gauge:

(i) Is equipped with ports to allow for periodic calibration in accordance with manufacturer's specifications;

(ii) Is calibrated according to manufacturer's specifications at least once every 12 months;

(iii) Is equipped with a continuous data acquisition system (DAS) that records the data output from the gauge in inches of water column at a frequency of at least once every 60 minutes;

(iv) Generates a data file from the computer system interfaced with each DAS for each calendar day saved in Microsoft Excel (xls or xlsx) or plain text (txt or csv) formats, or other format as approved by the Executive Officer, that tabulates chronological date and time and the corresponding data output value from the gauge in inches of water column; and

(v) Is maintained in accordance with manufacturer's specifications; and

(vi) Is positioned so that it is easily visible and in clear sight; and

(C) Maintain the pressure drop across each filter stage of the emission control device within the range specified by the manufacturer or according to conditions of the Permit to Operate for the emission control device.

(3) For each emission collection system, an owner or operator of a chromium alloy melting facility shall conduct and pass a smoke test during each source test pursuant to paragraph (h)(4), and additionally once every 180 days after the initial source test pursuant to subparagraph (h)(4)(A) through (h)(4)(C), using the procedure set forth in Attachment A – Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device in this rule.

(4) On or before July 1, 2024, and once every 180 days thereafter, for each emission collection system, an owner or operator of a chromium alloy melting facility shall use and keep onsite a calibrated anemometer to measure the capture velocity or face velocity for each intake of the emission collection system of each emission control system, based on its location within a chromium alloy melting operation and its design configuration.

(A) An emission collection system designed with a hood or enclosure shall maintain a capture velocity of at least 200 feet per minute as measured at the face of the enclosure or maintain 95 percent or greater of the minimum velocity that verifies 100 percent collection efficiency according to conditions of the Permit to Operate.

(B) An emission collection system without an enclosing hood that is designed with collection slots shall maintain a capture velocity of at least 2,000 feet per minute or maintain 95 percent or greater of the minimum slot velocity that verifies 100 percent collection efficiency according to conditions of the Permit to Operate.

(C) An emission collection system designed with a canopy hood without an enclosure shall maintain a capture velocity of at least 200 feet per minute across the entirety of all open sides extending from the perimeter of the hood and operating without any cross-drafts or maintain 95 percent or greater of the minimum velocity that verifies 100 percent collection efficiency according to conditions of the Permit to Operate.

(5) Within 24 hours of discovery, an owner or operator of a chromium alloy melting facility shall report to 1-800-CUT-SMOG any of the following:

(A) The cumulative number of hours of BLDS alarm activation pursuant to paragraph (j)(1) and Rule 1155 within any continuous six-month rolling period that has exceeded more than five percent of the total operating hours in that period;

(B) An average pressure across a filter stage of the emission control device that has not been maintained at the range specified in subparagraph (j)(2)(C) as determined by hourly or more frequent recordings by the DAS for the averaging periods below:

(i) A four-hour time period on three or more separate occasions over 60 consecutive days; or

(ii) Any consecutive 24-hour period;

(C) A DAS that has not been recording or generating the data output from the gauge pursuant to clauses (j)(2)(B)(iii) and/or (j)(2)(B)(iv);

(D) A smoke test pursuant to paragraph (j)(3) that has failed; and

(E) An anemometer reading indicating that the required velocity in paragraph (j)(4) has not been maintained.

(6) Starting no later than 24 hours after discovery of failure and until the emission control device(s) or emission collection system(s) passes the required parameter monitoring pursuant to paragraphs (j)(1) through (j)(4), an owner or operator of a chromium alloy melting facility shall not use the associated furnace(s) for production if the owner or operator fails any of the following:

(A) To minimize the BLDS alarm activation pursuant to paragraph (j)(1) and Rule 1155;

(B) To maintain the average pressure pursuant to subparagraph (j)(2)(C);

(C) To record or generate the data output from the gauge using a DAS pursuant to clauses (j)(2)(B)(iii) and/or (j)(2)(B)(iv);

(D) To conduct a passing smoke test pursuant to paragraph (j)(3); and

(E) To maintain the velocity pursuant to paragraph (j)(4).

(7) In the case of a failure of a DAS pursuant to clauses (j)(2)(B)(iii) and/or (j)(2)(B)(iv) to record and/or generate the data output of the gauge due to an emergency beyond the control of an owner or operator of a chromium alloy melting facility, including, but not limited to, power outages and computer malfunctions, the owner or operator shall:

(A) Restore the DAS to working condition no later than 24 hours after the end of the emergency; and

(B) Manually record the data output from the gauge associated with the non-operational DAS, or if the gauge associated with the non-operational DAS is not operating due to the emergency, the pressure as measured by a mechanical gauge, at least once every eight hours until the DAS is restored.

The period of missing DAS data due to the emergency shall not be used to determine compliance with clauses (j)(2)(B)(iii) and/or (j)(2)(B)(iv).

(8) Unreasonable Risk

If the parameter monitoring requirements specified in paragraphs (j)(3) or (j)(4) cannot be conducted due to an unreasonable risk to safety, an owner or operator of a chromium alloy melting facility shall use an alternative parameter monitoring measure that has been approved by the Executive Officer in a source test protocol pursuant to paragraph (h)(2). If there is no safe alternative parameter monitoring measure, as evaluated by the Executive Officer, the owner or operator of a chromium alloy melting facility is no longer subject to the applicable parameter monitoring requirement.

(A) Approved alternative parameter monitoring measures may not be used retroactively from the date of approval.

(B) Compliance with the approved alternative parameter monitoring measures shall constitute compliance with the applicable provisions of paragraph (j)(3) or (j)(4).

(k) Recordkeeping Requirements

An owner or operator of a chromium alloy melting facility shall maintain records of the following:

(1) Quarterly quantities of raw materials processed, including ingots, scrap, and rerun scrap and any purchase records, if applicable, to verify these quantities melted per year;

(2) Material testing data as required by subdivision (i), including description of each material tested, quantity of material processed, test method(s) used, method detection and reporting limits, quality assurance, quality control, and calibration data, and arsenic and cadmium percent by weight for each material tested;

(3) Source test protocols and reports as required by subdivision (h);

(4) Housekeeping activities conducted as required by subdivision (f), including the name of the person conducting the activity and the dates and times at which specific activities were completed;

(5) Documentation of construction and maintenance and repair activities conducted on any equipment or structures associated with chromium alloy melting operation(s) including, but not limited to, chromium alloy melting furnaces and associated emission collection systems and emission control devices; buildings housing

chromium alloy melting operation(s); and enclosed storage areas housing chromium alloy melting materials;

(6) Documentation of repair activities conducted on unintended or accidental breaches to buildings and roofs and log of notifications to 1-800-CUT-SMOG as required by paragraphs (g)(3) and (g)(5);

(7) Inspection, calibration documentation, and maintenance of emission control devices and parameter monitoring equipment as required by subdivision (j), including the name of the person conducting the activity and the dates and times at which specific activities were completed;

(8) Cumulative number of hours of BLDS alarm activation pursuant to paragraph (j)(1) and Rule 1155;

(9) DAS data files as required by clauses (j)(2)(B)(iii) and (j)(2)(B)(iv) and subparagraph (j)(7)(B);

(10) Smoke test documentation as required by paragraph (j)(3) and pursuant to Attachment A – Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device;

(11) Anemometer data collected as required by paragraph (j)(4), including capture or face velocities, the name of the person conducting the measurement, and the dates and times at which the measurement was completed;

(12) Call log of all reporting made to 1-800-CUT-SMOG as required by paragraph (j)(5), including date and time of call and reported parameter monitoring requirement(s); and

(13) Documentation of any repairs or replacements that were performed in order to pass any parameter monitoring as required by paragraph (j)(6).

An owner or operator shall maintain all records and keep these onsite for five years and make such records available to the South Coast AQMD upon request.

(l) Exemptions

(1) An owner or operator of a chromium alloy melting facility that melts no more than one ton of chromium alloy(s) per year shall only be subject to paragraph (k)(1).

(2) Educational facilities, including, but not limited to, universities, colleges, and schools, that melt chromium alloy(s) for purposes of education, shall be exempt from the requirements of this rule.

(3) Jewelers <u>that melt chromium alloy(s) for purposes of jewelry making </u>shall be exempt from the requirements of this rule.

(4) Equipment and operations subject to the requirements of Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Facilities and Rule 1420.2 – Emission Standards for Lead from Metal Melting Facilities shall be exempt from the requirements of this rule.

(5) Brazing, dip soldering, and wave soldering operations shall be exempt from the requirements of this rule.

(6) Metal cutting and metal grinding performed for maintenance and repair activities, except for those associated with the chromium alloy melting operation(s), emission collection systems and emission control devices, and any activities pursuant to subdivisions (f) and (g) that generate or have the potential to generate fugitive metal dust, are exempt from the requirements of this rule.

ATTACHMENT A

Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device

1. Applicability and Principle:

    1.1 Applicability

    This method is applicable to all furnaces where an emission control device is used to capture and control emissions from chromium alloy melting operations.

    1.2 Principle

    Collection of emissions from a chromium alloy melting operation is achieved by the emission collection system associated with the emission control device for the chromium alloy melting operation. Mass emissions at the exhaust of an emission control device is related to capture efficiency at the inlet of the emission collection system. For this reason, total capture shall be maintained. A smoke generator placed within the area where collection of emissions by the emission collection system occurs reveals this capture efficiency.

2. Apparatus:

    2.1 Smoke Generator

    The smoke generator shall be adequate to produce a persistent stream of visible smoke (e.g. Model S102 Regin Smoke Emitter Cartridges). The smoke generator shall not provide excessive momentum to the smoke stream that may create a bias in the determination of collection efficiency. If the smoke generator provides slight momentum to the smoke stream, it shall be released perpendicular to the direction of the collection velocity.

3. Testing Conditions:

    3.1 Equipment Operation

    Any equipment to be smoke tested that is capable of generating heat as part of normal operation shall be smoke tested under those normal operating conditions. Operating parameters of the equipment during the smoke test shall be recorded. The smoke test shall be conducted while the emission collection system and the emission control device are in normal operation. The position of any adjustable dampers that can affect air flow shall be documented. Precautions shall be taken by the facility to evaluate any potential physical hazards to ensure the smoke test is conducted in a safe manner.

3.2 Cross-Draft

The smoke test shall be conducted while the emission collection system and emission control device are in normal operation and under typical draft conditions representative of the facility's chromium alloy melting operations. This includes cooling fans and building openings affecting draft conditions including, but not limited to, vents, windows, doorways, and bay doors, as well as the operation of other workstations and traffic. The smoke generator shall be at full generation during the entire test and operated according to manufacturer's suggested use.

4. Procedure:

4.1 Collection Slots

4.1.1 For workstations equipped with collection slots or hoods, the smoke shall be released at points where emissions from chromium alloy melting operations are generated (e.g. the point where melting occurs). Smoke shall be released at points not to exceed 12 inches apart across ventilated work areas.

4.1.2 Observe the collection of the smoke from the smoke generator and emissions from the operations to the collection location(s) of the emission collection system. Record these observations at each of the points providing a qualitative assessment of the collection of smoke and emissions to the emission collection system.

4.2 Equipment Enclosures

4.2.1 Equipment enclosures include equipment where emissions are generated inside the equipment, and the equipment is intended to have inward air flow through openings to prevent the escape of process emissions. The smoke shall be released at points outside of the plane of the opening of the equipment, over an evenly spaced matrix across all openings with points not to exceed 12 inches apart.

4.2.2 Observe the inward movement of the smoke from the smoke generator and emissions from the operations to the collection location(s) of the emission collection system. Record these observations at each of the points providing a qualitative assessment of the collection of smoke and emissions to the emission collection system.

5. Results:

   A passing smoke test shall demonstrate a direct stream of smoke and emissions to the collection location(s) of the emission collection system without meanderings out of this direct path.

6. Documentation:

   The smoke test shall be documented by photographs or video at each point that clearly show the path of the smoke and emissions. Documentation shall also include a list of equipment tested and any repairs that were performed in order to pass the smoke test. As previously discussed, the documentation shall include the position of adjustable dampers, cross-draft conditions, and the heat input of the equipment, if applicable. The documentation shall be signed and dated by the person performing the test.

ATTACHMENT G

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report
Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations

January 2021

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INTRODUCTION

Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations (PR 1407.1) establishes requirements to reduce toxic air contaminant emissions from melting operations of metals that contain greater than 0.5 percent chromium content, including, but not limited to alloy steel, chromium non-ferrous alloys, stainless steel, superalloys, and chromium alloys. Metal melting operations, such as smelting, tinning, galvanizing, and other miscellaneous processes where metals are processed in molten form, have the potential to emit toxic air contaminants. PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping and building provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. PR 1407.1 is the first source-specific rule to address toxic air contaminant emissions from the melting of metals containing chromium.

REGULATORY HISTORY

Proposed Rule 1407.1 is a new rule and is a companion rule to Rule 1407 – Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations (Rule 1407). Rule 1407 was adopted in July 1994 to implement the California Air Resource Board's (CARB) Non-Ferrous Metal Melting Airborne Toxic Control Measure (ATCM) adopted in October 1992. Consistent with the ATCM, Rule 1407 requires the reduction of emissions of arsenic, cadmium, and nickel by the installation of air pollution control equipment, parametric monitoring, and housekeeping practices to minimize fugitive particulate emissions. The ATCM did not include ferrous metals since it was beyond the scope of the investigation. CARB intended to evaluate the need for proposed controls for ferrous metal melting operations in the future.

Since both the ATCM and Rule 1407 were only addressing non-ferrous metal melting, there were no source-specific regulatory requirements for ferrous metal melting, specifically alloys containing chromium. In November 2015, to fill this regulatory gap, staff initiated the rule development process to amend Rule 1407 to expand the applicability of the rule from non-ferrous metal melting operations to also include ferrous metal melting operations, and update the existing requirements in the rule. Industry stakeholders had commented that there was insufficient evidence that hexavalent chromium was emitted from metal melting operations and were concerned that more stringent requirements for ferrous metal melting operations would apply to non-ferrous metal melting operations that may be using metals with little or no metal toxic air contaminants. After several working group meetings, industry stakeholders recommended that provisions for non-ferrous and ferrous be separated into two separate rules.

In response to stakeholder comments, in April 2018, staff bifurcated the rulemaking into two rules: Rule 1407, which would address non-chromium metal melting; and Rule 1407.1, which would address chromium alloy melting. In October 2019, Rule 1407 was amended to update mass emission limits from non-chromium metal melting operations. Additionally, Rule 1407 enhanced parameter monitoring provisions for pollution control equipment, added building enclosure provisions to limit fugitive emissions, and updated housekeeping, source testing, recordkeeping, and reporting requirements.

During the initial PR 1407.1 rule development, staff and industry stakeholders recognized that additional emissions data was needed for chromium alloy melting operations. Staff developed the initial PR 1407.1 as an information-gathering rule, which included requirements for submittal of an operational information survey, emissions testing, metals composition testing, and recordkeeping. Staff presented the initial PR 1407.1 to the Governing Board in November 2018. At that time, the California Metals Coalition (CMC) presented an alternative approach for source testing chromium alloy melting operations to obtain the needed emissions data. The Governing Board directed staff to work with CMC on the source testing approach. After working with CMC to finalize the source testing approach, in November 2018 staff presented to the Stationary Source Committee the proposal for South Coast AQMD to fund source tests at three volunteer facilities, that would remain anonymous. The source testing would be conducted by a third-party consultant funded by the South Coast AQMD, and the results would be used to inform the rule development. Source testing began in January 2019 and was completed in February 2020. (Details of the source testing results are discussed under "Emissions Testing of Chromium Alloy Melting Operations" in this chapter). Staff re-initiated rulemaking for PR 1407.1 in April 2020.

METAL TOXIC AIR CONTAMINANTS AND HEALTH EFFECTS

Metal melting operations with chromium alloys, such as alloy steel, chromium non-ferrous alloys, stainless steel, and superalloys can result in toxic air contaminant emissions of arsenic, cadmium, hexavalent chromium, and nickel. Arsenic, cadmium, hexavalent chromium, and nickel have high relative risks compared to other toxics. Hexavalent chromium has a significantly higher cancer potency factor than the other metal toxic air contaminants.

The California Office of Environmental Health Hazard Assessment (OEHHA) classifies these metals as toxic air contaminants[1] and publishes their cancer potency[2] and non-cancer reference exposure levels[3]. Cancer potency provides the potency based on the dose and response of a specific toxic air contaminant and is based on the unit risk values for the various exposure pathways (i.e. inhalation, oral, dermal). A unit risk value is an estimation of the lifetime cancer risk associated with an exposure to a toxic air contaminant at a certain concentration through one of the exposure pathways. Although nickel and arsenic have cancer potency factors, these metals also have reference exposure levels for non-cancer 1-hour acute inhalation. Table 1-1 provides the OEHHA inhalation unit risks for arsenic, cadmium, hexavalent chromium, and nickel based on chronic inhalation exposure to these metals at an air concentration of 1 $\mu g/m^3$.

[1] Toxic Air Contaminants, California Office of Environmental Health Hazard Assessment, https://oehha.ca.gov/air/toxic-air-contaminants

[2] Appendix A: Hot Spots Unit Risk and Cancer Potency Values, California Office of Environmental Health Hazard Assessment, May 2019, https://oehha.ca.gov/media/downloads/crnr/appendixa.pdf

[3] California Office of Environmental Health Hazard Assessment, November 2019, https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary

Table 1-1: OEHHA Inhalation Unit Risk of Metals

Metal	Inhalation Unit Risk Value $[(\mu g/m^3)^{-1}]$
Arsenic	3.3×10^{-3}
Cadmium	4.2×10^{-3}
Chromium (hexavalent)	1.5×10^{-1}
Nickel	2.6×10^{-4}

Based on the OEHHA inhalation unit risk values in Table 1-1, the cancer potency of hexavalent chromium is two orders of magnitude greater than arsenic and cadmium and three orders of magnitude greater than nickel.

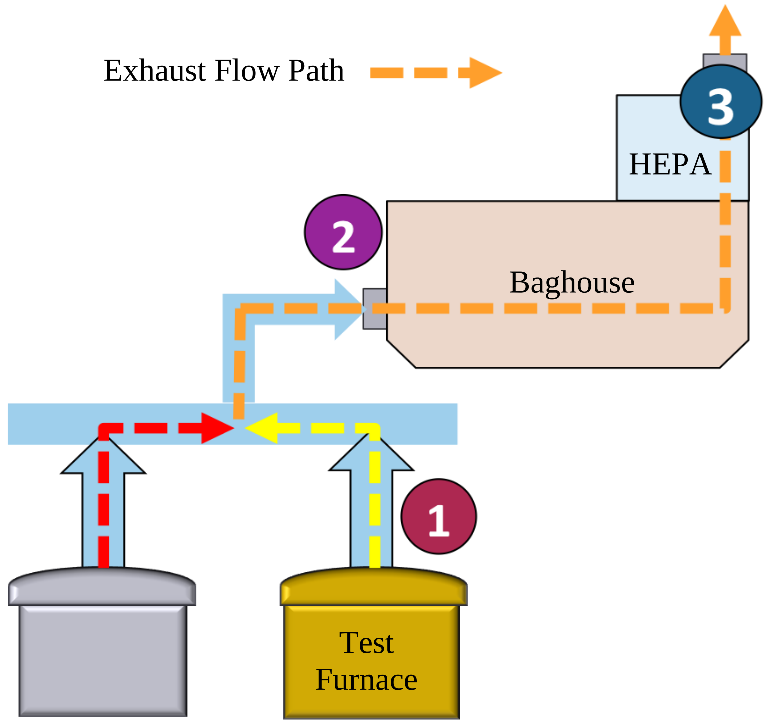
EMISSIONS TESTING OF CHROMIUM ALLOY MELTING OPERATIONS

The South Coast AQMD worked with the California Metals Coalition (CMC) to identify three chromium alloy melting facilities that would volunteer to participate in the source testing. South Coast AQMD and CMC agreed that: the facilities would remain anonymous; a third-party consultant would conduct the emissions source testing; and South Coast AQMD would pay for the source tests. Source testing was completed at two facilities, Facility A and Facility C; the third facility, Facility B, went out of business prior to conducting the source tests.

Source Testing

The purpose of source testing was to confirm the formation of hexavalent chromium emissions from chromium alloy melting operations, quantify toxic air contaminant emissions (arsenic, cadmium, hexavalent chromium, and nickel) from chromium alloy melting operations, and assess the effectiveness of associated pollution control devices. The source tests quantified the emissions of arsenic, cadmium, total chromium, hexavalent chromium, nickel, and particulate matter at three locations of the operations (see Figure 1-1): 1) Inlet 1 Furnace (Inside), inside the exhaust duct solely venting the test furnace; 2) Inlet 2 (Upstream to Baghouse), inside the exhaust duct venting multiple furnaces at the inlet of the air pollution control device; and 3) Exhaust, at the outlet of the air pollution control device. At the tested facilities, the air pollution control device was a baghouse with a high-efficiency particulate air (HEPA) filter.

Figure 1-1: Sampling Locations



Source Test Results[4]

Source testing was completed at two facilities, Facility A and Facility C. Table 1-2 summarizes the operating conditions at Facilities A and C during the source test.

Table 1-2: Operating Conditions at Source-Tested Facilities

Facility	Test Furnace	Melt Temperature (˚F)	Material	Emission Capture System	Emission Control System
A	Furnace Type: 1,000 kW Electric Induction, Crucible-Type Melt Capacity: 4,500 lbs	2925	316 Stainless Steel • Cr: 16 – 18% • Ni: 10 – 14%	• Slot exhaust system that mounts furnace • Mobile overhead hood during metal pour process	Baghouse with HEPA filter • Inlet combines multiple furnaces • 2 other furnaces were operating at 2,425°F and melting AMS 4881 (Cr: ≤0.05%; Ni: 4 – 6%)
C	Furnace Type: 1,500 kW Electric Induction, Crucible-Type Melt Capacity: 6,000 lbs	2619	25CH Chrome Iron • Cr: 23 – 30% • Ni: 2 – 3%	• Slot exhaust system that mounts furnace	Baghouse with HEPA filter • Inlet combines multiple furnaces • 1 other furnace was operating at 2,619°F and melting 25CH

The source test results at both facilities provided quantification of toxic air contaminants from chromium alloy melting operations and assessment of the effectiveness of the current pollution control technology in use during the source test. The full source test reports submitted by the third-party consultant were evaluated and approved by the South Coast AQMD. Table 1-3 summarizes the results of the source tests as reported in the Source Test Report Evaluations completed by the South Coast AQMD. For each sampling location, the results are presented as an average of the three two-hour test runs, except for particulate matter, which was sampled once for two-hours at each sampling location.

[4] Proposed Rule 1407.1 Source Testing, South Coast AQMD, accessed August 2020 http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/proposed-rule-1407-1-source-testing

Table 1-3: Source Test Results

Toxic Air Contaminant	Facility A			Facility C		
	Inlet 1 Furnace (Inside)	Inlet 2 (Upstream to Baghouse)	Exhaust	Inlet 1 Furnace (Inside)	Inlet 2 (Upstream to Baghouse)	Exhaust
	(mg/hr)			(mg/hr)		
Arsenic	Non-Detect (<2.86)	Non-Detect (<24.89)	Non-Detect (<31.14)	5.9	8.7	Non-Detect (<5.7)
Cadmium	Non-Detect (<1.89)	Non-Detect (<25.78)	Non-Detect (<31.14)	Non-Detect (<0.69)	Non-Detect (<3.7)	Non-Detect (<5.7)
Total Chromium	350.19	291.43	Non-Detect (<64.74)	922.8	1016.5	Non-Detect (<3.4)
Hexavalent Chromium	44.13	56.55	Non-Detect (<1.73)	10.2	14.9	Non-Detect (<0.78)
Nickel	109.74	596.76	73.40	105.6	168.7	7.1
Particulate Matter	93,324	349,569	106,845	122,533	283,356	61,568

"Non-Detect" means the result was below the limit of detection and was reported with respect to the limit of detection of the analytical instrument or method (e.g. report "<10 ppm", if detection limit is 10 parts per million).

The source tests at Facilities A and C confirm the formation of hexavalent chromium from melting operations of metals containing chromium. The source test results and report evaluations for both facilities demonstrated the following:

- Hexavalent chromium emissions occur during the chromium alloy melting process;
- Hexavalent chromium emissions were found at the exhaust of the test furnace and inlet of the baghouse;
- The baghouse and HEPA filter substantially reduced emissions of hexavalent chromium and other toxic air contaminants; and
- Based on observations during the capture and collection efficiency testing at both facilities, improvements can be made to the capture efficiency of the emission collection system to ensure fugitive emissions are collected and directed to the control device.

At both facilities, source test results indicate the presence of hexavalent chromium at the individual exhaust duct of the test furnace melting the chromium alloy (Inlet 1 Furnace [Inside]) and the exhaust duct venting multiple furnaces at the inlet of the control device (Inlet 2 [Upstream to

Baghouse]). This confirms hexavalent chromium emissions are directly formed from the chromium alloy melting process and the hexavalent chromium emissions persist in the air stream before entering the control device. The uncontrolled average mass emission rates of hexavalent chromium measured at these two sampling locations exceed the Screening Emissions Level in the South Coast AQMD Risk Assessment Procedures[5] for hexavalent chromium by approximately 26 to 33 times for Facility A and approximately 6 to 9 times for Facility C, assuming that the screening emissions level is based on a cancer risk of 25 in a million for a receptor located 100 meters in the downwind direction from a facility operating 12 hours a day for 300 days per year.

Source test results at the outlet of the HEPA filter stage of the control device (Exhaust) showed that the baghouse and HEPA filter reduced the hexavalent chromium emissions from the test furnace at both facilities to non-detect levels. Using the same previous assumptions for screening emissions, these levels are below the South Coast AQMD Screening Emissions Level for hexavalent chromium for both facilities.

Arsenic and cadmium emissions at the three sampling locations were found to be non-detect or close to non-detect levels at both facilities, confirming that chromium alloys contain only trace levels of arsenic and cadmium. Testing also showed that melting of chromium alloys containing nickel generates nickel emissions, as demonstrated in the results at each of the sampling locations. The baghouse and HEPA filter also significantly reduced the nickel emissions from the test furnace. The average mass emission rates of nickel at the three sampling locations are well below the South Coast AQMD Screening Emissions Level for nickel, based on the same previous assumptions.

Test runs at each sampling location were two hours. A test run conducted for these types of source tests is typically longer. A longer test run results in a lower detection limit and may show lower quantifiable results or results that are still below a lower limit of detection for these toxic air contaminants. Nonetheless, the non-detect results from the two source tests indicate that the level of the toxic air contaminant found at the specific sampling location is below the limit of detection determined for that sampling location from the test runs.

In addition to the sampling of multiple metals, observation of capture and collection efficiency was conducted during the source testing at both facilities. Facilities A and C utilized capture systems that rely on the furnace lid being in a predominately closed position. During testing, South Coast AQMD staff observed that capture of emissions was periodically escaping the control system when the lid to the furnace was temporarily removed for various operational needs (e.g. charging the furnace, de-slagging, pouring operations, etc.). This process is not automated and relies heavily on manual procedures conducted by an operator. Although uncollected emissions cannot be quantified, any uncollected emissions would be significantly higher than if they had been collected since the emissions are not being reduced by the pollution control device. This observation was only made on a single day at each facility to get an estimate of periods when capture is lost. One facility has since modified operations to improve emission capture. Proposed collection efficiency and visible emission provisions are included to address capture and collection efficiency.

Based on these source tests, chromium alloy melting can emit hexavalent chromium at levels exceeding cancer risk screening thresholds if uncontrolled. The test results show that HEPA filters

[5] South Coast AQMD Permit Application Package "N", Table 1, accessed April 2020 http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/attachmentn-v8-1.pdf?sfvrsn=4

are effective in controlling toxic metal particulates emitted from chromium alloy melting to health protective levels.

NEED FOR PROPOSED RULE 1407.1

Melting operations of metals containing chromium, such as alloy steel, chromium non-ferrous alloys, stainless steel, and superalloys, are currently not regulated under a source-specific rule to address toxic air contaminant emissions. The State of California has an Airborne Toxic Control Measure for melting of non-ferrous metals and had plans to develop a companion Airborne Toxic Control Measure for melting of ferrous metals which would likely address chromium alloy melting. Proposed Rule 1407.1 fills a regulatory gap where there is currently no local or state requirements for melting of ferrous and more specifically, chromium alloys.

Emissions testing conducted at two volunteer facilities confirmed that chromium alloy melting can generate hexavalent chromium, arsenic, cadmium, and nickel emissions. Past rulemakings addressing metal melting, heating, finishing, grinding, and other metalworking operations have highlighted the need to also address fugitive toxic metal particulate emissions from these types of operations based on ambient monitoring data in and around these facilities. Based on the results from the emissions testing and past rulemakings, staff recognized the need to address the potentially higher health risks posed by the toxic air contaminants being emitted from chromium metal melting and minimize fugitive toxic metal particulate emissions from chromium alloy melting operations. PR 1407.1 will fill a regulatory gap to address hexavalent chromium and other metal toxic air contaminant emissions from melting operations of metals containing chromium.

AFFECTED FACILITIES

Approximately 11 facilities were identified to be impacted by PR 1407.1. The facilities are foundries or metal casting businesses generally classified under the NAICS codes 331XXX and 332XXX, including:

- 331110 Iron and Steel Mills and Ferroalloy Manufacturing;
- 331512 Steel Investment Foundries;
- 331513 Steel Foundries (except Investment);
- 331529 Other Nonferrous Metal Foundries (except Die-Casting); and
- 332XXX Fabricated Metal Product Manufacturing.

These facilities process iron, steel, and other non-ferrous metals; only those facilities that process metals containing greater than 0.5 percent chromium are subject to PR 1407.1. Carbon steel and iron have no minimum specifications for chromium but are expected to have only trace contaminants of chromium and therefore are not applicable to PR 1407.1. Stainless steels, alloy steels, chromium non-ferrous alloys, and superalloys are expected to have a chromium content greater than 0.5 percent chromium. Stainless steels contain a minimum of 11 percent chromium and include common grades such as Grades 316 and 304. Alloy steels are steels that are alloyed with between 1.0 to 50 percent other elements in addition to carbon and iron. Common alloyants include manganese, nickel, chromium, molybdenum, vanadium, silicon, and boron. Non-ferrous metals that are alloyed with at least 0.5 percent chromium are chromium non-ferrous alloys. Chromium non-ferrous alloys include cobalt- and nickel-based superalloys, cobalt-chromium-tungsten alloys, and aluminum-, copper-, lead-, and zinc-based alloys that contain at least 0.5 percent chromium. Superalloys are alloys that can be use at high temperatures. Nickel based superalloys are the most common superalloys and are alloyed with carbon, chromium, molybdenum, tungsten, niobium, iron, titanium, aluminum, vanadium, and tantalum.

Foundries, mills, and manufactures subject to PR 1407.1 process stainless steels, alloy steels, chromium non-ferrous alloys, and superalloys. These facilities make ingots or shapes including bars, plates, rods, sheets, strips, or wire. Foundries manufacture castings, including investment castings that leave a seamless mold providing a highly detailed and consistent casting. Foundries also make castings in which the molten metal is poured into a mold and allowed to solidify. Operations that cast molten metal into various parts and products are classified by the type of part they manufacture. Often these facilities cast parts for a wide variety of industries.

Mills and foundries melt and cast alloys which are a combination of metals and elements that provide qualities such as corrosion resistance or strength. Common chromium alloy materials include chromium ranging from 0.5 to 26 percent and nickel ranging from 0.3 to 28 percent.

Metal emissions may occur during metal melting, transfer, pouring, and sand reclamation. Emissions may also occur during casting shakeout when the casting is freed from the mold. Metal cutting and metal grinding can emit particulates that may contain toxic air contaminants. Fugitive emissions may result from crushing, grinding, and handling of materials used with or exposed to the molten metals. Other potential sources of emissions are re-entrainment of surface dust by foot and vehicle traffic in areas of the facility where metal-containing particulate matter has been deposited. Lastly, emissions may occur from the collection points of an emission control device or from the exhaust of an emission control device.

The 11 facilities identified that would be subject to PR 1407.1 were found by reviewing South Coast AQMD permits for chromium alloy melting furnaces, reviewing South Coast AQMD inspector reports for facilities that conduct operations with chromium alloys, searching websites for facilities that offer chromium alloy melting services, discussions with stakeholders and industry groups, and site visits to 10 of the 11 identified affected facilities. Staff's work on Rule also helped to identify facilities that are affected under PR 1407.1. Facilities that conduct heat treating or other metalworking operation but do not melt the metal were excluded. Additionally, facilities that melt metals but do not melt alloy steel, chromium non-ferrous alloys, stainless steel, or superalloys were excluded. The number of affected facilities is the best estimate from the methods and exclusion criteria used to identify facilities that would be subject to PR 1407.1. There may be facilities conducting chromium alloy melting that were not able to be identified using these methods but would still be subject to the proposed rule.

PUBLIC PROCESS

PR 1407.1 was conducted through a public process. The Working Group originally met under Proposed Amended Rule 1407 (PAR 1407). Based on industry stakeholder input, PAR 1407 was separated into two rulemakings: PAR 1407 and PR 1407.1. Seven Working Group Meetings were conducted prior to the November 2018 Governing Board Meeting where the Governing Board directed staff to conduct source testing; and five additional Working Group Meetings after completion of source testing. The first seven Working Group Meetings were held at the South Coast AQMD Headquarters in Diamond Bar, CA on the following dates: September 5, 2017; November 9, 2017; January 30, 2018; April 25, 2018; June 6, 2018; July 10, 2018; and August 9, 2018. Due to COVID-19, the last five Working Group Meetings were held remotely on the following dates: April 8, 2020; July 9, 2020; August 6, 2020; August 27, 2020; and September 10, 2020. A Public Workshop was held remotely on October 14, 2020.

CHAPTER 2: SUMMARY OF PROPOSAL

INTRODUCTION

Proposed Rule 1407.1 (PR 1407.1) establishes requirements for controlling toxic air contaminant emissions from chromium alloy melting operations, including collection efficiency and hexavalent chromium mass emission limits to control point source emissions; housekeeping and building provisions to minimize fugitive emissions; and source testing, parameter monitoring, material testing, and recordkeeping requirements. Many of the provisions in PR 1407.1 are based on similar types of provisions used for Rules 1407 – Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations, 1420 – Emissions Standard for Lead, 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities, 1420.2 – Emission Standards for Lead from Metal Melting Facilities, and 1430 – Control of Emissions from Metal Grinding Operations at Metal Forging Facilities, which were recently adopted or amended.

PROPOSED RULE 1407.1

Purpose (Subdivision (a))

The purpose of PR 1407.1 is to reduce point source and fugitive emissions of toxic air contaminants, in particular arsenic, cadmium, hexavalent chromium, and nickel, from facilities conducting chromium alloy melting, thereby minimizing public health impacts by controlling exposure to toxic air contaminants at health protective levels. Chromium alloys typically contain high amounts of chromium and nickel and trace amounts of arsenic and cadmium. Source tests of two chromium alloy melting furnaces show that hexavalent chromium is formed and emitted during the melting process.

The proposed purpose is as follows:

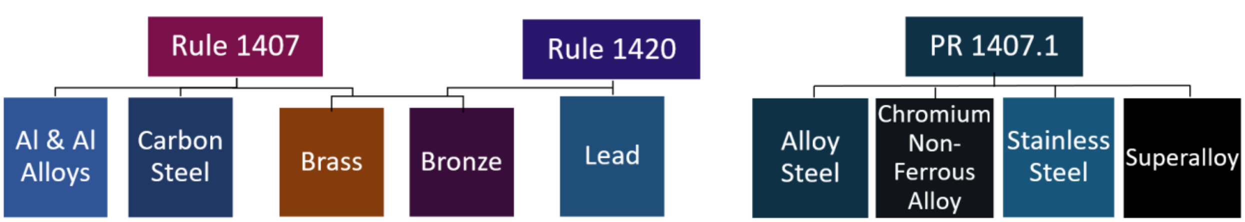
> *The purpose of this rule is to reduce emissions of toxic air contaminants from chromium alloy melting operations.*

Applicability (Subdivision (b))

PR 1407.1 will apply to facilities conducting chromium alloy melting. Chromium alloy is defined as a metal that is at least 0.5 percent chromium by weight and includes alloy steel, chromium non-ferrous alloys, stainless steel, and superalloys. Facilities conducting chromium alloy melting include smelters, foundries, die-casters, and other miscellaneous melting processes.

With the adoption of PR 1407.1, metal melting operations will be regulated by metal or alloy as depicted in Figure 2-1 below.

Figure 2-1: Metal or Alloy Addressed Under Different South Coast AQMD Metal Melting Rules

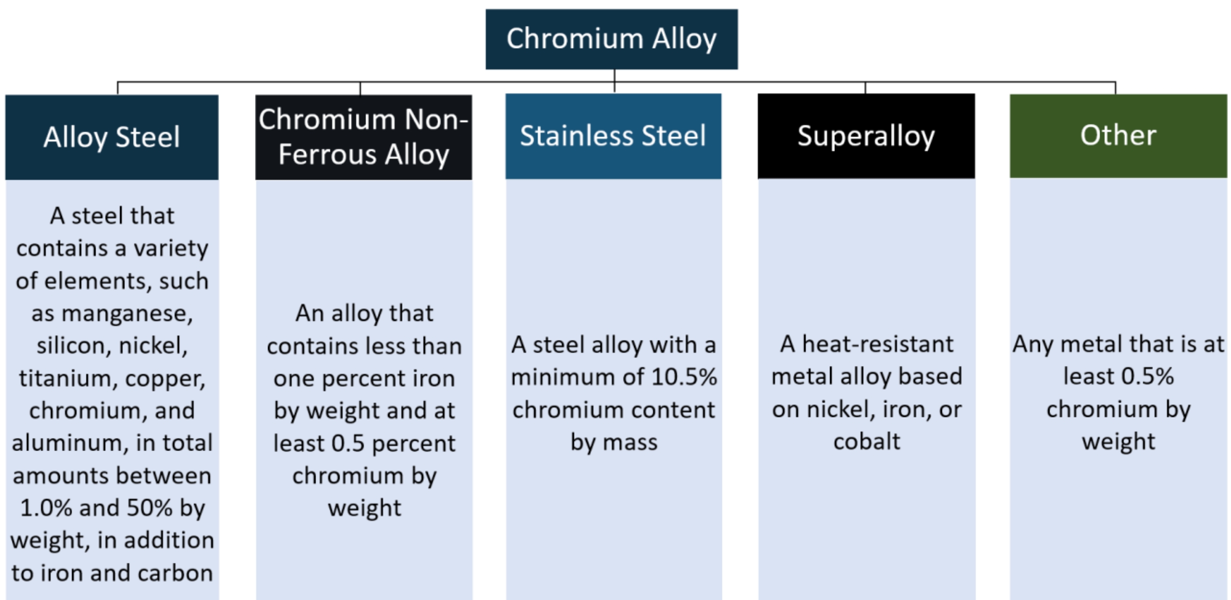


The proposed applicability is as follows:

> *This rule applies to an owner or operation of a facility conducting chromium alloy melting, including smelters (primary and secondary), foundries, die-casters, mills, and other miscellaneous melting processes.*

The applicability of PR 1407.1 specifies chromium alloy melting where chromium alloy is defined as any metal that is at least 0.5 percent chromium by weight, including, but not limited to, alloy steel, chromium non-ferrous alloy, stainless steel, and superalloy. Alloy steel, stainless steel, steel, and superalloy are standard industry definitions. Figure 2-2 below presents the definitions of chromium alloy and the different types of chromium alloys applicable to this rule.

Figure 2-2: Chromium Alloy



Chromium non-ferrous alloys are subject to requirements established in the California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) for Non-Ferrous Metal Melting[6].

Definitions (Subdivision (c))

PR 1407.1 includes definitions to clarify and explain key concepts. The definitions used also maintain consistency with other South Coast AQMD Regulation XIV – Toxics and Other Non-Criteria Pollutants rules. Please refer to PR 1407.1 subdivision (c) for each definition.

[6] Airborne Toxic Control Measure for Emissions of Toxic Metals from Non-Ferrous Metal Melting, CARB, 1998 https://ww2.arb.ca.gov/sites/default/files/classic//toxics/atcm/metalm.pdf

Proposed Definitions:

Aggregate Hexavalent Chromium Mass Emissions	Finishing
Alloy Steel	Foundry
Approved Cleaning Methods	Fugitive Metal Dust Emissions
Bag Leak Detection System	Furnace Charge
Building	Hexavalent Chromium
Building Opening	Low Pressure Spray
Capture Velocity	Maintenance and Repair Activity
Casting	Metal Cutting
Casting Material	Metal Grinding
Chromium Alloy	Metal Removal Fluid
Chromium Alloy Melting Facility	Molten Metal
Chromium Alloy Melting Furnace	Opening
Chromium Alloy Melting Operation	Rerun Scrap
Chromium Non-Ferrous Alloy	School
Die-Caster	Scrap
Dross	Sensitive Receptor
Dry Sweeping	Slag
Duct Section	Smelter
Dust Suppressing Sweeping Compound	Stainless Steel
Emission Collection System	Steel
Emission Control Device	Superalloy
Enclosed Storage Area	Used Casting Material

Additional definitions for the types of materials subject to these requirements are as follows:

> ***RERUN SCRAP*** *means any material that includes returns, trims, punch-outs, turnings, sprues, gates, risers, and similar material intended for remelting that has not been coated or surfaced with any material and was:*
>
> *(A) Generated at the chromium alloy melting facility as a result of a casting or forming process; or*
>
> *(B) Generated at another facility as a result of a casting or forming process from materials generated at the chromium alloy melting facility, prior to resale of the product or further distribution in commerce, and includes documentation confirming that the materials were generated at the chromium alloy melting facility.*
>
> ***SCRAP*** *means any metal or metal-containing material that has been discarded or removed from the use for which it was produced or manufactured, and which is intended for reprocessing. This does not include rerun scrap.*

PR 1407.1 will establish point source control requirements that will apply to all chromium alloy melting furnaces and associated emission control devices, and housekeeping and building provisions that will limit fugitive emissions from chromium alloy melting operations. Chromium alloy melting operations include metal melting, pouring, casting, and finishing including metal cutting and grinding, where metal cutting includes any process using cutting or sawing equipment, including industry non-abrasive cutting equipment (e.g., tooth saw blades). Chromium alloy melting operations do not include welding nor laser cutting.

Definitions proposed to address these point and fugitive emission sources subject to PR 1407.1 are as follows:

> ***AGGREGATE HEXAVALENT CHROMIUM MASS EMISSIONS*** *means the sum of hexavalent chromium mass emissions in milligrams per hour from all chromium alloy melting furnaces and associated emission control devices.*
>
> ***APPROVED CLEANING METHODS*** *means cleaning using wet wash, wet mop, damp cloth, or low pressure spray; sweeping with use of dust suppressing sweeping compounds; or vacuuming with a vacuum equipped with filter(s) rated by the manufacturer to achieve a 99.97 percent control efficiency for 0.3 micron particles.*
>
> ***CHROMIUM ALLOY MELTING FACILITY*** *means any facility that is conducting chromium alloy melting where the facility is located on one or more contiguous properties within the South Coast AQMD, in actual physical contact or separated solely by a public roadway or other public right-of-way, and is owned or operated by the same person (or by person(s) under common control).*
>
> ***CHROMIUM ALLOY MELTING FURNACE*** *means any apparatus in which chromium alloy(s) is brought to a liquid state, including, but not limited to, blast, crucible, cupola, direct arc, electric arc, hearth, induction, pot, reverberatory, and sweat furnaces, and refining kettles.*
>
> ***CHROMIUM ALLOY MELTING OPERATION*** *means any process conducted where a chromium alloy is melted, poured, casted, and finished including melting in a furnace, casting, casting material removal, metal grinding, and metal cutting.*
>
> ***DRY SWEEPING*** *means cleaning using a broom or brush to collect and remove dust, dirt, debris, trash, and any solid particulate matter from a surface without the use of water or dust suppressing sweeping compounds.*
>
> ***DUST SUPPRESSING SWEEPING COMPOUND*** *means non-grit-, oil- or waxed, hygroscopic, or water-based materials used to minimize dust from becoming airborne during dry sweeping.*
>
> ***USED CASTING MATERIAL*** *means any material that has been exposed to the molten metal in the casting process, including but not limited to, sand, plastic, ceramic, plaster, and clay.*

Emission Control Requirements (Subdivision (d))

Aggregate Hexavalent Chromium Emission Limits (paragraph (d)(1))

PR 1407.1 establishes mass emission standards for hexavalent chromium. Among the metal particulate toxic air contaminants emitted from chromium alloy melting, hexavalent chromium is the cancer risk driver based on its potency and emissions contribution relative to other metal toxic air contaminants. Controlling hexavalent chromium, will concurrently reduce the other metal particulate toxic air contaminants and ensure the resulting emissions from chromium alloy melting are health protective. Focusing on the control of hexavalent chromium streamlines the implementation of emission control requirements and reduces source testing costs since source testing for the arsenic, cadmium, and nickel requires an additional test method. An overview of the approach for establishing aggregate mass emission standards for hexavalent chromium is presented as follows:

1) Verify hexavalent chromium is the risk driver;
2) Set an initial mass emission standard for hexavalent chromium based on the source tests of two chromium alloy melting furnaces;
3) Verify that the initial mass emission standard for hexavalent chromium is health protective for all affected facilities; and
4) If the initial mass emission standard for hexavalent chromium is not health protective for an affected facility, set a lower mass emission standard.

To verify that hexavalent chromium is the cancer risk driver, staff evaluated: 1) the cancer potency of hexavalent chromium relative to arsenic, cadmium, and nickel; and 2) the mass emissions of each of these toxic air contaminants from the exhaust stack, accounting for cancer potency. Based on the OEHHA inhalation unit risk values in Table 1-1 of the Staff Report, the cancer potency of hexavalent chromium is two orders of magnitude greater than arsenic and cadmium and three orders of magnitude greater than nickel. Although the cancer potency of hexavalent chromium is significantly higher than arsenic, cadmium, and nickel, it is possible for arsenic, cadmium, or nickel to be the risk driver if the mass emissions of these toxic air contaminants are higher than the mass emission of hexavalent chromium by at least the ratio of the unit risk of hexavalent chromium to the specific toxic air contaminant. The ratio of arsenic, cadmium, or nickel mass emission to hexavalent chromium mass emission needed for any of these toxic air contaminants to be the risk driver is calculated using the ratios of the inhalation unit risk[7] of hexavalent chromium to arsenic, cadmium, and nickel. These calculated ratios are then compared to the ratio of the mass emission rates of arsenic, cadmium, and nickel to hexavalent chromium from an emission point. Using the source test results at the Exhaust for Facilities A and C (see Table 1-3 of the Staff Report), this comparison is presented in Table 2-1 below:

Table 2-1: Comparison of Ratios of Unit Risk and Mass Emission Rates

Toxic Air Contaminant	Unit Risk $(\mu g/m^3)^{-1}$	Ratio of Unit Risk of Hexavalent Chromium to Toxic Air Contaminant	Ratio of Mass Emission Rate of Toxic Air Contaminant to Hexavalent Chromium	
			Facility A (Exhaust)	Facility C (Exhaust)
Chromium (hexavalent)	1.5×10^{-1}	1	1*	1*
Arsenic	3.3×10^{-3}	45	18*	7*
Cadmium	4.2×10^{-3}	36	18*	7*
Nickel	2.6×10^{-4}	577	42	9

* Source test results were non-detect. For the purpose of the mass emission rate ratio calculation, the emission rate was assumed at the detection limit.

[7] Appendix A: Hot Spots Unit Risk and Cancer Potency Values, California Office of Environmental Health Hazard Assessment, May 2019, https://oehha.ca.gov/media/downloads/crnr/appendixa.pdf

Based on the comparisons presented in Table 2-1, the mass emissions of arsenic, cadmium, and nickel from the exhaust of the control device at both facilities are well below the levels that would be needed to exceed hexavalent chromium as the risk driver. For instance, the ratio of the mass emission rate of arsenic to hexavalent chromium is 18 at Facility A and seven at Facility C; for arsenic to be the risk driver, the ratio would need to be at least 45. Furthermore, the contribution of arsenic, cadmium, and nickel emissions to the overall cancer risk from these chromium alloy melting furnace emissions is less than 10 percent based on these ratio comparisons. According to this assessment, hexavalent chromium is the risk driver among these toxic air contaminants and controlling hexavalent chromium will reduce the overall health risk posed by toxic metal emissions from chromium alloy melting.

To develop a mass emission standard for hexavalent chromium for PR 1407.1, staff first looked at the outlet mass emission rates that have been achieved in practice by current pollution control technology for metal particulates from chromium alloy melting operations and confirmed that the outlet mass emission rate was health protective using air dispersion modeling. Based on the Facility A and Facility C source test results (see Table 1-3 of the Staff Report), which showed that the baghouse with high-efficiency particulate air (HEPA) filter in use at the facilities reduced hexavalent chromium emissions to non-detect levels, an initial hexavalent chromium mass emission limit was proposed at 1.8 milligrams per hour. Then, using air dispersion modeling, for each of the 11 facilities that were identified that would be affected by PR 1407.1, the cancer risk at the nearest sensitive receptor was estimated assuming the facility was emitting hexavalent chromium at the initial proposed mass emission limit of 1.8 milligrams per hour (mg/hr). Paragraph (c)(37) defines sensitive receptors which include residences, schools, daycare centers, health care facilities such as hospitals or retirement and nursing homes, long term hospitals, hospices, prisons, and dormitories or similar live-in housing. Assumptions used in the air dispersion modeling included:

- Meteorological conditions based on the nearest meteorological station;
- Exhaust stack of height of 10 meters;
- A yearly facility operating schedule of 16 hours (4 am – 8pm) per day at 365 days; and
- Nearest sensitive receptor is in the downwind direction.

The estimated cancer risk for each of the facilities was compared to established cancer risk thresholds in Rule 1402 – Control of Toxic Air Contaminants from Existing Sources which establishes cancer risk thresholds for existing facilities. Rule 1402 requires facilities to conduct a health risk assessment to implement the AB 2588 Air Toxics "Hot Spots" Program[8]. The cancer risk thresholds under Rule 1402 are designed to address facility-wide emissions at existing facilities. The cancer risk threshold chosen for comparison was the Rule 1402 Notification Risk Level of 10 in-a-million (10×10^{-6}) which is more health protective than the Action Risk Level which is 25 in-a-million for cancer health risk estimates. Under Rule 1402, if the Maximum Individual Cancer Risk (MICR)[9] is above the Action Risk Level of 25 in-a-million (25×10^{-6}), the operator would be required to implement risk reduction measures.

[8] Air Toxics "Hot Spots" Program (AB 2588), accessed July 2020 http://www.aqmd.gov/home/rules-compliance/compliance/toxic-hot-spots-ab-2588

[9] Rule 1402 defines Maximum Individual Cancer Risk (MICR) as the estimated probability of a potential maximally exposed individual contracting cancer as a result of exposure to toxic air contaminants calculated pursuant to the Risk Assessment Procedures referenced in Rule 1402 subdivision (l) for residential receptor locations.

For nine affected facilities, staff has estimated that the nearest sensitive receptor is greater than 100 meters away from the facility and the MICR is less than 10×10^{-6}. For the other two affected facilities, staff has estimated that the nearest sensitive receptor is between 50 to 100 meters for one facility and less than 50 meters away for the other facility and the MICR exceeds 10×10^{-6}. For these two facilities to meet the 10×10^{-6} MICR, the hexavalent chromium mass emission limit was adjusted according to the approximate distance of the nearest sensitive receptor to the facility. Thus, two additional mass emission standards were developed by determining the adjusted mass emission rate using the ratio of the initial proposed mass emission standard to the estimated cancer risk for each of the two facilities, as shown in Table 2-2 below.

Table 2-2: Mass Emission Rate Adjusted for Facilities with Estimated Cancer Risk Above 10 in-a-million Cancer Risk Threshold

Nearest Sensitive Receptor (meters)	MICR ($\times 10^{-6}$) at 1.8 mg/hr	Adjusted Mass Emission Rate (mg/hr) to Meet MICR of 10×10^{-6}
Less than 50	45 (at 25 meters*)	$(\frac{1.8\ mg/hr}{45 \times 10^{-6}})(10 \times 10^{-6}) = 0.40$
50 to 100	12 (at 60 meters)	$(\frac{1.8\ mg/hr}{12 \times 10^{-6}})(10 \times 10^{-6}) = 1.5$

* MICR was calculated at the 25-meter distance due to a sensitive receptor located very close to the facility

Based on these calculations, PR 1407.1 establishes the hexavalent chromium emission limits in Table 1 of paragraph (d)(1), shown here in Table 2-3, to be met no later than July 1, 2024. An owner or operator of a chromium alloy melting facility must demonstrate through source testing that the sum, or aggregate, of hexavalent chromium emissions from all chromium alloy melting furnaces and associated emission control devices meets the aggregate hexavalent chromium emission limit. Metal melting furnaces with and without associated emission control devices are subject to the limits in paragraph (d)(1).

Table 2-3: Aggregate Hexavalent Chromium Emission Limits (On and after July 1, 2024)

Distance to Sensitive Receptor (meters)	Aggregate Hexavalent Chromium Emission Limit (milligrams per hour)
Less than 50	0.40
50 to 100	1.5
Greater than 100	1.8

Per subparagraph (d)(1)(A), the applicable aggregate hexavalent chromium emission limit is determined by the distance measured, rounded to the nearest meter, from the stack or centroid of two or more stacks venting the chromium alloy melting furnaces or operations at the facility to the nearest property line of the closest sensitive receptor. This determination of sensitive receptor distance is consistent with South Coast AQMD Risk Assessment Procedures[10] for a point source. Subparagraph (d)(1)(B) clarifies that the sensitive receptor distances shall reflect sensitive

[10] South Coast AQMD Risk Assessment Procedures for Rules 1401, 1401.1 and 212, Version 8.1, September 1, 2017 http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12

receptors at the time the permit application(s) are deemed complete for new, modified, previously permit-exempt, or existing permitted chromium alloy melting furnaces and/or associated emission control equipment. If the location of the emission point of the stack or centroid of the emission points of two or more stacks venting the chromium alloy melting furnaces or operations changes or the throughput of chromium alloys processed in a Permit to Operate increases, subparagraph (d)(1)(C) requires that permit application(s) be submitted to reconcile the facility's permits with the requirements of the rule no later than 90 days after the stack emission point location change or throughput increase, and the sensitive receptor distance re-measured at the time these permit application(s) are deemed complete. The facility is then required to demonstrate the applicable aggregate hexavalent chromium emission limit based on the re-measured sensitive receptor distance through source testing no later than 18 months after the stack emission point location change or throughput increase. Changes that do not affect the location of the emission point of the stack or centroid of emission points of stacks, such as moving the ducting of the emission control equipment below the stack(s), are not subject to subparagraph (d)(1)(C).

Facilities subject to the 1.8 or 1.5 milligrams per hour mass emission limit are expected to achieve this limit using a baghouse with a HEPA filter, which is certified to achieve a minimum filtration of 99.97 percent for particles sized 0.3 microns or larger. Facilities subject to the more stringent mass emission limit, 0.40 milligrams per hour, may need to install a baghouse with an Ultra Low Particulate Air (ULPA) control technology certified to achieve a minimum filtration of 99.9995 percent for particles sized 0.12 microns or larger to meet the limit. ULPA can provide one order of magnitude of additional control than HEPA.

Provisions in paragraphs (d)(2) through (d)(4) are included to address capture and collection efficiency.

Collection Efficiency (paragraph (d)(2))

On and after July 1, 2024, emission collection systems associated with emission control devices shall be operated at a minimum capture velocity specified in the most current edition of the *Industrial Ventilation: A Manual of Recommended Practice for Design (Industrial Ventilation Manual)*, published by the American Conference of Governmental Industrial Hygienists, at the time a permit application is deemed complete with the South Coast AQMD. As specified in the *Industrial Ventilation Manual*, the minimum collection velocity should be sufficient to overcome the combustion products and heat of combustion and maintain proper collection efficiency to minimize fugitive emissions.

Visible Emissions (paragraphs (d)(3) and (d)(4))

Paragraph (d)(3) includes a provision limiting visible emissions from any activity associated with chromium alloy melting operation(s), including emission collection system operation and storage, handling, or transferring of chromium alloy-containing materials. For a period of more than three minutes in any one hour, visible emissions cannot be half as dark or darker in shade as that designated as Number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or be of such opacity as to obscure an observer's view to a degree equal to or greater than half as dark or darker in shade as that as Number 1 on the Ringelmann Chart or 10 percent opacity. This provision is incorporated based on the CARB ATCM for Non-Ferrous Metal Melting. Since PR 1407.1 applies to melting of chromium non-ferrous alloys, the rule needs to be as stringent as the CARB ATCM for Non-Ferrous Metal Melting.

Paragraph (d)(4) includes a provision which requires operators ensure visible emissions from chromium alloy melting furnaces do not escape from the emission collection system and must have a direct path to the collection location of an emission collection system. This provision allows South Coast AQMD enforcement to visually observe emission collection systems that are not functioning properly and for operators to make improvements to the capture and collection efficiency of their chromium alloy melting operations.

Permitting (paragraph (d)(5))

Existing permitted and unpermitted chromium alloy melting furnaces and emission control equipment as well as new or modified installations of emission control equipment will require permit applications to ensure compliance with rule requirements. PR 1407.1 will require permit applications be submitted by January 1, 2022 for the following:

- Change in permit conditions for permitted chromium alloy melting furnaces and emission control devices to reconcile their permit(s) with the requirements of PR 1407.1;
- Previously Rule 219 exempt unpermitted chromium alloy melting furnaces and emission control devices; and
- New construction or modification of emission control devices for existing chromium alloy melting furnaces.

Prohibitions (Subdivision (e))

PR 1407.1 will establish the following prohibitions effective upon rule adoption: chromium non-ferrous alloys containing high concentrations of arsenic and cadmium; horizontal exhaust stacks; and weather caps.

Chromium Non-Ferrous Alloys Containing Arsenic and Cadmium (paragraph (e)(1))

Paragraph (e)(1) will limit the arsenic and cadmium content of materials melted in chromium non-ferrous alloy melting furnaces, as required by the CARB ATCM for Non-Ferrous Metal Melting[11]. Materials melted in these furnaces cannot contain more than 0.002 percent arsenic or 0.004 percent cadmium by weight. These content limits are the same limits found in the Metal or Alloy Purity Exemption in Rule 1407 and the CARB ATCM for Non-Ferrous Metal Melting. Since arsenic and cadmium are expected to be trace contaminants in chromium alloys, facilities that melt chromium non-ferrous alloys are expected to be able to comply with this requirement.

Horizontal and Downward Exhaust Stacks (paragraph (e)(2))

To ensure that emissions associated with chromium alloy melting operations are discharged vertically which allows greater dispersion and less risk for receptors close to the stack, paragraph (e)(2) will prohibit installations of new exhaust stacks or modifications to existing exhaust stack from releasing emissions in a horizontal or downward direction.

Weather Caps on Exhaust Stacks (paragraph (e)(3))

Effective January 1, 2022, paragraph (e)(3) prohibits the use of weather caps on any vertical stacks associated with chromium alloy melting operations. Weather caps reduce the vertical flow of the exhaust which results in the exhaust not dispersing properly and causing a higher risk for receptors

[11] Airborne Toxic Control Measure for Emissions of Toxic Metals from Non-Ferrous Metal Melting, CARB, 1998 https://ww2.arb.ca.gov/sites/default/files/classic//toxics/atcm/metalm.pdf

close to the stack. Acceptable exhaust caps include butterfly dampers which provide a clear path for air movement when the exhaust fan is operating.

Housekeeping Requirements (Subdivision (f))

Fugitive emissions are generally emissions that are not collected through an air pollution control device and can accumulate on surfaces in and around the facility. These fugitive emissions can then be tracked out via foot or vehicular traffic and become airborne impacting the surrounding community. Housekeeping requirements are proposed to remove emissions resulting from chromium alloy melting operations before they can become fugitive emissions.

Routine Housekeeping (paragraph (f)(1))

Effective July 1, 2021, housekeeping provisions for material storage and transport are contained in subparagraphs (f)(1)(A) through (f)(1)(E); these provisions address storage and transport conditions to minimize fugitive metal dust emissions generated as a result of chromium alloy melting operations from escaping or spilling and being exposed to cross-drafts. Materials such as slag, dross, ash, trash, debris, used casting material, rerun scrap, and waste from cleaning, building construction, and maintenance and repair activities shall be stored and transported in leak-proof containers or within a building at least 20 feet from an opening at all times. Due to the potential of fugitive metal dust emissions from chromium alloy melting operations (e.g. metal grinding or cutting) settling in work areas, rerun scrap is treated as dust-forming chromium-alloy containing material unless the material has been prepared for sale or delivery to a customer. It is possible that scrap, although an outside raw material, may have toxic metal-containing dust that settled on its surface or in the package that it is delivered in. Thus, scrap is not required to be stored in leak-proof container but shall be stored in an enclosed storage area or at least 20 feet away from an opening in a building. Specified in paragraph (c)(22), the enclosed storage area must have a wall or partition that is at least on three sides or three-quarters of its circumference and six inches taller than the materials it is containing. Enclosed storage areas are to protect the materials stored inside of them and help prevent metal dust emissions from these stored materials from becoming airborne. Finished product is excluded from housekeeping provisions for material storage and transport. Containers used for transport and storage must not have any dust or liquid leaks and are required to be closed at all times, except when material is being actively deposited or removed from the containers.

Subparagraphs (f)(1)(F) and (f)(1)(G), also effective July 1, 2021, address housekeeping pertaining to emission control devices. Materials collected by emission control devices must be discharged into sealed leak-proof containers except when materials are being actively removed or prepared for disposal, and the filter media of emission control devices, except for unused filter media, must be kept in a housing at all times to prevent exposure to external air. Housing describes the outer structure of the baghouse device in which filter bags are suspended.

Additionally, effective July 1, 2021, housekeeping provisions for routine cleaning with an approved cleaning method are proposed to minimize the accumulation of metal dust on floors and surfaces in and around the facility and in collection slots and ducts of emission control devices. Frequency for cleaning ranges from daily to every two years. More frequent cleanings are required in floor areas where chromium alloy melting operations occur and chromium-alloy containing materials and waste generated from the melting operations are handled as these are the main areas of operations activity and would have greater deposition and re-entrainment of metal dust emissions. Frequent cleaning of these floor areas would minimize settled dust from being tracked out of the building from foot and vehicle traffic and becoming airborne. Less frequent routine cleaning is required for equipment and areas where there is likely less metal dust accumulation. These include collection slots and ducts of emission control devices, outdoor areas subject to foot and vehicle traffic, roofs of buildings housing the chromium alloy melting operations due to maintenance and repair activities on emission control devices, and other areas of the facility. While minor amounts of dust may settle in between required cleaning frequencies, regular cleaning should prevent gross accumulation and adequately address fugitive emissions.

Table 2-4 below summarizes the housekeeping provisions for cleaning in subparagraphs (f)(1)(H) through (f)(1)(N):

Table 2-4: Routine Cleaning Housekeeping Provisions

Effective July 1, 2021	
Using an approved cleaning method:	
Daily	Clean all floor areas within 20 feet of chromium alloy melting operations, with the exception for areas where metal grinding or metal cutting is conducted under a continuous flow of metal removal fluid
Weekly	Clean all floor areas within 20 feet of where: • Chromium alloy-containing materials (e.g., ingots, scrap, rerun scrap, dross, slag, ash, and finished products) are stored or placed • Emission collection systems and emission control devices are operated • Casting material is handled, mixed, reclaimed, or stored • Waste from used casting material, housekeeping activities, construction and maintenance and repair activities, and emission control devices is stored, disposed, recovered, or recycled • Any entrance or exit of enclosed storage areas or buildings in which chromium alloy melting operations occur
Quarterly	Inspect and clean collection vents, openings, and ducting of emission control devices to prevent dust building up and clogging
Every Six Months	Clean all floor areas outside of the building where there is foot or vehicle traffic
Every Twelve Months	Clean the entire facility where fugitive metal dust may deposit, including areas that are not already specified in the rule, excluding roof areas
Every Two Years	Clean all roof areas of buildings where chromium alloy melting operations occur during the months of June through September to avoid occurrences of rain
Within an Hour	Clean the area where the construction or maintenance and repair activity or event for equipment associated with chromium alloy melting operations (e.g., accidents, process upsets, or equipment malfunction that results in the deposition of fugitive metal dust emissions) occurred

Prohibitions of Dry Sweeping and Compressed Air Cleaning (paragraph (f)(2))

Effective July 1, 2021, paragraph (f)(2) prohibits dry sweeping, unless a dust suppressing sweeping compound is used, and compressed air cleaning in areas subject to daily and weekly cleaning requirements as shown in Table 2-4. Dry sweeping without the use of a dust suppressing compound and compressed air cleaning have the potential to disperse fugitive emissions into the air. PR 1407.1 does not prohibit use of dry sweeping and compressed air in other areas of the facility not subject to the daily and weekly cleaning requirements.

Alternative Housekeeping Measures (paragraph (f)(3))

Paragraph (f)(3) allows an operator to use alternative housekeeping measures for the cleaning provisions specified under subparagraphs (f)(1)(H) through (f)(1)(N). The alternative housekeeping measure must meet the same objective and effectiveness of the housekeeping measure it is replacing, and must be requested by email to Rule1407.1@aqmd.gov and approved in writing by the Executive Officer. The approved alternative housekeeping measure cannot be used retroactively from the date of approval and complying with the approved alternative housekeeping measure constitutes complying with the provision it is meant to replace.

Building Requirements (Subdivision (g))

PR 1407.1 includes building requirements to better contain fugitive emissions. Buildings are proposed to contain fugitive emissions and with cross-draft minimization will minimize air flow out of the building and help prevent a loss in the efficiency of an emission collection system.

Paragraph (g)(1) requires that all chromium alloy melting operations be conducted in a building by July 1, 2021. A building, as defined by (c)(5), is a structure, enclosed with a floor, walls, and a roof to prevent exposure to the elements (e.g. precipitation or wind). Walls of the building have to be fixed, impermeable, and form a fundamental part of the superstructure. Methods used to close building openings, such as overlapping strip curtains, do not constitute walls because they are not fixed or impermeable. Tarps cannot be used for walls nor to close building openings.

Cross-Draft Minimization (paragraph (g)(2))

Paragraph (g)(2) requires, no later than January 1, 2022, that the owner or operator minimizes cross-draft conditions in buildings where chromium alloy operations are occurring by not allowing building openings on opposite ends of the building to be opened simultaneously. The objective of this provision is to minimize any cross-drafts that can carry fugitive metal dust emissions out of the building and to ensure cross-drafts are not interfering with the collection efficiency of pollution controls. Building openings, as defined by (c)(6), are passages, doorways, bay doors, wall openings, roof openings, vents, and windows and do not include stacks, ducts, and openings to accommodate stacks and ducts. Methods to close building openings include use of automatic doors; installation of overlapping plastic strip curtains; vestibules; and airlock systems. Barriers, such as large pieces of equipment that do not process chromium alloys, may also be used to block openings or prevent cross-drafts. Conducting a chromium alloy melting operation inside a room within a building that is enclosed with a floor, walls, and a roof and does not have openings to the exterior of the building on opposite ends simultaneously open also meets the cross-draft minimization requirements. Using an enclosure within the building may be a more cost-effective compliance approach for larger buildings. Additionally, the owner or operator can use an alternative cross-draft minimization method, if approved, that demonstrates to the Executive Officer the alternative method is equivalent or more effective at minimizing cross-draft conditions and escape of fugitive dust emissions.

Illustrations of example acceptable building configurations are provided in Figures 2-3 through 2-6 below:

Figure 2-3: Two Building Openings at Non-Opposing Ends

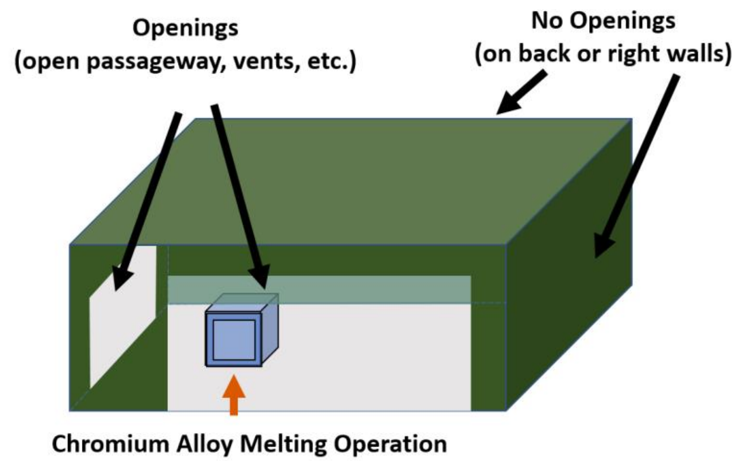


Figure 2-4: Two Building Openings at Opposing Ends

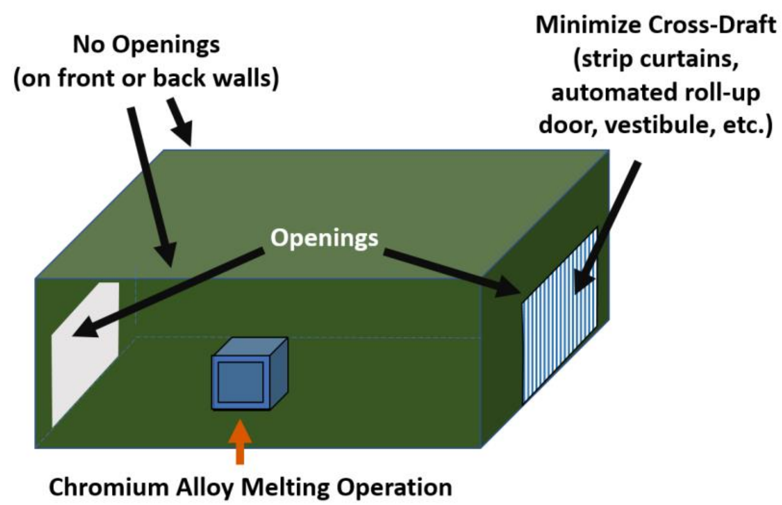


Figure 2-5: Three Building Openings with Two on Opposing Ends

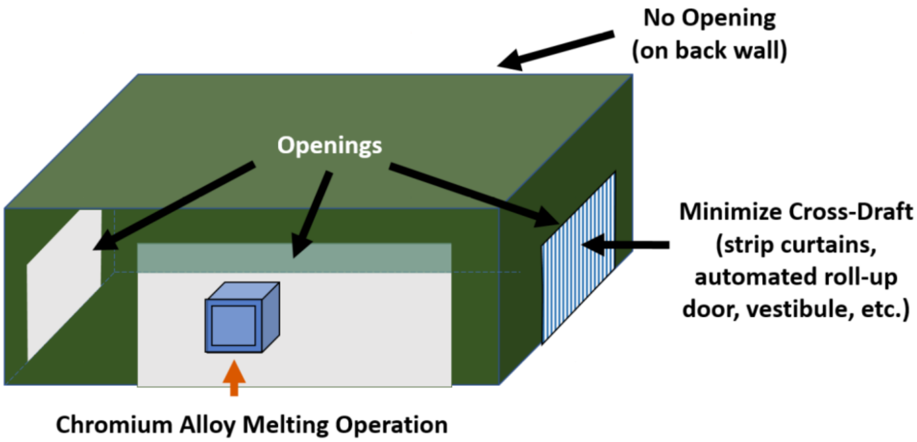
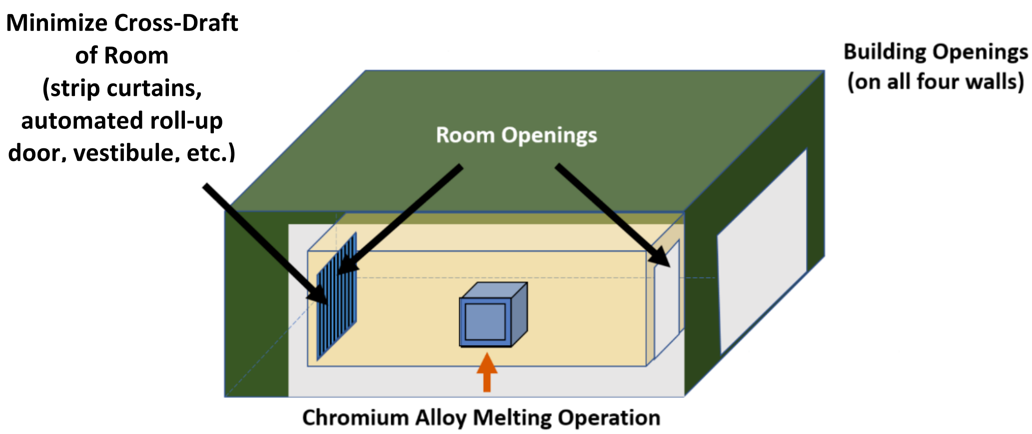


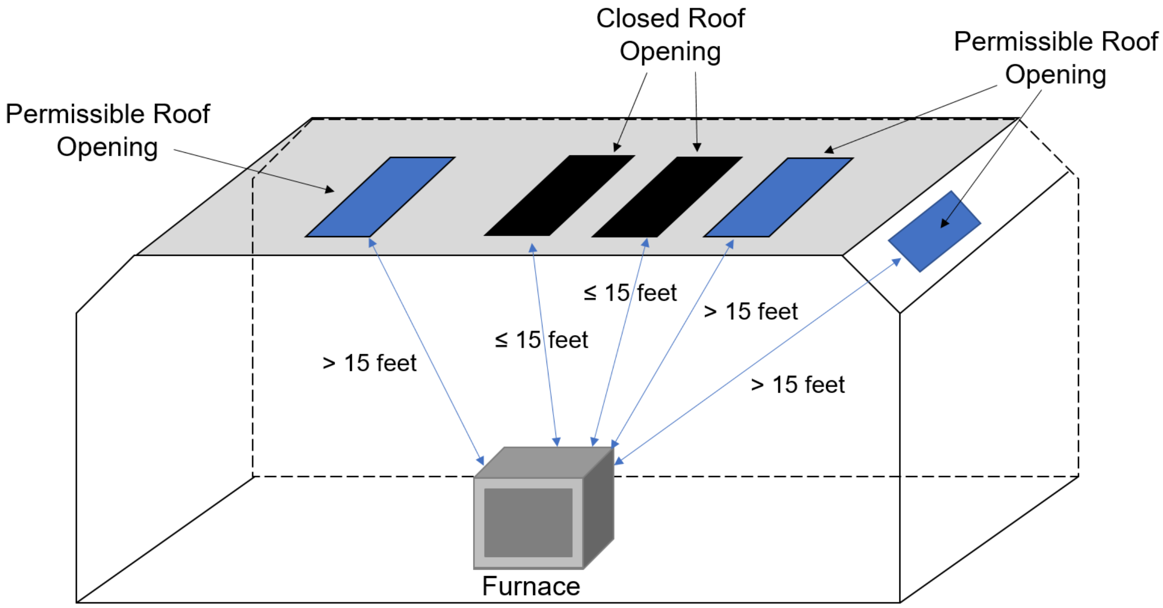
Figure 2-6: Room within a Building



<u>Closing Roof Openings (paragraph (g)(4))</u>

All roof openings located 15 feet or less above the edge of a chromium alloy melting furnace or where molten metal is poured and cooled are required to be closed, except during the passage of equipment or parts by January 1, 2022. Full-length roof monitors or ridgeline vents can be open (i.e. vents in the roof structure of the building), if they are greater than 15 feet above the edge of a chromium alloy melting furnace or where molten metal is poured and cooled. Illustration of which roof openings must be closed or may remain open is provided in Figure 2-7.

Figure 2-7: Closing of Roof Openings



Repair of Unintended Breaches in a Building or Roof (paragraphs (g)(3) and (g)(5))

If an unintended or accidental breach is discovered in a building or roof that is located 15 feet or less above the edge of a chromium alloy melting furnace or where molten metal is poured and cooled, the owner or operator is required to: 1.) notify the South Coast AQMD within 48 hours of discovery, and 2.) repair the breach within 72 hours of discovery. If repair of the breach takes longer than 72 hours, the South Coast AQMD shall be notified of the estimated time to repair the breach. An unintended or accidental breach can be a break, rupture, crack, hole, or large gap in the building or roof that is a result of an unplanned event or unforeseen circumstance that is beyond the facility's control.

Alternative Building Compliance Measures (paragraph (g)(6))

In the event that an owner or operator cannot comply with the requirements of paragraph (g)(2) and/or (g)(4) due to conflicts with United States Department of Labor Occupational Safety and Health Administration (OSHA), California Division of Occupational Safety and Health Administration (CAL/OSHA), or other municipal codes or agency requirements directly related to worker safety, paragraph (g)(6) allows use of alternative building compliance measures. The alternative building compliance measure must meet the same objective and effectiveness of the building requirement it is replacing, and must be requested by email to Rule1407.1@aqmd.gov and approved in writing by the Executive Officer. The alternative building compliance measures must minimize cross-draft conditions and fugitive emissions from chromium alloy melting, pouring, and cooling processes from entering the atmosphere through roofs. After approval, the alternative building compliance measures must be implemented within 90 days. The approved alternative building compliance measure cannot be used retroactively from the date of approval and complying with the approved building compliance measure constitutes complying with the provision it is meant to replace.

Source Testing Requirements (Subdivision (h))

Source test results are used to demonstrate compliance with hexavalent chromium emission limit and collection efficiency requirements.

Source Test Protocol (paragraphs (h)(1) and (h)(2))

The first step of source testing is submitting a source test protocol for approval. Source test protocol specifies which source will be tested and how emissions and samples will be sampled, analyzed, and reported. Source test protocols establish procedures to ensure results are accurate and representative of a source's emissions. Once South Coast AQMD evaluates and approves a test protocol, the owner or operator of a facility conducting chromium alloy melting operation(s) must follow the source test protocol when conducting the source test. PR 1407.1 requires facilities to submit a source test protocol to the Executive Officer: 1) no later than 90 days prior to the initial source test for existing chromium alloy melting furnaces and/or associated emission control devices; 2) within 90 days after the Permit to Construct is issued for the initial source test for new or modified chromium alloy melting furnaces and/or associated emission control devices; 3) no later than 90 days prior to the due date of each periodic and failed parameter monitoring source test; and 4) within 90 days after the Permit to Construct or Permit to Operate is issued for a change in the location of the emission point of the stack or emission points of the centroid of the stacks or increase in chromium alloy processing throughput for a permitted unit.

The source test protocol must specify the information necessary to properly conduct the source test including: 1) source test criteria, all assumptions, and required data; 2) target hexavalent chromium emissions in milligrams per hour; 3) planned sampling parameters, including sampling locations, dimensions of the ducts or stacks at the sampling locations, and the total sample volume for each sample sufficient to demonstrate compliance with the aggregate hexavalent chromium emission limit at the method reporting limit; 4) an evaluation of the emission collection system's capture efficiency and velocity; and 5) information regarding equipment, logistics, personnel and other resources necessary to facilitate an efficient and coordinated source test. This information is standard to include in a source test protocol. The protocol should contain a description of the process or equipment to be source tested (e.g. operating temperatures, flows, production rates, charge material), applicable rule or permit conditions, the sampling and analytical methods to be used, and the calibration and quality assurance procedures to be conducted. By collecting a total sample volume sufficient to demonstrate compliance with the aggregate hexavalent chromium emission limit at the method reporting limit, non-detect results (i.e. below the method reporting limit) can be evaluated and confirmed to be below the emission limit. The capture efficiency and velocity of the emission collection system should be evaluated according to conditions of the Permit to Operate for the emission control device or recommendations for the particular control system in the *Industrial Ventilation: A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists (ACGIH).

Source Test Notification Requirement (paragraph (h)(3))

The owner or operator shall notify the South Coast AQMD at least seven days prior to conducting any source tests and at least 24 hours prior to a test date to be cancelled or rescheduled to allow South Coast AQMD Compliance and Enforcement staff reasonable time to go out and observe the source test and to adjust their schedule for any cancelled or rescheduled test, if needed. The owner or operator is allowed to notify the South Coast AQMD of changes in the source test date less than 24 hours before the start of the scheduled source test, but must be as soon as feasible and before the start of the scheduled source test, provided that the source test was cancelled or rescheduled due to inclement weather or unforeseen circumstances beyond the facility's control. For any source test date to be changed, the owner or operator must set the date of the rescheduled source test to allow reasonable notice to the Executive Officer of at least seven days prior to conducting the source test.

Source Testing Frequency (paragraph (h)(4))

PR 1407.1 paragraph (h)(4) will require source tests to demonstrate compliance with the hexavalent chromium point source emission limits, a passing smoke test, and maintenance of the minimum velocity for the emission collection system. The following source tests are required: 1) no later than July 1, 2024, an initial source test for chromium alloy melting furnaces and/or associated emission control devices installed before PR 1407.1 adoption; 2) within 120 days after approval of the source test protocol, or within 120 days after construction is completed, whichever is later, an initial source test for chromium alloy melting furnaces and/or associated emission control devices installed or modified on or after PR 1407.1 adoption; 3) within 120 days after approval of the source test protocol, or within 120 days after construction is completed, whichever is later, an initial source test for chromium alloy melting furnaces and/or associated emission control devices that had a location change of stack or centroid of stack emission point or increase in chromium alloy processing throughput; 4) every 60 months, a periodic source test; and 5) within six months of failed parameter monitoring. Though source testing confirms compliance with emission limits and collection efficiency requirements, parameter monitoring ensures that the emission control equipment is operating properly and is less costly than source testing on a frequent basis. Parameter monitoring provides a continuous status of the operating conditions of the control equipment in between source tests and alerts the operator to operation and maintenance issues with the control equipment. To incentivize facilities to regularly monitor their emission control equipment and fix issues as soon as they are detected, PR 1407.1 subparagraph (h)(4)(D) will establish periodic source testing, within 60 months after the most recent source test, and once every 60 months thereafter, provided that the owner or operator consistently conducts all parameter monitoring requirements pursuant to subdivision (j). The owner or operator must install and operate calibrated monitoring devices appropriate for the required parameter measurements, measure the parameters at the required frequencies, and correct the issue(s) identified by the parameter monitoring and re-measure the parameter for the affected emission collection system or control device.

If an owner or operator fails to properly conduct parameter monitoring or correct issues identified by the parameter monitoring, PR 1407.1 subparagraph (h)(4)(E) will require a source test be conducted within 6 months of the discovery of failure. Source testing is necessary to confirm compliance with emission limits and collection efficiency requirements when interim measures to ensure proper operation of the emission control equipment are not in place or not being followed consistently and continuously. A deficient parameter measurement may indicate that the toxic air contaminant emissions from the chromium alloy melting furnace(s) are not being collected or being controlled by the emission control device. If the owner or operator does not address the issue identified by the deficient measurement, proper collection and control of emissions may and continue to be compromised and lead to fugitive emissions. Criteria for passing parameter monitoring measurements are established in subdivision (j) – Parameter Monitoring Requirements. The provisions that would trigger a source test to be conducted within 6 months are:

- Not conducting any parameter monitoring requirement by the effective date, at the required frequency, or with a calibrated and properly operating monitoring device as specified in subdivision (j);

- Continuing to operate a furnace associated with an emission control equipment that has been identified by parameter monitoring to have an issue beyond 24 hours after the discovery of the failed parameter; and
- Failing to meet a passing parameter monitoring requirement for any one parameter three consecutive times.

An owner or operator meeting any of the above criteria warrants a source test to be conducted within a shorter time frame due to the absence of interim measures to ensure proper operation of the emission control equipment, continuing to operate an emission source that may be improperly controlled and potentially allowing emissions to escape, or that efforts to repeatedly fix an issue with an emission collection system or control device identified by a parameter monitoring for one parameter are not effective.

Emission Limit Exceedance Notification (paragraph (h)(5))

The owner or operator shall notify the South Coast AQMD at 1-800-CUT-SMOG within five calendar days of receiving source test results that exceeded the applicable aggregate hexavalent chromium emission limit, failed a smoke test, or does not maintain the required velocity of the emission collection system. The owner or operator shall follow up with a written notification within 10 calendar days of the initial notification that contains a copy of the source test results.

Source Test Criteria and Test Methods (paragraph (h)(6))

PR 1407.1 will be basing emission control requirements specifically on the control of hexavalent chromium. Therefore, the source test method requirement in PR 1407.1 in paragraph (h)(6) is CARB Method 425 – *Determination of Total Chromium and Hexavalent Chromium Emissions from Stationary Sources*. Source tests shall be conducted representative of typical operating conditions. Additionally, the total sample volume for each sample must be large enough to demonstrate compliance with the aggregate hexavalent chromium emission limits at the method reporting limit, or the test must be run for a minimum sampling time of eight hours for each sample, assuming that the method reporting limit is 0.05 micrograms or less per sample for hexavalent chromium. These sampling parameters ensure that a sufficient mass of hexavalent chromium is collected during a test run to allow for analytical quantification of results and confirmation that results are below the emission limit if they are below the method reporting limit. Since the hexavalent chromium emission limits are aggregate standards, demonstration of compliance with the aggregate standards is the summation of each source test result for all the chromium alloy melting furnaces and associated emission control devices at a facility. If a source test for a furnace or emission control device results in all runs below the method reporting limit for hexavalent chromium, then hexavalent chromium will be reported as non-detect and will be counted as a zero. If a source test for a furnace or emission control device results in at least one run below and one run above the method reporting limit for hexavalent chromium, then the runs that are below the method reporting limit shall be assigned one half of the method reporting limit for hexavalent chromium[12].

[12] South Coast AQMD Risk Assessment Procedures for Rules 1401, 1401.1 and 1402, Version 8.1, South Coast AQMD, September 1, 2017

Alternative and Equivalent Test Methods (paragraphs (h)(7) and (h)(8))

Paragraph (h)(7) allows for the use of an alternative or equivalent test method as defined by the U.S. EPA in 40 CFR Part 60, Section 60.2 and as long as it is approved in writing by the Executive Officer, in addition to the California Air Resources Board, or the U.S. EPA, as applicable.

As required by paragraph (h)(8), the source test shall be performed by a South Coast AQMD approved laboratory[13]. When an approved laboratory is not available, using South Coast AQMD protocols and procedures, the Executive Officer will approve a laboratory on a case-by-case basis.

Existing Source Tests (paragraph (h)(9))

Paragraph (h)(9) allows a facility to utilize a source test conducted no more than 36 months prior to the adoption of PR 1407.1 instead of conducting the initial source test required in paragraph (h)(4)(A) provided that the source test:

- Is the most recent completed source test for that equipment;
- Demonstrated compliance with the limits in subdivision (d) and emission collection system requirements in subdivision (j);
- Was conducted using PR 1407.1 specified test methods and approved laboratories; and
- Was evaluated and approved by the Executive Officer.

Source Test Reports (paragraph (h)(10))

Reports from source testing must be submitted to the South Coast AQMD within 90 days of completion of source testing in order to comply with paragraph (h)(10). Currently, source test reports must be submitted via email to sourcetesting@amqd.gov. The Emissions Quantification and Testing Evaluation (EQUATE) Working Group[14] is developing a new source test protocol and report tracking system for the submittal and approval process.

Material Testing Requirements (Subdivision (i))

To align with the CARB ATCM for Non-Ferrous Metal Melting, this subdivision will require material testing to confirm compliance with the arsenic and cadmium content limits specified in paragraph (e)(1) for chromium non-ferrous alloys, which include superalloys. With exception of iron-based superalloy, superalloys are non-ferrous metals due to having less than one percent iron content by weight. Material testing must be conducted of each furnace charge to determine the weight average percentages of arsenic and cadmium contained in the materials melted in chromium non-ferrous alloy melting furnaces. A furnace charge is all the materials that are added to a melting furnace and brought to a molten form for one batch or melt. PR 1407.1 allows for the use of U.S. EPA-approved methods, active ASTM International methods, or alternative methods approved by the Executive Office. The method(s) needs to be appropriate to the sample matrix, has the appropriate method detection limit, and has no interferences. In lieu of material testing, the owner or operator may use metallurgical assays, certificates of analysis, material specification sheets, or similar documentation to confirm the weight average percentages of arsenic and cadmium. Rerun scrap is excluded from material testing. Since rerun scrap is generated at the chromium alloy melting facility as a result of either processing virgin, unused raw material or scrap that is

[13] South Coast AQMD Laboratory Approval Program http://www.aqmd.gov/home/programs/business/business-detail?title=laboratory-approval

[14] EQUATE Working Group https://www.aqmd.gov/home/rules-compliance/emissions-quantification-and-testing-evaluation

confirmed to contain arsenic and cadmium that do not exceed the content limits, it is not necessary for rerun scrap to undergo material testing.

Parameter Monitoring Requirements (Subdivision (j))

Parameter monitoring, which is separate from source testing, ensures proper maintenance and operation of the chromium alloy melting emission collection system and control device, and allows early detection of issues. Operational parameters are generally expressed as range parameter measurements within which the emission control device functions best and realizes optimum efficiency. PR 1407.1 will have four general parameter monitoring requirements: 1) Bag Leak Detection system; 2) Pressure Across the Filter Media; 3) Verifying Collection Efficiency; and 4) Smoke Testing.

Bag Leak Detection System (paragraph (j)(1))

Bag Leak Detection Systems (BLDSs) continuously monitor and identify potential breach, blockage, or similar failures with the baghouse. BLDSs measure changes in particle mass loading and activate an alarm when a change is detected. This provision requires a BLDS for all PR 1407.1 baghouses by July 1, 2024. A BLDS must be operated, calibrated, and maintained pursuant to the Tier 3 requirements of Rule 1155 – Particulate Matter (PM) Control Devices regardless of the size and position within a series of emission control devices of the PR 1407.1 baghouse.

Pressure Across the Filter Media (paragraph (j)(2))

By July 1, 2024, the pressure across each filter stage of the emission control device shall be continuously measured with a gauge. The reading from the gauge provides an indication of whether the emission control device is operating within the proper range of pressure differential, whether the bags or filters may be clogged or have leaks thereby compromising their effectiveness. The gauge shall:

- Operate within the range specified by the manufacturer or in the Permit to Operate;
- Be positioned so that it is visible and in clear line of sight;
- Be equipped with ports that allow for periodic calibration in accordance with manufacturer’s specifications;
- Be calibrated according to manufacturer’s specifications at least once every 12 months;
- Connect to a continuous data acquisition system (DAS) which records the data output in inches of water column at a frequency of at least than once every sixty (60) minutes;
- Generate a daily data file from the computer system interfaced with each DAS which contains a tabulation of chronological dates and time and the corresponding data output value from the gauge in inches of water column; and
- Be maintained in accordance with manufacturer’s specifications.

Smoke Test (paragraph (j)(3))

In addition, for each emission collection system required by PR 1407.1, a passing smoke test shall be conducted during each source test and at least once every 180 days after the initial source test. The periodic smoke test provides a qualitative test for owners or operators to help determine whether cross-draft conditions or other activities conducted at the facility are affecting the ability of the emission collection system or hood to effectively capture emissions. It also serves to verify that the airflow is moving towards the air pollution collection system, which verifies the effectiveness of the air pollution control device. Smoke test procedures are outlined in PR 1407.1 Attachment A – Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device.

Anemometer (paragraph (j)(4))

The face velocity of each intake of each emission collection system shall be measured using a calibrated anemometer beginning July 1, 2024 and at least once every 180 days thereafter. The purpose of the anemometer test is to ensure that the emission collection system has the proper air flow to the pollution controls and provide an early warning of a potential issue with the collection or build-up of material in the ventilation slot. The calibrated anemometer shall be kept onsite to allow South Coast AQMD compliance and enforcement staff to check that it is functioning properly and to verify the velocity using the anemometer during an inspection. The face velocity is based on the emission collection system's location and design and can be calculated according to guidelines specified in the *Industrial Ventilation Manual*. An emission collection system designed with a hood or enclosure (e.g. enclosing hood) shall maintain a capture velocity of at least 200 feet per minute as measured at the face of the enclosure. An emission collection system designed with collection slots, but without an enclosure or hood, shall maintain slot velocities of at least 2,000 feet per minute. An emission collection system designed with a canopy hood without an enclosure shall maintain a capture velocity of at least 200 feet per minute across the entirety of all open sides extending from the perimeter of the hood without any cross-drafts. Instead of complying with the three capture velocities above, the operator can instead maintain at least 95 percent of the minimum velocity that verifies 100 percent collection efficiency as prescribed in the conditions of the Permit to Operate for the emission control device. To measure the velocity, the probe of the anemometer should be placed at the face of the enclosure, hood, slot, or canopy. The face of the enclosure, hood, slot, or canopy should be separated into squares in a grid-like fashion, and velocity readings should be made at the center of each grid square and averaged.

Reporting and Correction of Failed Parameter Measurements (paragraphs (j)(5) and (j)(6))

Within 24 hours of discovery, the owner or operator is required to report to 1-800-CUT-SMOG any of the following:

- A cumulative number of hours of BLDS alarm activation due to detection of changes in the particle mass loading on the bag filters within any continuous six-month rolling period that has exceed more than five percent of the total operating hours in that period;
- An average pressure differential across a filter stage of the emission control device that is not maintained within the range specified in the Permit to Operator or specified by the manufacturer, based on hourly or more frequent recordings by the DAS for a rolling 4-hour time period on three or more separate occasions over 60 continuous days, or any rolling consecutive 24-hour period;
- A DAS that is not recording or generating the data output from a pressure gauge;
- A failed smoke test; and
- An anemometer reading indicating that the minimum velocity required for each intake of the emission collection system is not maintained.

The reporting criterion for the BLDS alarm activation is a monitoring requirement established in Rule 1155 and is an indicator of ongoing bag leakage due to elevated PM emissions and the equipment being vented into the baghouse needs to be shut down. Reporting criteria for the average pressure differential across a filter stage is a monitoring requirement established previously in other toxic metal rules and is an indicator of continual issues with the bags or filters of the emission control device. The averaging period allows sufficient time for the owner or operator to address the issue with the bags or filters, before triggering additional requirements (i.e. a source test within six months of discovering a failure of a parameter monitoring requirement). If an emission control device or emission collection system fails any of the required parameter measurements specified in this subdivision, the owner or operator must stop the use of the associated furnace(s) for production starting no later than 24 hours after the discovery of the failure and until the emission control device or emission collection system passes all parameter measurements.

DAS Failure Due to an Emergency Situation (paragraph (j)(7))

If a DAS fails to record or generate the data output of the pressure gauge due to an emergency situation beyond the control of the owner or operator (e.g. power outages, computer malfunctions), the owner or operator must restore the DAS to working condition no later than 24 hours after the end of the emergency situation, and manually record the data output from the gauge associated with the non-operation DAS at least once every eight hours until the DAS is restored. If the gauge associated with the DAS is also not operational due to the emergency, the pressure differential needs to be measured by a mechanical gauge and manually recorded. The period of missing DAS data beginning from the start of the DAS failure due to the emergency situation to the start of the manual recording of pressure shall not be used to determine compliance with the DAS requirements specified for the pressure gauge. The period of manual recording of pressure until the DAS is restored is still subject to the pressure drop maintenance requirement specified in paragraph (j)(2)(C).

Unreasonable Risk (paragraph (j)(8))

If the smoke test pursuant to paragraph (j)(3) or velocity measurement pursuant to paragraph (j)(4) cannot be conducted due to an unreasonable risk to safety, an owner or operator shall use an alternative parameter monitoring measure that has been approved by the Executive Officer in a source test protocol. An example of an unreasonable risk would be the tester cannot physically and/or safely access certain sampling points, even with the assistance of a probe extension on the monitoring device to facilitate access, due to obstructions, moving machinery, or excessive temperatures. Alternative measures can be fitting a monitoring device with a probe extension to reach hard-to-access sampling points or calculating velocities using indirect parameters (e.g. total flow divided by the cross-sectional area of the intake). If the Executive Officer agrees that there is no safe alternative parameter monitoring measure, the owner or operator is no longer subject to the applicable smoke test or velocity measurement requirement. The approved alternative parameter monitoring measure cannot be applied retroactively from the date of approval and complying with the approved alternative parameter monitoring measure constitutes complying with the provision it is meant to replace.

Recordkeeping Requirements (Subdivision (k))

To assist in verifying compliance with PR 1407.1, the rule will require records be kept. Owners or operators will be required to keep records onsite, maintain them for five (5) years, and make them accessible and available to South Coast AQMD compliance staff upon request. Records shall include the following:

Raw Material Quantity (paragraph (k)(1))

Quantity of raw materials (i.e., ingots, scrap, customer returns, and rerun scrap) processed on a quarterly basis, and the purchase records to verify annual quantities for facilities exempt from PR 1407.1 requirements due to melting less than one ton of chromium alloy(s) per year;

Material Testing Data (paragraph (k)(2))

Material testing data as required by subdivision (i) to verify the arsenic and cadmium percentages by weight for each chromium non-ferrous alloy tested and to evaluate the applicability, sensitivity, and selectivity of the test method(s) used. For each material tested, the records are to include description of each material tested, quantity of material processed, test method(s) used, method detection and reporting limits, quality assurance, quality control, and calibration data, and results of arsenic and cadmium percent by weight;

Source Testing Data (paragraph (k)(3))

All source test protocols and reports required by subdivision (h);

Housekeeping Activities (paragraph (k)(4))

Housekeeping activities conducted as required by subdivision (f), including the name of the person conducting the activity and the dates and times at which specific activities were completed;

Construction and Maintenance and Repair Activities (paragraph (k)(5))

Documentation of construction and maintenance and repair activities conducted on any equipment or structure associated with chromium alloy melting operation(s) including emission collection systems, emission control devices, buildings housing chromium alloy melting operation(s), and enclosed storage areas housing chromium alloy-containing material;

Repair Activities for Building and Roof Breaches (paragraph (k)(6))

Documentation of repair activities conducted on unintended or accidental breaches to buildings and roofs, and the log of notifications made to 1-800-CUT-SMOG as required by paragraphs (g)(3) and (g)(5);

Inspection, Calibration, and Maintenance Activities (paragraph (k)(7))

Inspection, calibration documentation, and maintenance of emission control devices and parameter monitoring devices as required by subdivision (j) (e.g. routine check and changing of bags and filter media, repair or replacement of broken or worn parts or components in the baghouse or in the bag leak detection system), including the name of the person conducting the activity and the dates and times at which specific activities were completed; and

Parameter Monitoring Data (paragraphs (k)(8) through (k)(13))

All parameter monitoring data including: 1) cumulative number of hours of BLDS alarm activation pursuant to paragraph (j)(1) and Rule 1155; 2) DAS data files as required by paragraph (j)(2) and subparagraph (j)(7)(B); 3) smoke test documentation required in Attachment A; 4) anemometer data as required by paragraph (j)(4), including velocities, person conducting the measurement, and dates of measurement; 5) call log of all reporting made to 1-800-CUT-SMOG as required by paragraph (j)(5), including the dates and times of the calls and the reported parameter monitoring requirements; and 6) documentation of any repairs or replacements that were performed in order to pass any parameter monitoring requirement.

Exemptions (Subdivision (l))

PR 1407.1 includes exemptions limiting all or nearly all PR 1407.1 requirements that a facility may be subject to. This allows for relief from rule requirements, such as point source or fugitive emission controls, that are disproportional or onerous to owners or operators of minor operations of chromium alloy melting.

Small Quantity (paragraph (l)(1))

Facilities that melt no more than one ton per year of chromium alloy(s) are exempt from all requirements except for paragraph (k)(1), maintaining records verifying that they melt less than one ton of chromium alloy(s) annually. This will exclude many small operations. If a facility melts more than one ton per year of chromium alloy(s), the owner or operator is required to submit permit applications for all chromium alloy melting furnaces and/or associated emission control devices and is subject to all rule requirements.

Educational Facilities (paragraph (l)(2))

Educational facilities (i.e. universities, colleges, schools) that melt chromium alloy(s) for purposes of education are exempt from all requirements due to being small operations of chromium alloy melting.

Jewelers (paragraph (l)(3))

Jewelers that melt chromium alloy(s) for purposes of jewelry making are exempt from all requirements due to being small operations of chromium alloy melting.

Rules 1420.1 and 1420.2 – Lead Rules (paragraph (l)(4))

Equipment or operations that are subject to the lead rules listed above are exempt from all PR 1407.1 requirements as they are currently subject to requirements which are just as or more stringent for point source and fugitive emission control than the requirements of PR 1407.1. A facility that is subject to Rule 1420.1 or 1420.2 but also has furnaces that melt chromium alloy(s) and do not melt lead would be required to comply with PR 1407.1 for those chromium alloy melting furnaces.

Brazing and Soldering Operations (paragraph (l)(5))

Brazing, dip soldering, and wave soldering operations are not subject to the requirements of this rule as these are miscellaneous minor metalworking operations compared to chromium alloy melting furnaces.

Maintenance and Repair (paragraph (l)(6))

Metal cutting and metal grinding conducted for maintenance and repair purposes that do not generate fugitive metal dust emissions originating from or relating to the chromium alloy melting operation are not subject to the requirements of this rule. This exemption excludes maintenance and repair activities associated with chromium alloy melting operation(s), emission collection systems, and emission control devices. It also excludes any activities required by subdivisions (f) Housekeeping Requirements and (g) Building Requirements that generate or have the potential to generate fugitive metal dust emissions.

Smoke Test (Attachment A)

Attachment A specifies the method for periodic smoke tests to qualitatively demonstrate total capture for emission collection systems of emission control device(s) pursuant to paragraph (j)(3). A smoke generator is placed within the area where collection of emissions by the ventilation system reveals the capture efficiency. The test is conducted while the emission control device is in normal operation and under typical draft and cross-draft conditions. An acceptable smoke test shall demonstrate a direct stream to the collection location(s) of the ventilation system without escaping. The periodic smoke test requirement of PR 1407.1 will not be required if performing such a test presents an unreasonable risk to safety but will be required to follow the provisions in paragraph (j)(8). The owner or operator must use an alternative parameter monitoring measure approved by the Executive Officer in the source test protocol. If there is no safe alternative parameter monitoring measure, as evaluated by the Executive Officer, the owner or operator is no longer subject to the smoke test.

CHAPTER 3: IMPACT ASSESSMENT

INTRODUCTION

AFFECTED FACILITIES

COMPLIANCE COSTS

EMISSIONS IMPACT

SOCIOECONOMIC ASSESSMENT

CALIFORNIA ENVIRONMENTAL QUALITY ACT

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

COMPARATIVE ANALYSIS

INTRODUCTION

Staff has identified 11 chromium alloy melting facilities including those that melt alloy steel, chromium non-ferrous alloys, stainless steel, and superalloys. These facilities include smelters, foundries, die-casters, mills, and other establishments conducting miscellaneous melting processes. It should be noted that staff conducted an extensive search to identify facilities that are potentially affected by PR 1407.1 to accurately capture the impacts of PR 1407.1.

AFFECTED FACILITIES

The facilities identified that would be subject to PR 1407.1 were found by reviewing South Coast AQMD permits for chromium alloy metal melting furnaces, reviewing South Coast AQMD inspection reports for chromium alloy metal melting facilities, internet searches for facilities that offer chromium alloy metal melting services, and site visits. Internet searches were conducted to locate facilities where the furnaces do not require permits. Facilities that conduct heat treating or other metalworking operation but do not melt the metal were excluded. Additionally, facilities that melt only non-chromium metals were excluded as they are subject to Rule 1407 – Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations. Likewise, facilities that melt metals containing lead were excluded as they are subject to Rule 1420 – Emissions Standard for Lead, Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Facilities, or Rule 1420.2 – Emissions Standards for Lead from Metal Melting Facilities. Staff conducted 30 site visits to various chromium and non-chromium metal melting operations. During these site visits, staff gathered facility operations information and data related to melting furnaces, any associated control equipment, and types and amounts of alloys melted. Based on South Coast AQMD staff analysis of compliance and permitting data, searching websites for facilities that offer metal melting facilities, and site visits, there are 11 identified facilities that meet the applicability requirements of the proposed rule. If a facility was not identified and meets the applicability requirements, that facility would be subject to PR 1407.1.

COMPLIANCE COSTS

Compliance costs are estimated by observations from site visits and review of permitted equipment. The costs are estimated by actual costs provided by facilities, vendor quotes, cost estimates from other rules with similar requirements, and the U.S. EPA Air Pollution Control Cost Manual[15].

Baghouse and HEPA/ULPA Control Devices (subdivision (d))

Five facilities are estimated to require the installation of five control devices at an estimated cost of $256,000[15] per control device, with four equipped with HEPA filters at an estimated cost of $35,000 per device and one equipped with ULPA filters at an estimated cost of $39,000 per device. In addition to installation costs, there would be on-going operating and maintenance costs for the operation of the control devices estimated at $275,000 annually and replacement for the HEPA filters at $35,000 and ULPA filters at $39,000 annually per control device. Four facilities with

[15] Cost Reports and Guidance for Air Pollution Regulations – EPA Air Pollution Control Cost Manual, U.S. EPA, accessed August 2020 https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution

existing control devices are estimated to require the installation of HEPA filters for 14 control devices at an estimated cost of $40,000 per device. A stakeholder commented that according to their estimates, annual baghouse maintenance consisting of quarterly inspections and general repair work would be an estimated $17,000 per year. Additionally, the stakeholder commented that replacement of filter bags would be every five to seven years at an estimated $35,000. In total, the annual baghouse maintenance costs may be lower than staff's estimates by 56 percent. The stakeholder also commented that according to their estimates, annual HEPA maintenance would consist of changing pre-filters (installed before the HEPA) two to three times per year at an estimated $10,000 per year and HEPA filter replacement every eight to ten years at an estimated $40,000. In total, the annual HEPA maintenance costs may be lower than staff's estimates by 39 percent.

Prohibitions (subdivision (e))

The removal of a weather cap is a one-time activity. A butterfly caps as an option to replace the weather cap is estimated to be $9,100[16] per stack.

Housekeeping Requirements (subdivision (f))

All facilities subject to PR 1407.1 will be required to conduct housekeeping pursuant to subdivision (f). Nearly all facilities already conduct weekly cleaning and are expected to conduct daily cleaning in chromium alloy melting operation areas pursuant to subdivision (f). Cleaning supplies (e.g. dust suppressing sweeping compound, cleaning solutions, brooms) are estimated to cost $10,000 per year. Covering containers holding dust-forming metal-containing slag, dross, and trash can be accomplished by a simple container with a cover or keeping those materials within a building or enclosed storage area. Inspections of control device collection points is required quarterly. All facilities will be required to conduct roof cleaning of buildings housing chromium alloy melting operation(s) and enclosed storage areas once every two years. Cost for roof cleaning is estimated to be $1,400 per cleaning. Facilities are expected to record housekeeping activities. Proposed housekeeping provisions are expected to increase labor costs by less than $1,000 annually.

All facilities are assumed to purchase a HEPA vacuum system to conduct the routine cleaning requirements. Riding vacuum HEPA sweepers cost an estimated $11,600 and would be utilized by four larger facilities. Parts and maintenance costs for the riding vacuum HEPA sweeper are an estimated $15,000. Backpack vacuum HEPA equipment is approximately $600 and would be utilized by the remaining seven smaller facilities. Shop HEPA vacuum equipment for cleaning at and around workstations is approximately $500, with replacement of HEPA filters every two to three days at an estimated $20 per set of replacement filters and would be utilized by all facilities. Parts and maintenance costs for the backpack HEPA vacuum equipment is an estimated $2,000.

Building Requirements (subdivision (g))

Nearly all facilities already conduct their chromium alloy melting operations in a building. To comply with the cross-draft minimization requirements pursuant to subdivision (g) – Building Requirements, staff will assume that all facilities are expected to install plastic curtains at an

[16] Cost Reports and Guidance for Air Pollution Regulations – EPA Air Pollution Control Cost Manual, U.S. EPA, accessed August 2020 https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution

estimated cost of $9,000 per facility, unless staff identifies facilities that already comply with the requirements. Staff will also assume that all facilities are expected to perform minor building construction to close all roof openings within 15 feet above the edge of a chromium alloy melting furnace or where molten metal is being poured or cooled at an estimated cost of $13,750 per facility, unless staff identifies facilities that already comply with the requirement.

Source Testing Requirements (subdivision (h))

To demonstrate compliance with paragraph (d)(1), all facilities will be required to conduct an initial source test and then periodic source testing every 60 months, provided that facilities properly conduct all the required parameter monitoring, pursuant to paragraph (h)(4) at an estimated cost of $20,000 per source test. This estimated cost includes the source test, laboratory analysis, and source test report. Staff estimated the following number of source tests each facility will be required to perform to demonstrate compliance: eight facilities are expected to conduct only one source test; two facilities are expected to conduct two source tests; and one facility is expected to conduct five source tests.

Material Testing Requirements (subdivision (i))

Nearly all facilities already closely track the speciation of metals in the melted metal. All seven facilities that melt chromium non-ferrous alloys are expected to meet arsenic and cadmium content limits pursuant to paragraph (e)(1) of the proposed rule using documentation that specifies the arsenic and cadmium contents of the materials and melting rerun scrap. If testing is needed on scrap or material without documentation, the affected facility would either conduct its own material testing or send the material for testing to an outside laboratory. Since the affected facilities normally melt virgin metals or pure ingots that have to meet specific content specifications for production, it is expected that there would be no additional costs for material testing. One facility that may occasionally melt an outside chromium non-ferrous material is expected to conduct in-house chemical analyses of the material, if necessary, which would require purchase of chemical standards for method development and calibration at an estimated one-time cost of $20,000.

Parameter Monitoring Requirements (subdivision (j))

For facilities operating control devices, PR 1407.1 requires a pressure gauge and data acquisition system at a one-time cost of $1,200. New and existing baghouses are also required to have a baghouse leak detection system at a cost of $1,500. Anemometer costs for each baghouse is $1,000 per anemometer. Slot velocity tests are expected to cost $90 per set of tests per emission collection system for a total of $1,530 for all affected facilities every six months. There will also be an on-going requirement to conduct smoke testing at an annual cost of $2,000 for each of the emission collection systems.

Recordkeeping Requirements (subdivision (k))

All facilities subject to PR 1407.1 will be required to maintain records pursuant to subdivision (k). Facilities are expected to keep records of quantities of materials processed; material testing data; source testing data; housekeeping activities; construction and maintenance and repair activities; inspection, calibration, and maintenance activities; and parameter monitoring data. Staff estimates that additional recordkeeping associated with PR 1407.1 will cost $5,000 per facility.

Total Costs

The estimated total costs by expense for all facilities subject to PR 1407.1 is presented in Table 3-1 below. The total present worth value cost to meet the rule requirements is $39.7 million to $53.8 million using a four percent or one percent discount rate respectively. Between $4.3 and $5.1 million are one-time costs applicable in 2020 while $35.3 million to $48.7 million are recurring costs totaled over a 20-year period. The average annual cost, including one-time and recurring cost, is estimated to be $2.7 million to $2.8 million.

Table 3-1: Total Costs by Expense Type

	Present Worth Value (2020)		Annual Average (2021 – 2041)	
Cost Categories	**1% Discount Rate**	**4% Discount Rate**	**1% Real Interest Rate**	**4% Real Interest Rate**
One-Time Cost				
Anemometer**	$23,000	$20,000	$1,000	$1,000
Backpack HEPA vacuum*	$14,000	$12,000	$1,000	$1,000
Bag leak detection system**	$44,000	$38,000	$2,000	$3,000
Baghouse**	$2,560,000	$2,160,000	$131,000	$153,000
Building enclosure modifications***	$167,000	$163,000	$9,000	$11,000
HEPA**	$1,483,000	$1,251,000	$76,000	$89,000
Install butterfly cap**	$321,000	$276,000	$16,000	$19,000
Plastic curtains***	$99,000	$97,000	$5,000	$7,000
Pressure gauge with DAS**	$88,000	$75,000	$4,000	$5,000
Rider HEPA vacuum*	$157,000	$128,000	$8,000	$9,000
Shop HEPA vacuum*	$19,000	$15,000	$1,000	$1,000
Standard and calibration materials	$22,000	$21,000	$1,000	$1,000
ULPA**	$77,000	$65,000	$4,000	$5,000
Total one-time cost	**$5,074,000**	**$4,321,000**	**$259,000**	**$305,000**
Recurring Cost				
Baghouse annual maintenance	$26,067,000	$18,834,000	$1,333,000	$1,333,000
HEPA annual maintenance	$12,717,000	$9,188,000	$650,000	$650,000
Housekeeping	$216,000	$159,000	$11,000	$11,000
Permit renewal fees	$479,000	$346,000	$24,000	$24,000
Recordkeeping	$1,098,000	$807,000	$56,000	$56,000
Replacement HEPA filters for shop vacuum	$467,000	$337,000	$24,000	$24,000
Roof cleaning	$303,000	$223,000	$15,000	$15,000
Slot velocity test	$207,000	$151,000	$11,000	$11,000
Smoke test	$2,336,000	$1,703,000	$119,000	$119,000
Source test	$1,887,000	$1,417,000	$95,000	$95,000
ULPA annual maintenance	$728,000	$526,000	$37,000	$37,000
Rider HEPA vacuum parts and maintenance	$1,180,00	$867,000	$60,000	$60,000
Backpack HEPA vacuum parts	$275,000	$202,000	$14,000	$14,000
Cleaning supplies	$786,000	$578,000	$40,000	$40,000
Total recurring cost	**$48,746,000**	**$35,338,000**	**$2,489,000**	**$2,489,000**
Total	**$53,821,000**	**$39,659,000**	**$2,749,000**	**$2,794,000**

Note: Values rounded to nearest thousand dollars.

*Cost annualized over 6 years
**Cost annualized over 10 years
***Cost annualized over 20 years

Typical cost by facility type is provided in Table 3-2 below. For one facility with a sensitive receptor distance less than 50 meters, it is assumed that it would need installations of plastic strip curtains and an emission control device with ULPA filters, closing of roof openings, and one source test. For one facility with a sensitive receptor distance between 50 to 100 meters, it is assumed that it would need installation of plastic strip curtains, closing of roof openings, and one source test. For facilities with sensitive receptor distances greater than 100 meters, it is assumed that they would all need installation of plastic strip curtains, except for one facility, and closing of roof openings. It is assumed that one source test would be necessary at six of these facilities, two source tests would be necessary at two of these facilities, and nine source tests would be necessary at one facility. It is also assumed that four would need to install an emission control device with HEPA filters and four would need to install HEPA filters on existing emission control devices.

Table 3-2: Total Costs by Facility

Facility by distance to sensitive receptor (meters)	Number of potentially affected facilities	Total cost if all PR 1407.1 expenses made in 2020		Annualized cost per facility	
		1% Discount Rate	4% Discount Rate	1% Discount Rate	4% Discount Rate
Less than 50	1	$7,109,000	$5,224,000	$363,000	$369,000
50 to 100	1	$1,238,000	$921,000	$63,000	$64,000
Greater than 100	9	$5,053,000	$3,724,000	$258,000	$262,000

EMISSIONS IMPACT

Implementation of PR 1407.1 will reduce both point source and fugitive emissions of arsenic, cadmium, hexavalent chromium, and/or nickel, resulting in reduced ambient air concentrations of the toxic air contaminants arsenic, cadmium, hexavalent chromium, and nickel. Point source controls will reduce emissions from chromium alloy melting furnaces to health protective levels by establishing emission limits based on hexavalent chromium that are designed to be below 10 in-a-million maximum individual cancer risk for the nearest sensitive receptor to the affected facility. Of the toxic air contaminants, hexavalent chromium is the cancer risk driver. Housekeeping and building enclosures will reduce fugitive emissions from chromium alloy melting and handling operations. Fugitive emissions are difficult to quantify but have been shown to be a contributing factor to ambient toxic air contaminant concentrations.

PR 1407.1 will require controlling toxic air contaminant emissions from point sources associated with chromium alloy melting operations using HEPA and ULPA filter technologies to achieve the hexavalent chromium mass emission limits. HEPA is certified to achieve a minimum filtration of 99.97 percent for particles sized 0.3 microns or larger, and ULPA is a subset of HEPA filters that is certified to achieve a higher minimum filtration of 99.9995 percent for particles sized 0.12 microns or larger. There are five identified affected facilities that currently do not have any point source controls, and four identified affected facilities that do not have the HEPA or ULPA filter technologies. Owner or operators will also be required to conduct source testing that will provide the South Coast AQMD with data that may be used to improve the quantification of hexavalent chromium emissions from chromium alloy melting emission sources.

SOCIOECONOMIC ASSESSMENT

A socioeconomic impact assessment has been prepared and will be released for public review and comment at least 30 days prior to the South Coast AQMD Governing Board Hearing on PR 1407.1, which is anticipated to be heard on January 8, 2021.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

PR 1407.1 is considered a "project" as defined by the California Environmental Quality Act (CEQA) and the South Coast AQMD is the designated lead agency. Pursuant to South Coast AQMD's Certified Regulatory Program (Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110) and CEQA Guidelines Section 15070, the South Coast AQMD has prepared an Environmental Assessment (EA) with less than significant impacts for PR 1407.1, which is a substitute CEQA document, prepared in lieu of a Negative Declaration. A Draft EA ~~has been~~was released for a 32-day public comment and review period from November 13, 2020 to December 15, 2020. ~~If~~ Two comments ~~are~~ were submitted, and the letters and responses to comments ~~will be~~are incorporated into the Final EA which will be included as an attachment to the Governing Board package. Prior to making a decision on the adoption of PR 1407.1, the South Coast AQMD Governing Board must review and certify the Final EA, including responses to comments, as providing adequate information on the potential adverse environmental impacts that may occur as a result of adopting PR 1407.1.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

Necessity

PR 1407.1 is needed to fill a regulatory gap and to further protect public health by reducing emissions of arsenic, cadmium, hexavalent chromium, and nickel from chromium alloy melting operations. The intent of this proposed adoption is to reduce toxic air contaminant emissions. The proposed adoption will reduce toxic air contaminant emissions from point and fugitive sources of chromium alloy melting operations.

Authority

The South Coast AQMD obtains its authority to adopt, amend, or repeal rules and regulations pursuant to California Health and Safety Code Sections 39002, 39650 et. seq., 40000, 40440, 40441, 40506, 40510, 40522, 40702, 40725 through 40728, 41508, and 41700.

Clarity

PR 1407.1 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency
PR 1407.1 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

Non-Duplication
PR 1407.1 will not impose the same requirements as any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference
In adopting this rule, the following statutes which the South Coast AQMD hereby implements, interprets or makes specific are referenced: California Health and Safety Code sections 39659 (regulations to establish programs for hazardous air pollutants), 39666 (Air Toxics Control Measures), 41700 (nuisance), Federal Clean Air Act (CAA) Section 112 (Hazardous Air Pollutants), and CAA Section 116 (more stringent state standards).

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2 requires a comparative analysis of the proposed rule with any Federal or South Coast AQMD rules and regulations applicable to the same source. See Table 3-3.

Table 3-3: Comparative Analysis

Rule Element	PR 1407.1	Rule 1407	40 CFR Part 63 ZZZZZ	40 CFR Part 63 EEEEE	CARB Non-Ferrous Metal Melting ATCM
Applicability	Chromium alloy smelters (primary and secondary), foundries, die-casters, and other establishments conducting miscellaneous chromium alloy melting processes	Non-chromium smelters (primary and secondary), foundries, die-casters, coating processes (galvanizing and tinning) and other miscellaneous processes such as dip soldering, brazing and aluminum powder production conducting non-chromium metal melting	Area source iron and steel foundries emitting less than 10 tons per year of any single hazardous air pollutant or less than 25 tons of any single hazardous air pollutant constructed after September 17, 2007	Major source iron and steel foundries emitting 10 tons per year or more of any single hazardous air pollutant or 25 tons or more of any single hazardous air pollutant	Non-ferrous smelters (primary and secondary), foundries, die-casters, coating processes (galvanizing and tinning) and other miscellaneous processes such as dip soldering, brazing and aluminum powder production conducting non-ferrous metal melting
Requirements	• Control emissions of toxic air contaminants by limiting aggregate hexavalent chromium mass emissions to 0.40 mg/hr for facilities with the nearest sensitive receptor less than 50 meters, 1.5 mg/hr for facilities with the	• Control emissions of arsenic, cadmium, and nickel by 99% or limit aggregate mass emissions to 0.000066 lb/hr of arsenic, 0.000541 lb/hr of cadmium, and 0.00848 lb/hr of nickel • Building enclosures • Housekeeping	• New foundries control particulate emissions to 0.1 lb/ton and hazardous air pollutant emissions to 0.008 lb/ton • Pollution prevention management practices for metallic scrap and mercury switches	• Existing electric arc furnaces control particulate emissions to 0.005 gr/dscf and hazardous air pollutant emissions to 0.0004 gr/dscf • Existing cupolas control particulate emissions to 0.006 gr/dscf and hazardous air	• Control particulate emissions from emission collection system by 99% • Temperature in exhaust stream may not exceed 360F • Maintenance program for emission control device monitoring • Housekeeping

Rule Element	PR 1407.1	Rule 1407	40 CFR Part 63 ZZZZZ	40 CFR Part 63 EEEEE	CARB Non-Ferrous Metal Melting ATCM
	nearest sensitive receptor 50 to 100 meters, and 1.8 mg/hr for facilities with the nearest sensitive receptor greater than 100 meters • Buildings to house chromium alloy melting operations with cross-draft minimization and closure of roof openings • Housekeeping • Visible emission standards	• Visible emission standards	• Maintenance program for emission control device monitoring • Housekeeping • Visible emission standards	pollutant emissions to 0.0005 gr/dscf • New electric induction furnaces control particulate emissions to 0.001 gr/dscf and hazardous air pollutant emissions to 0.00008 gr/dscf • New electric arc furnaces and cupolas control particulate emissions to 0.002 gr/dscf and hazardous air pollutant emissions to 0.0002 gr/dscf • Plan or certification to minimize hazardous air pollutants from scrap • Maintenance program for emission control device monitoring • Housekeeping • Visible emission standards	• Visible emission standards
Reporting	• Source test report • Repair of unintended or accidental building and roof breaches exceeding 72 hours • Parameter monitoring failure	• Source test report • Parameter monitoring failure	Semiannual compliance reports for exceedances, parametric monitor downtime, deviations from pollution prevention practices	Semiannual compliance reports for exceedances, parametric monitor downtime, deviations from pollution prevention practices	None
Monitoring	• Initial and periodic source testing • Parameter monitoring • Material testing for chromium non-ferrous alloys	• Initial and periodic source testing • Emission control device monitoring • Material testing	• Source test on a furnace that is vented to a control device every five years • Parametric monitoring • Bag leak detection system	• Source test on a furnace that is vented to a control device every five years • Parametric monitoring • Bag leak detection system	• One-time source test on a furnace that is vented to a control device • Parametric monitoring • Bag leak detection system
Recordkeeping	Melt records, material testing and source testing results, housekeeping log, construction and maintenance and repair activity log, building and roof breach repair activity	Melt records, material testing and source testing results, housekeeping log, emission control device monitoring log made available for three years	Test reports, notifications, semiannual reports made available for five years	Test reports, notifications, semiannual reports	Source testing results made available for two years

Rule Element	PR 1407.1	Rule 1407	40 CFR Part 63 ZZZZZ	40 CFR Part 63 EEEEE	CARB Non-Ferrous Metal Melting ATCM
	and reporting log, parameter monitoring log made available for five years				

ATTACHMENT H

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Environmental Assessment for Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions From Chromium Alloy Melting Operations

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PREFACE

This document constitutes the Final Environmental Assessment (EA) for Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions From Chromium Alloy Melting Operations. A Draft EA was circulated for a 32-day public review and comment period from November 13, 2020 to December 15, 2020 and two comment letters were received. The comment letters and responses relative to the Draft EA have been included in Appendix D of this Final EA.

Analysis of PR 1407.1 in the Draft EA indicated that reducing hexavalent chromium, arsenic, cadmium, and nickel emissions is a direct environmental benefit, and furthermore, no secondary significant adverse environmental impacts were expected for any environmental topic areas. Since no significant adverse impacts were identified, an alternatives analysis and mitigation measures are not required. [CEQA Guidelines Section 15252].

To facilitate identification of the changes between the Draft EA and the Final EA, modifications to the document were included as <u>underlined text</u> and text removed from the document was indicated by ~~strikethrough~~. Subsequent to the release of the Draft EA for public review and comment, modifications were made to PR 1407.1. The modifications include: 1) adding and revising definitions; 2) rewording and renumbering rule language; 3) adding requirements regarding stack installation and emission point modification; 4) revising effective dates; 5) adding time frame and recordkeeping requirements for facilities to repair accidental breaches; and 6) expanding source test requirements to account for the new emission point modification requirements and to allow the operator to cancel the source test the same day if unforeseen circumstance beyond their control arises. To avoid confusion, minor formatting changes are not shown in underline or strikethrough mode.

South Coast AQMD staff has reviewed the modifications to PR 1407.1 and has updated the CEQA analysis accordingly. None of the revisions: 1) constitute significant new information; 2) constitute a substantial increase in the severity of an environmental impact; or, 3) provide new information of substantial importance relative to the Draft EA. In addition, revisions to the proposed project in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft EA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft EA has been revised to include the aforementioned modifications such that is now the Final EA for PR 1407.1.

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CHAPTER 1

PROJECT DESCRIPTION

INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (South Coast AQMD) in 1977[1] as the agency responsible for developing and enforcing emission control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin. By statute, the South Coast AQMD is required to adopt an air quality management plan (AQMP) demonstrating compliance with all federal and state ambient air quality standards for the areas under the jurisdiction of the South Coast AQMD[2]. Furthermore, the South Coast AQMD must adopt rules and regulations that carry out the AQMP[3]. The AQMP is a regional blueprint for how the South Coast AQMD will achieve air quality standards and healthful air. The 2016 AQMP[4] contains multiple goals promoting reductions of criteria air pollutants, greenhouse gases (GHGs), and toxic air contaminants (TACs). In particular, the 2016 AQMP includes control measure TXM-06: Control of Toxic Emissions from Metal Melting Facilities, which seeks to further reduce arsenic, cadmium, nickel, other toxic metals, and particulates from foundry operations.

In 2017, South Coast AQMD staff was tasked with pursuing additional reductions of arsenic, cadmium, and nickel from non-ferrous metal melting operations as well as to explore ways to reduce emissions from previously exempted ferrous metal melting operations. South Coast AQMD staff's research of metal melting operations revealed that many facilities processed very large quantities of metals possibly containing arsenic, cadmium, and/or nickel but due to overly broad exemptions in Rule 1407 – Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Ferrous Metal Melting Operations, the processes were exempt from most of the requirements. For this reason, Rule 1407 was amended on October 4, 2019 to impose stricter criteria for a facility conducting metal melting operations to qualify for an exemption and to incorporate requirements to specifically address non-chromium metal melting operations.

The types of toxic air contaminants emitted from non-ferrous and ferrous metal melting operations vary and approaches to controlling multiple toxic air contaminant emissions are dependent upon the potency of each toxic air contaminant. In addition, while some non-ferrous alloys contain chromium, certain ferrous alloys do not. For these reasons, the title of Rule 1407 was revised to "Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations" and the rule applicability correspondingly changed. Chromium melting operations are addressed separately in Proposed Rule (PR) 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations which aims to reduce toxic air contaminant emissions of hexavalent chromium, arsenic, cadmium, and nickel from melting operations of metals containing greater than 0.5 percent chromium content. Melting operations include smelting, die-casting, and other miscellaneous processes where metals are processed in molten form; and affected metals include but are not limited to alloy steel, chromium non-ferrous alloys, stainless steel, superalloys. Proposed Rule 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. By focusing on

[1] The Lewis-Presley Air Quality Management Act, 1976 Cal. Stats., ch. 324 (codified at Health and Safety Code Section 40400-40540).

[2] Health and Safety Code Section 40460(a).

[3] Health and Safety Code Section 40440(a).

[4] South Coast AQMD, Final 2016 Air Quality Management Plan, March 2017. https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp

controlling hexavalent chromium emissions from chromium alloy melting operations, concurrent emission reductions of arsenic, cadmium, and nickel are also expected.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA), California Public Resources Code Section 21000 *et seq.*, requires environmental impacts of proposed projects to be evaluated and feasible methods to reduce, avoid or eliminate significant adverse impacts of these projects to be identified and implemented. The lead agency is the "public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect upon the environment." [Public Resources Code Section 21067]. Since PR 1407.1 is a South Coast AQMD-proposed rule, the South Coast AQMD has the primary responsibility for supervising or approving the entire project as a whole and is the most appropriate public agency to act as lead agency. [CEQA Guidelines[5] Section 15051(b)].

CEQA requires that all potential adverse environmental impacts of proposed projects be evaluated and that methods to reduce or avoid identified significant adverse environmental impacts of these projects be implemented if feasible. The purpose of the CEQA process is to inform the lead agency, responsible agencies, decision makers and the general public of potential adverse environmental impacts that could result from implementing PR 1407.1 (the proposed project) and to identify feasible mitigation measures or alternatives, when an impact is significant.

Public Resources Code Section 21080.5 allows public agencies with regulatory programs to prepare a plan or other written documents in lieu of an environmental impact report once the Secretary of the Resources Agency has certified the regulatory program. The South Coast AQMD's regulatory program was certified by the Secretary of Resources Agency on March 1, 1989 per CEQA Guidelines Section 15251(l), and has been adopted as South Coast AQMD Rule 110 – Rule Adoption Procedures to Assure Protection and Enhancement of the Environment.

Because PR 1407.1 requires discretionary approval by a public agency, it is a "project" as defined by CEQA[6]. The proposed project would further reduce public health impacts by reducing exposure to hexavalent chromium, arsenic, cadmium, and nickel, and would provide an overall environmental benefit to air quality. However, South Coast AQMD's review of the proposed project also shows that the activities that facility operators may undertake to comply with PR 1407.1 may also create secondary adverse environmental impacts that would not result in significant impacts for any environmental topic area. Thus, the analysis of PR 1407.1 indicates that the type of CEQA document appropriate for the proposed project is an Environmental Assessment (EA) with no significant impacts. The EA is a substitute CEQA document, which the South Coast AQMD, as lead agency for the proposed project, prepared in lieu of a Negative Declaration with no significant impacts (CEQA Guidelines Section 15252), pursuant to the South Coast AQMD's Certified Regulatory Program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l); South Coast AQMD Rule 110). The EA is also a public disclosure document intended to: 1) provide the lead agency, responsible agencies, decision makers and the general public with information on the environmental impacts of the proposed project; and, 2) be used as a tool by decision makers to facilitate decision making on the proposed project.

[5] The CEQA Guidelines are codified at Title 14 California Code of Regulations Section 15000 *et seq.*

[6] CEQA Guidelines Section 15378

The EA includes a project description in Chapter 1 and an Environmental Checklist in Chapter 2. The Environmental Checklist provides a standard tool to identify and evaluate a project's adverse environmental impacts and the analysis concluded that no significant adverse impacts would be expected to occur if PR 1407.1 is implemented. Because PR 1407.1 would have no statewide, regional or areawide significance, no CEQA scoping meeting is required to be held for the proposed project pursuant to Public Resources Code Section 21083.9(a)(2). Further, pursuant to CEQA Guidelines Section 15252, since no significant adverse impacts were identified, no alternatives or mitigation measures are required.

The Draft EA ~~is being~~was released for a 32-day public review and comment period from November 13, 2020 to December 15, 2020. ~~All~~ Two comment letters were received during the public comment period on the analysis presented in the Draft EA; the comment letters ~~will~~ and the responses ~~be responded to and~~ are included in ~~an a~~Appendix ~~to the~~D of this Final EA.

Subsequent to the release of the Draft EA for public review and comment, modifications were made to PR 1407.1 and some of the revisions were made in response to verbal and written comments received during the rule development process. South Coast AQMD staff has reviewed the modifications to PR 1407.1 after the release of the Draft EA for the 32-day public review and comment period and updated the CEQA analysis accordingly. None of the revisions: 1) constitute significant new information; 2) constitute a substantial increase in the severity of an environmental impact; or, 3) provide new information of substantial importance relative to the Draft EA. In addition, revisions to the proposed project in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft EA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft EA has been revised to include the aforementioned modifications such that is now the Final EA for PR 1407.1.

Prior to making a decision on the adoption of PR 1407.1, the South Coast AQMD Governing Board must review and certify the Final EA as providing adequate information on the potential adverse environmental impacts that may occur as a result of adopting PR 1407.1.

PROJECT LOCATION

PR 1407.1 applies to any owner or operator of a facility in South Coast AQMD jurisdiction conducting chromium alloy melting, including smelters (primary and secondary), foundries, die-casters, mills, and other establishments conducting miscellaneous melting processes. The South Coast AQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the four-county South Coast Air Basin (Basin) and the Riverside County portion of the Salton Sea Air Basin (SSAB) and the non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin (MDAB). The Basin, a subarea of South Coast AQMD's jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east and includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Riverside County portion of the SSAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. A federal non-attainment area (known as the Coachella Valley Planning Area) is a subregion of Riverside County and the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (see Figure 1-1).

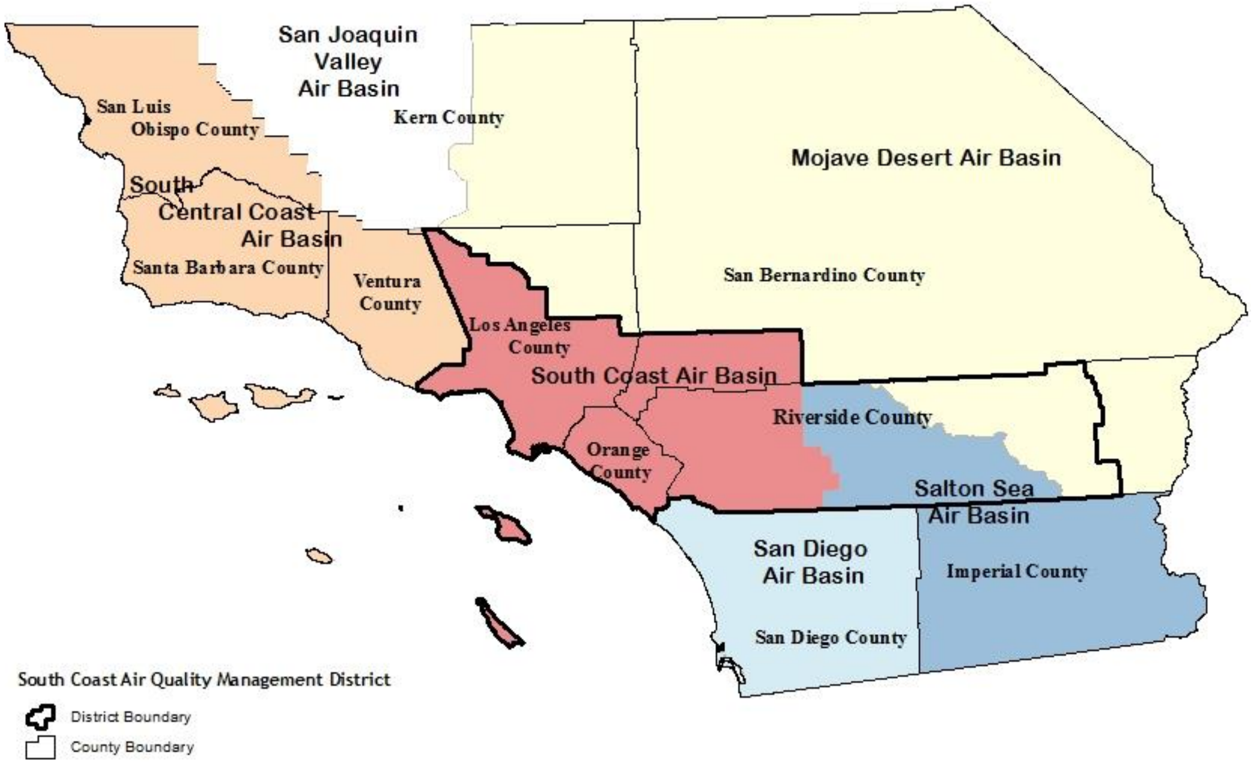

Figure 1-1
Southern California Air Basins

PROJECT BACKGROUND

In 1983, the California Legislature established Assembly Bill 1807, a two-step process to identify toxic air contaminants and to propose airborne toxic control measures (ATCMs) for the identified toxic air contaminants from specific sources. In January 1993, the California Air Resources Board (CARB) adopted the non-ferrous metal melting ATCM[7] and established January 6, 1994 as the effective date of the ATCM. The South Coast AQMD was given a May 9, 1994 deadline to implement and enforce the ATCM or to propose regulations implementing the ATCM. On July 8, 1994, the South Coast AQMD adopted Rule 1407 – Control of Emissions of Arsenic, Cadmium and Nickel from Non-Ferrous Metal Melting Operations, to reduce emissions of arsenic, cadmium, and nickel from non-ferrous metal melting operations by requiring air pollution control equipment to be installed on affected equipment, and requiring parametric monitoring and housekeeping to be conducted. At the time of its rule development and subsequent adoption, Rule 1407 focused on non-ferrous metal melting operations because arsenic and cadmium, both toxic metals, were associated with this source category. The ATCM did not include ferrous metals since it was beyond the scope of the investigation. CARB intended to evaluate the need for proposed controls for ferrous metal melting operations in the future.

[7] California Air Resources Board, Non-Ferrous Metal Melting ATCM, December 30, 1998. https://ww2.arb.ca.gov/sites/default/files/classic//toxics/atcm/metalm.pdf?_ga=2.84703194.2113944730.1601503890-36779924.1597455386

The 2016 AQMP includes control measure TXM-06: Control of Toxic Emissions from Metal Melting Facilities, which seeks to further reduce arsenic, cadmium, nickel, other toxic metals, and particulates from foundry operations. In accordance with the control measure, South Coast AQMD staff explored ways to reduce emissions from ferrous metal melting facilities and to further reduce arsenic, cadmium, and nickel from non-ferrous metal melting operations.

In 2017, South Coast AQMD staff was tasked with pursuing additional reductions of arsenic, cadmium, and nickel from non-ferrous metal melting operations as well as to explore ways to reduce emissions from previously unregulated ferrous metal melting operations. South Coast AQMD staff's research of metal melting operations revealed that many facilities processed very large quantities of metals possibly containing arsenic, cadmium, and/or nickel. Due to the "metal or alloy purity" exemption as well as the "clean aluminum scrap" exemption which did not limit the content of arsenic, cadmium, or nickel contained in the scrap, amendments were necessary to prevent a possible release of toxic emissions that could pose a risk to the surrounding community. For this reason, Rule 1407 was amended on October 4, 2019 to impose stricter criteria for a facility conducting metal melting operations to qualify for an exemption and to incorporate requirements to specifically address non-chromium metal melting operations.

The types of toxic air contaminants emitted from non-ferrous and ferrous metal melting operations vary and approaches to controlling multiple toxic air contaminant emissions are dependent upon the potency of each toxic air contaminant. In addition, while some non-ferrous alloys contain chromium, certain ferrous alloys do not. For these reasons, the title of Rule 1407 was revised to "Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations" and the rule applicability correspondingly changed. Chromium melting operations are addressed separately in Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations which aims to reduce toxic air contaminant emissions of hexavalent chromium, arsenic, cadmium, and nickel from melting operations of metals containing greater than 0.5 percent chromium content. Melting operations include smelting, die-casting, and other miscellaneous processes where metals are processed in molten form; and affected metals include but are not limited to alloy steel, chromium non-ferrous alloys, stainless steel, superalloys.

TECHNOLOGY OVERVIEW

The following discussion provides a general overview of the most likely emission control options that would be used to comply with PR 1407.1.

Building Enclosure

A building, as defined in PR 1407.1, is a structure enclosed with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation or wind). Cross-draft conditions of a building shall be minimized by not allowing openings on opposite ends of the building to be open simultaneously except during the passage of vehicles, equipment, or people. Minimizing cross-draft conditions would help prevent a loss in the efficiency of an emission collection system. Building o~~O~~penings include passages, doorways, bay doors, wall openings, roof openings, vents, and windows. Methods to close building openings, include use of automatic doors, installation of overlapping plastic strip curtains, vestibules, and airlock systems. Barriers, such as large pieces of equipment, except if used for a chromium alloy melting operation, may also be used to block building openings.

If building requirements cannot be complied with due to conflicting requirements set forth by the United States Department of Labor Occupational Safety and Health Administration (OSHA), the California Division of Occupational Safety and Health (Cal/OSHA), or other municipal codes or agency requirements directly related to worker safety, an owner or operator of a chromium alloy melting facility may use an alternative building compliance measure(s) that has been approved, in writing, by the Executive Officer that meets the same air quality objective and effectiveness of the building compliance requirement it is replacing.

Baghouse

A baghouse is an air filtration control device designed to remove particulate matter (PM) from an exhaust gas stream using filter bags, cartridge-type filters, or envelope-type filters. A baghouse consists of the following components: filter medium and housing for the filter, filter cleaning device, collection hopper, shell, and fan. Most baghouse designs in the United States consist of long cylindrical tubes (bags) made of fabric which acts as the filter medium. A baghouse functions like a vacuum cleaner with a fan either blowing air from the grinding source through (positive pressure) the filter or drawing air into (negative pressure) the filter. When PM laden air flows to the inlet of a baghouse, the PM is captured in the filter bags inside the baghouse and filtered air flows from the outlet of the baghouse. Dust layers (dust cakes) deposit on the surface of the bags which need to be cleaned periodically to ensure proper baghouse function.

Effective performance of a baghouse is determined by pressure drop which is a measurement of the difference in air pressure between the clean and dirty sides of the filter. Static pressure gauges can be installed at the inlet and outlet of the fabric filter to determine the pressure drop across the filter. In addition, baghouses can be equipped with a bag leak detection system (BLDS) to continuously monitor the performance of the baghouse functions by detecting early bag leak or malfunction. A BLDS consists of a stainless steel probe that is energized with a direct current (DC) electrical voltage. When the particles flow near the probe placed in the PM laden exhaust gas stream, the small current changes (called triboelectric current) in its electric field are measured.

Pressure drop monitoring is a useful indicator of baghouse performance since pressure drop measurements can help determine if the filter media is being properly cleaned and whether the baghouse is operating in accordance with manufacturer specifications. For example, during operation of the baghouse, an increased pressure drop signals that the filter media is becoming clogged and needs to be cleaned. Similarly, a low pressure drop may indicate that there are holes in the filter media or a mechanical failure of baghouse components. In either case, there would be a reduction in the baghouse's ability to efficiently capture and control PM emissions. For these reasons, the filter media need to be cleaned periodically to prevent excessive increases in pressure drop, leaking bag, and improper baghouse function.

Baghouses are typically cleaned in sections, with jets of counter-flowing air used to blow dust build-up off the filter and into a hopper. For many baghouse installations, the baghouse follows a routine cycle with the pressure drop increasing as the bag becomes coated with dust and dropping back to a baseline value after it is cleaned. Common types of baghouses include reverse-air-, pulse-jet-, and cartridge type baghouses. A reverse air-type baghouse uses a low pressure flow of air to break the dust cake and clean the bags of material build-up. Cleaning air is supplied by a separate fan which is normally smaller than the mainstream fan, since only one compartment is cleaned at a time. A pulse-jet-type baghouse uses a high pressure jet of compressed air to back-flush the bags. Cleaning is performed while the baghouse remains in operation. Cartridge (cylindrical) type filters have pleated, non-woven filter media supported on a perforated metal cartridge. Due to its pleated design, total filtering area is greater than in a conventional bag of the same diameter, resulting in reduced air-to-cloth ratio, pressure drop, and overall collector size. Too heavily loaded cartridges can either be cleaned by a pulse jet compressed air or replaced with new cartridges. Cartridge type filters have high particle collection efficiency of, at a minimum, 99.9 percent (%), and are usually used for industrial process handing exhaust gas flow rates less than 50,000 cubic feet per minute (cfm).

The National Fire Protection Association has special designations for deflagrations (e.g., explosion prevention) from metal dust. Therefore, operators of metal grinding activities that require baghouse emission control technologies would also need to select reliable, economical, and effective means of explosion control such as baghouse explosion suppression, containment, and venting. Additional information pertaining to these types of protective measures is available in Chapter 8 of the *Industrial Ventilation, A Manual for Recommended Practice for Design* 30th Edition, published by the American Conference of Governmental Industrial Hygienists, ©2019.

High Efficiency Particulate Arrestor (HEPA) and Ultra Low Particulate Air (ULPA) Filters

HEPA filters are capable of capturing fine PM as small as 0.3 micron (μm) diameter or larger with a minimum efficiency rating of 99.97%. ULPA filters are capable of capturing fine PM as small as 0.12 μm diameter or larger with a minimum efficiency rating of 99.9995%. Both filters have a high collection efficiency when compared to other PM control devices and are utilized in situations when a high collection efficiency of submicron PM is necessary such as for toxics. Unlike bags or cartridge filters in baghouses, HEPA and ULPA filters are not automatically cleaned. When a filter element becomes loaded with PM, the filter element is replaced, and the loaded filter is disposed of as hazardous waste.

A HEPA or ULPA filter is generally installed as the final component in a PM collection system downstream from other PM collection devices. The use of a HEPA or ULPA filter is recommended to have a pre-filter upstream to remove large PM for dust concentrations greater that 0.03 grams per square centimeter (g/cm2) or 0.06 pounds per square feet ~~squared~~ (lbs/ft2).

PROJECT DESCRIPTION

The purpose of PR 1407.1 is to reduce point source and fugitive emissions of hexavalent chromium, arsenic, cadmium, and nickel from chromium alloy melting operations, thereby minimizing public health impacts by reducing exposure to toxic air contaminants. PR 1407.1 fills a regulatory gap and is intended to complement South Coast AQMD Rule 1407. During the rule development process for PR 1407.1, source tests were conducted at two facilities in 2019 and the results provided data which was used to quantify each facility's maximum individual cancer risk (MICR) according to distance. The proposed point source control efficiency requirements and mass emission limits were derived from the MICR determinations.

The proposed housekeeping requirements and building enclosure provisions in PR 1407.1 are based on similar requirements in other recently adopted or amended South Coast AQMD rules such as Rules 1407, 1420 – Emissions Standard for Lead, 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities, 1420.2 – Emission Standards for Lead from Metal Melting Facilities, and 1430 – Control of Emissions from Metal Grinding Operations at Metal Forging Facilities. Source testing, material testing, parameter monitoring, and recordkeeping provisions are also proposed.

Eleven facilities were identified as being subject to PR 1407.1 as a result of reviewing South Coast AQMD permits for metal melting furnaces and South Coast AQMD inspection reports for metal operations facilities, conducting internet searches for facilities that offer metal melting services, and conducting 30 site visits at facilities with various chromium and non-chromium metal melting operations. Facilities that conduct heat treating or other metalworking operations but do not melt metal were excluded. Additionally, PR 1407.1 proposes to exclude facilities that melt: 1) only non-chromium metals since they are already subject to Rule 1407, and 2) metals containing lead since they are already subject to either Rule 1420.1 or Rule 1420.2.

If PR 1407.1 is adopted, all 11 facilities would need to comply with emission control requirements, prohibitions, housekeeping practices, building requirements, and conduct source tests and parameter monitoring amongst other provisions. More specifically, all facilities would need to close roof openings that are located 15 feet or less above the edge of a chromium alloy melting furnace and where molten metal is poured and cooled, remove weather caps, purchase a handheld anemometer, install at least one bag leak detection system, and install at least two pressure gauges with data acquisition system (DAS) to monitor each baghouse and filter bank. In addition, in order to comply with PR 1407.1:

- 10 facilities would need to make minor building upgrades such as installing plastic strip curtains;
- While eight facilities would each need to install one bag leak detection system, three facilities would need to install two;
- While eight facilities would each need to install two pressure gauges with DAS, two facilities would each need to install four, and one facility would need to install ~~seven~~11;
- Five facilities would need to install one baghouse each;
- Eight facilities would need to install a total ~~14~~ 18 HEPA filtration units; and
- One facility would need to install one ULPA filtration unit.

Subsequent to the circulation of the Draft EA for public comment and review, the number of control devices that may be required was revised such that one facility would need to install four additional HEPA filter units and correspondingly, install four pressure gauges with DAS and conduct four additional source tests. The analysis in Chapter 2 of this Final EA has been updated to reflect these revisions.

While implementation of PR 1407.1 would be expected to reduce public health impacts from point source and fugitive emissions of metal toxic air contaminants, it is not possible to quantify the emission reductions at each point source in each affected facility.

The following is a detailed summary of the key elements contained in PR 1407.1. A draft of rule language can be found in Appendix A.

Purpose – subdivision (a) & Applicability – subdivision (b)

Subdivision (a) states the purpose of this rule to reduce emissions of toxic air contaminants from chromium alloy melting operations. Subdivision (b) states the rule applies to an owner or operator of a facility conducting chromium alloy melting. "Chromium alloy" is defined in paragraph (c)(9) to be "any metal at least 0.5 percent chromium by weight, including, but not limited to, alloy steel, stainless steel, chromium non-ferrous alloy, and superalloy." Each sub-category is further defined in subdivision (c) according to standard industry definitions, and other metal (such as scrap and rerun scrap) also meeting the minimum 0.5 percent chromium by weight is included in the chromium alloy definition. The melting of metals that contain less than 0.5 percent chromium by weight such as carbon steel, aluminum, aluminum alloys, brass, bronze, and lead are not subject to this rule. "Chromium alloy melting operations" is defined in paragraph (c)(12) to be "any process conducted where a chromium alloy is melted, poured, casted, and finished including, but not limited to, chromium alloy melting, casting, casting material removal, metal grinding, and metal cutting."

Definitions – subdivision (c)

PR 1407.1 contains similar definitions of terms as Rule 1407 for approved cleaning methods, building enclosures and enclosed storage area, but with slight differences as indicated in italics:

- APPROVED CLEANING METHODS means cleaning using wet wash, wet mop, damp cloth, or low pressure spray; *sweeping with use of dust suppressing sweeping compounds;* or vacuuming with a vacuum equipped with filter(s) rated by the manufacturer to achieve a 99.97 percent control efficiency for 0.3 micron particles.
- BUILDING means a type of enclosure that is a structure, enclosed with a floor, walls, and a roof to prevent exposure to the elements (e.g. precipitation or wind).
- <u>BUILDING OPENING means any opening that is designed to be part of a building, such as passages, doorways, bay doors, wall openings, roof openings, vents, and windows. Stacks, ducts, and openings to accommodate stacks and ducts are not considered openings.</u>
- ENCLOSED STORAGE AREA means any space used to contain materials that has a wall or partition on at least three sides or three-quarters of its circumference, *that is at least six inches taller than the height of the materials contained in the space,* and that screens the materials stored therein to prevent emissions of the material into the air.

Emission Control Requirements – subdivision (d)

Aggregate hexavalent chromium emission is limited to 0.40 milligrams per hour (mg/hr) for sensitive receptors located at a distance less than 50 meters, 1.5 mg/hr for sensitive receptors located between 50 meters and 100 meters, and 1.8 mg/hr for sensitive receptors located at a distance greater than 100 meters. Distances are measured from the stack or centroid of stacks to the nearest property line of the closest sensitive receptor, at the time a permit application is deemed complete with the South Coast AQMD.

Prohibitions – subdivision (e)

An owner or operator cannot melt chromium non-ferrous alloys which contain more than 0.002 percent arsenic by weight or 0.004 percent cadmium by weight. New exhaust stacks cannot be oriented in a horizontal~~ly~~ or downward direction, and, on or after January 1, 2022, no vertical stacks may utilize a weather cap that restricts the flow of exhaust air.

Housekeeping Requirements – subdivision (f)

To prevent the accumulation of hazardous waste and the generation of fugitive emissions due to improper storage or during the transport of hazardous materials or waste, requirements for conducting housekeeping and cleaning on a daily, weekly, quarterly, semi-annual, annual, and biennial basis are proposed.

Building Requirements – subdivision (g)

PR 1407.1 proposes to require that all chromium alloy melting operations to be conducted inside a building. Additional building enclosure provisions are proposed that would prevent fugitive emissions from cross drafts through openings on opposite ends of the building or rising uncaptured emissions through openings in the building roof.

On or after January 1, 2022, within 48 hours of discovery of an unintended or accidental breach in a building that results in air passing through any space where chromium alloy melting operations occur or in a roof that is located 15 feet or less above the edge of a chromium alloy melting furnace and where molten metal is poured and cooled, the owner or operator of a chromium alloy melting facility shall notify the Executive Officer and repair the breach within 72 hours of discovery of the breach. If repair of the breach exceeds 72 hours, the owner or operator shall notify the Executive Officer with the estimated time to repair the breach. The owner or operator shall make such notifications by calling 1-800-CUT-SMOG (1-800-288-7664).

Exemptions – subdivision (l)

PR 1407.1 contains a low use exemption from all requirements except recordkeeping for an owner or operator that melts no more than one ton of chromium alloy(s). The following facilities and equipment are proposed to be exempt from PR 1407.1: educational facilities, jewelers, equipment subject to Rules 1420.1 and 1420.2, and brazing, dip soldering, and wave soldering operations. Metal cutting and metal grinding performed for maintenance and repair activities except for those associated with chromium alloy melting operation(s), emission collection and control, or housekeeping or building requirements that would generate fugitive emissions, are also exempt.

CHAPTER 2

ENVIRONMENTAL CHECKLIST

Introduction

General Information

Environmental Factors Potentially Affected

Determination

Environmental Checklist and Discussion

INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's potential adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed project.

GENERAL INFORMATION

Project Title:	Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
CEQA Contact Person:	Kevin Ni, (909) 396-2462, kni@aqmd.gov
PR 1407.1 Contact Person:	Charlene Nguyen, (909) 396-2648, cnguyen@aqmd.gov
Project Sponsor's Name:	South Coast Air Quality Management District
Project Sponsor's Address:	21865 Copley Drive Diamond Bar, CA 91765
General Plan Designation:	Not applicable
Zoning:	Not applicable
Description of Project:	PR 1407.1 proposes to reduce hexavalent chromium, arsenic, cadmium, and nickel emissions from melting operations of metals containing greater than 0.5 percent chromium, including, but not limited to, alloy steel, chromium non-ferrous alloys, stainless steel, and superalloys. Chromium alloy melting operations include smelting, die-casting, and other miscellaneous processes where metals are processed in molten form. PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. By focusing on controlling hexavalent chromium emissions from chromium alloy melting operations, concurrent emission reductions of arsenic, cadmium, and nickel are also expected. The ~~Draft~~ Final EA did not result in the identification of any environmental topic areas that would be significantly adversely affected by PR 1407.1.
Surrounding Land Uses and Setting:	Various
Other Public Agencies Whose Approval is Required:	Not applicable

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed project. As indicated by the checklist on the following pages, environmental topics marked with an "✓"involve at least one impact that is a “Potentially Significant Impact”. An explanation relative to the determination of impacts can be found following the checklist for each area.

☐	Aesthetics	☐	Geology and Soils	☐	Population and Housing
☐	Agriculture and Forestry Resources	☐	Hazards and Hazardous Materials	☐	Public Services
☐	Air Quality and Greenhouse Gas Emissions	☐	Hydrology and Water Quality	☐	Recreation
☐	Biological Resources	☐	Land Use and Planning	☐	Solid and Hazardous Waste
☐	Cultural and Tribal Cultural Resources	☐	Mineral Resources	☐	Transportation
☐	Energy	☐	Noise	☐	Wildfire
☐	Mandatory Findings of Significance				

DETERMINATION

On the basis of this initial evaluation:

☑ I find the proposed project, in accordance with those findings made pursuant to CEQA Guidelines Section 15252, COULD NOT have a significant effect on the environment, and that an ENVIRONMENTAL ASSESSMENT with no significant impacts has been prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will NOT be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. An ENVIRONMENTAL ASSESSMENT with no significant impacts will be prepared.

☐ I find that the proposed project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL ASSESSMENT will be prepared.

☐ I find that the proposed project MAY have a "potentially significant impact" on the environment, but at least one effect: 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards; and, 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL ASSESSMENT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects: 1) have been analyzed adequately in an earlier ENVIRONMENTAL ASSESSMENT pursuant to applicable standards; and, 2) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL ASSESSMENT, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Date: November 12, 2020 **Signature:** Barbara Radlein

Barbara Radlein
Program Supervisor, CEQA
Planning, Rule Development and Area Sources

ENVIRONMENTAL CHECKLIST AND DISCUSSION

As explained in Chapter 1, PR 1407.1 proposes to reduce hexavalent chromium, arsenic, cadmium, and nickel emissions from chromium alloy melting operations at 11 facilities by establishing collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements.

Implementation of PR 1407.1 is anticipated to require physical modifications and compliance activities which may create secondary adverse environmental impacts which will be analyzed in this chapter. Installation of air pollution control equipment such as baghouses and HEPA or ULPA filtration units to comply with collection efficiency requirements and hexavalent chromium mass emission limits is a physical modification. Minor improvements including but not limited to installing strip curtains and closing roof openings to minimize the movement of fugitive metal dust within the buildings where chromium alloy melting operations occur are also physical modifications. Activities associated with implementing housekeeping and conducting source tests may create some secondary adverse environmental impacts.

There are other components in PR 1407.1 that are administrative or procedural in nature and as such, would not be expected to cause any physical changes that would create any secondary adverse environmental impacts. These include recordkeeping, applying for permit applications, and preparing and submitting source testing protocols.

For these reasons, the analysis in this ~~Draft~~ Final EA focuses on the key elements in PR 1407.1 with the potential to create secondary adverse environmental impacts associated with installing and maintaining emission control devices, constructing building enclosures, conducting source tests, and implementing housekeeping requirements. The key components of PR 1407.1 that are expected to involve physical activities and the number facilities affected by each provision are summarized in Table 2-1.

Subsequent to the circulation of the Draft EA for public comment and review, the number of control devices that may be required was revised such that one facility would need to install four additional HEPA filter units and correspondingly, install four pressure gauges with DAS and conduct four additional source tests. As a result of further refining the facility data, updates to the air quality and GHG, and energy analyse~~i~~s were made. However, even with these updates, the analyzed impacts for these environmental topic areas on a peak day and the conclusions reached remain~~ed~~ the same as what was presented in the Draft EA. Thus, South Coast AQMD staff's review of the modifications to PR 1407.1 since the Draft EA was released indicate that none of the resulting revisions to the Draft EA: 1) constitute significant new information; 2) constitute a substantial increase in the severity of an environmental impact; or, 3) provide new information of substantial importance relative to the Draft EA. In addition, revisions to the proposed project in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft EA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5.

Table 2-1
Key Components of PR 1407.1 with Physical Effects on Affected Facilities

PR 1407.1 Category	**Number of Affected Facilities**	**Potential Physical Effects on Affected Facilities**
Subdivision (d): Emission Control Requirements	5	Each facility would need to install one baghouse which would involve construction activities and maintenance once the baghouse becomes operational. Maintenance activities involve periodically emptying the baghouse filters, collecting the waste material, and hauling it away for disposal.
	9	~~14~~ 18 HEPA filtration units would need to be installed at eight facilities. One facility would need to install one ULPA filtration unit; however, the installation process and housing for an ULPA is the same as for a HEPA. Once the installation is completed, periodic replacement and disposal of spent HEPA/ULPA filters would be necessary.
Subdivision (f): Housekeeping Requirements	11	Each facility would be required to conduct various types of housekeeping activities including but not limited to: cleaning floors, roofs, and areas around air pollution collection points via wet wash, wet mop, or dry sweeping with the use of dust suppressing sweeping compound. Facilities may employ a HEPA vacuum system such as a portable HEPA backpack unit or HEPA sweeper. Periodic replacement and disposal of spent HEPA filters would be necessary.
Subdivision (e): Prohibitions		Removal of existing weather caps would be necessary at each facility to provide a clear path for air movement when the exhaust fan is operating. One-time installation of butterfly caps or dampers to replace the weather cap required for removal is anticipated though not required by the rule.
Subdivision (g): Building Requirements		All facilities would need to close roof openings that are located 15 feet or less above the edge of a chromium alloy melting furnace and where molten metal is poured and cooled. Except for one facility, all facilities would also need to install overlapping floor-to-ceiling plastic strip curtains or another physical modification to close openings on one end for each pair of opposing ends of the building, except during the passage of vehicles, equipment, or people.
Subdivision (h): Source Testing Requirements		~~17~~ 21 initial source tests would need to be conducted for ~~76~~ 80 equipment units by July 1, 2024, with additional source testing required every 60 months thereafter.
Subdivision (j): Parameter Monitoring Requirements		Eight facilities would need to install one bag leak detection system; three would need to install two each (14 total). Eight facilities would need to install two pressure gauges with data acquisition systems, two would need to install four each, and one would need to install ~~seven~~ 11 (~~31~~ 35 total).
Attachment A: Smoke Test		Smoke tests would need to be conducted for each emission collection system at each facility during each source test pursuant to paragraph (h)(4), and additionally once every six months to determine effective emission control device operation.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point(s).) If the project is in an urbanized area, would the project conflict with applicable zoning or other regulations governing scenic quality?	☐	☐	☐	☑
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☑

Significance Criteria

The proposed project impacts on aesthetics will be considered significant if:

- The project will block views from a scenic highway or corridor.
- The project will adversely affect the visual continuity of the surrounding area.
- The impacts on light and glare will be considered significant if the project adds lighting which would add glare to residential areas or sensitive receptors.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

I. a), b), c) & d) No Impact. Physical modifications associated with PR 1407.1 include the following construction activities which are expected to require the use of off-road equipment such as aerial lifts, forklifts, air compressors, and welders: 1) enclosing building and roof openings; 2) installing plastic strip curtains; 3) constructing baghouses and HEPA/ULPA filtration units; 4) installing bag leak detection systems, and pressure gauges with digital acquisition systems; and 5) removing weather caps. The construction equipment is expected to be low in height and not substantially visible to the surrounding area due to construction occurring within each existing facility's property line, existing fencing along property lines, and existing structures currently within each facility's boundaries that may buffer the views of the construction activities.

Since the affected facilities are located in existing industrial areas, the construction equipment is not expected to be substantially discernable from other off-road equipment that exists on-site for routine operations and maintenance activities. Further, the construction activities are not expected to adversely impact views and aesthetics resources since most of the construction equipment and activities are expected to occur within the confines of each existing facility and are expected to introduce only minor visual changes to areas outside each facility, if at all, depending on the location of the construction activities within each affected facility. In addition, the construction activities are expected to be temporary in nature. Once construction is completed, all construction equipment would be removed from each facility.

The physical modifications would result in slight changes to the appearance of the affected facilities. However, due to the nature of the modifications, any altered appearances would be minor and would not substantially alter the overall visual character of the existing facilities. In addition, after construction is completed, the result of enclosing building and roof openings and installing strip curtains to minimize cross-draft conditions combined with the operation of new air pollution control equipment (e.g., baghouses with HEPA/ULPA filtration units would be expected to reduce particulate emissions, thus serving to prevent visible emissions from the affected facilities.

The affected facilities are located throughout the Los Angeles, Orange, and San Bernardino counties and each county is mandated by the state of California to prepare a general plan containing an aesthetics element[8] [9] [10]. However, none of the anticipated physical activities associated with implementing PR 1407.1 would involve activities that would exceed height restrictions or be inconsistent with each facility's zoning designation. The proposed project would neither take place in nor have a substantial adverse effect on a scenic vista indicated in the Los Angeles County General Plan 2035, County of Orange General Plan, or San Bernardino Countywide Plan. Further, none of the affected facilities are located within the views of a scenic vista or state scenic highway as designated by the California Department of Transportation (CalTrans)[11].

For these reasons, implementation of PR 1407.1 would have no substantial adverse effect on scenic vistas or other scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. Also, since all of the affected facilities are located in urbanized areas, any changes to the buildings or structures would require approvals from the local

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8 Los Angeles County Department of Regional Planning, Los Angeles County General Plan 2035, Chapter 9: Conservation and Natural Resources Element, Accessed October 2020. http://planning.lacounty.gov/generalplan/generalplan

9 OC Public Works, General Plan, Chapter IV Scenic Highway Plan Map and Chapter VI Resources Element, Accessed October 2020. https://www.ocpublicworks.com/ds/planning/generalplan

10 San Bernardino County Land Use Services, Open Space Element, Accessed October 2020. http://cms.sbcounty.gov/Portals/5/Planning/ZoningOverlaymaps/OpenSpaceCountywide.pdf

11 Caltrans, Scenic Highways, Accessed October 2020. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways

city or county planning departments. Therefore, PR 1407.1 would not be expected to conflict with applicable zoning or other regulations governing scenic quality.

The requirements in PR 1407.1 specific to conducting housekeeping, source testing, material testing, parameter monitoring, and recordkeeping would involve low-profile activities, if at all, that would be expected to blend in with routine day-to-day operations occurring within the fence line of each affected facility. Therefore, housekeeping, maintenance, source testing and smoke testing would not be expected to cause any discernable aesthetic impacts visible to outside the property lines of each facility.

PR 1407.1 does not include any components that would require construction activities to occur at night. Further, cities often have their own limitations and prohibitions that restrict construction from occurring during evening hours and weekends. Therefore, no additional temporary construction lighting at the facility would be expected. However, if facility operators determine that the construction schedule requires nighttime activities, temporary lighting may be required. Nonetheless, since construction activities would be completely located within the boundaries of each affected facility, additional temporary lighting is not expected to be discernable from the existing permanent night lighting.

The existing buildings at the affected facilities are currently illuminated at night for safety and security purposes, and the lighting typically faces toward the interior of the each facility's property so that they point downward or parallel to the ground, which has the effect of limiting the amount of lighting to what is needed to adequately illuminate the specific locations. While minimal, additional permanent light sources could potentially be installed at or near the installation of new baghouses and HEPA/ULPA filtration units, PR 1407.1 does not specifically require new lighting to be installed. Thus, any new lighting, if installed, would likely be consistent in intensity and type with the existing lighting on equipment and other structures at the existing facilities and directed to minimize potential lighting impacts on areas outside the property lines. These practices are followed to avoid or minimize potential lighting impacts on areas outside each facility's property. Since the anticipated modifications would occur within the boundaries of each facility's property, no new areas are expected to be illuminated off-site by permanent additional lighting, in the event any new lighting is installed.

For these reasons, the proposed project would not create a new source of substantial light or glare at any of the affected facilities in a manner that would adversely affect day or nighttime views in the surrounding areas.

Conclusion

Based upon these considerations, significant adverse aesthetics impacts are not expected from implementing PR 1407.1. Since no significant aesthetics impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non- agricultural use?	☐	☐	☐	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?	☐	☐	☐	☑
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☑
e) Involve other changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☑

Significance Criteria

Project-related impacts on agriculture and forest resources will be considered significant if any of the following conditions are met:

- The proposed project conflicts with existing zoning or agricultural use or Williamson Act contracts.
- The proposed project will convert prime farmland, unique farmland or farmland of statewide importance as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.
- The proposed project conflicts with existing zoning for, or causes rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined in Public Resources

Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g)).

- The proposed project would involve changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

II. a), b), c), d), & e) No Impact. The affected facilities and their immediately surrounding areas are not located on or near areas zoned for agricultural use, Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Department of Conservation[12]. Therefore, the proposed project would not result in any construction of new buildings or other structures that would require converting farmland to non-agricultural use or conflict with zoning for agriculture use or a Williamson Act contract. The construction and operation activities would be expected to occur within the confines of existing industrial facilities; thus, the proposed project is not expected to result in converting farmland to non-agricultural use; conflict with existing zoning for agricultural use, or a Williamson Act Control.

All of the facilities are located in industrial use areas in the urban portion of the Basin that is not near forest land. Therefore, the proposed project is not expected to conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)) or result in the loss of forest land or conversion of forest land to non-forest use. Consequently, the proposed project would not create any significant adverse agriculture or forestry impacts.

Conclusion

Based upon these considerations, significant adverse agriculture and forestry resources impacts are not expected from implementing PR 1407.1. Since no significant agriculture and forestry resources impacts were identified, no mitigation measures are necessary or required.

[12] California Department of Conservation, California Important Farmland Finder, Accessed October 2020. https://maps.conservation.ca.gov/DLRP/CIFF/

	Potentially Significant Impact	**Less Than Significant With Mitigation**	**Less Than Significant Impact**	**No Impact**
III. AIR QUALITY AND GREENHOUSE GAS EMISSIONS. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☑
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☑	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑	☐
d) Create objectionable odors affecting a substantial number of people?	☐	☐	☑	☐
e) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☑	☐
f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☑	☐
g) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☑	☐

Significance Criteria

To determine whether or not air quality and greenhouse gas impacts from implementing PR 1407.1 are significant, impacts will be evaluated and compared to the criteria in Table 2-2~~1~~. PR 1407.1 will be considered to have significant adverse impacts if any one of the thresholds in Table 2-2~~1~~ are equaled or exceeded.

Table 2-2
South Coast AQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction [b]**	**Operation [c]**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs), Odor, and GHG Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to South Coast AQMD Rule 402	
GHG	10,000 MT/yr CO_2eq for industrial facilities	
Ambient Air Quality Standards for Criteria Pollutants [d]		
NO_2 1-hour average annual arithmetic mean	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM_{10} 24-hour average annual average	10.4 $\mu g/m^3$ (construction)[e] & 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$	
$PM_{2.5}$ 24-hour average	10.4 $\mu g/m^3$ (construction)[e] & 2.5 $\mu g/m^3$ (operation)	
SO_2 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 $\mu g/m^3$ (state)	
CO 1-hour average 8-hour average	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day Average Rolling 3-month average	1.5 $\mu g/m^3$ (state) 0.15 $\mu g/m^3$ (federal)	

[a] Source: South Coast AQMD CEQA Handbook (South Coast AQMD, 1993)
[b] Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea and Mojave Desert Air Basins).
[c] For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.
[d] Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.
[e] Ambient air quality threshold based on South Coast AQMD Rule 403.

KEY: lbs/day = pounds per day; ppm = parts per million; $\mu g/m^3$ = microgram per cubic meter; ≥ = greater than or equal to; MT/yr CO_2eq = metric tons per year of CO_2 equivalents; > = greater than

Revision: April 2019

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

III. a) No Impact. The South Coast AQMD is required by law to prepare a comprehensive district-wide AQMP which includes strategies (e.g., control measures) to reduce emission levels to achieve and maintain state and federal ambient air quality standards, and to ensure that new sources of emissions are planned and operated to be consistent with the South Coast AQMD's air quality goals. The AQMP's air pollution reduction strategies include control measures which target stationary, area, mobile and indirect sources. These control measures are based on feasible methods of attaining ambient air quality standards. Pursuant to the provisions of both the state and federal Clean Air Acts, the South Coast AQMD is also required to attain the state and federal ambient air quality standards for all criteria pollutants.

The most recent regional blueprint for how the South Coast AQMD will achieve air quality standards and healthful air is outlined in the 2016 AQMP[13] which contains multiple goals of promoting reductions of criteria air pollutants, greenhouse gases, and toxics. In particular, the 2016 AQMP contains control measure TXM-06: Control of Toxic Emissions from Metal Melting Facilities, to reduce nickel, arsenic, and cadmium emissions. The amendments to Rule 1407 implements TXM-06 for non-chromium metal melting operations while PR 1407.1 was developed to address chromium alloy melting operations.

PR 1407.1 is not expected to obstruct or conflict with the implementation of the 2016 AQMP because the emission reductions from implementing PR 1407.1 are in accordance with the emission reduction goals in the 2016 AQMP. Thus, implementing PR 1407 would not conflict with or obstruct implementation of the applicable air quality plans.

III. b) and e) Less Than Significant Impact. While PR 1407.1 is designed to reduce hexavalent chromium, arsenic, cadmium, and nickel emissions, secondary air quality impacts are expected due to physical activities that may need to occur from its implementation: constructing five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems; removing weather caps; and conducting housekeeping, source tests, and smoke tests.

Table 2-3 summarizes the key requirements in PR 1407.1 that may result in secondary adverse air quality and greenhouse gas (GHG) impacts during construction and operation.

[13] South Coast AQMD, Final 2016 Air Quality Management Plan, March, 2017. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf

Table 2-3
Sources of Potential Secondary Adverse Air Quality and GHG Impacts During Construction and Operation

Key Requirements in PR 1407.1	Physical Effects Anticipated During:	
	Construction	**Operation**
Emission Control Requirements	Emissions from vehicle trips and construction equipment to install five baghouses at five facilities, and ~~15~~ 19 HEPA/ULPA filtration units at nine facilities.	1. Vehicle emissions from transporting increased amounts of baghouse and filter waste and spent HEPA/ULPA filters for disposal and/or recycling; and 2. Electricity to power baghouses.
Prohibitions	Emissions from construction equipment to remove weather caps on stacks.	No operational impacts.
Housekeeping Requirements	No construction impacts	No additional vehicle trips from staff relative to the existing setting since cleaning and other housekeeping activities can be performed by existing staff. Further disposal of HEPA filters from backpack portable HEPA vacuum units or HEPA sweepers can be combined with baghouse waste and HEPA/ULPA filtration unit waste, no separate, additional disposal trips would be necessary on a peak daily basis.
Building Requirements	Emissions from vehicle trips and construction equipment to enclose building and roof openings such as installing plastic strip curtains.	No operational impacts
Emission Control Device Monitoring Equipment	Emissions from vehicle trips to deliver and install monitoring equipment	No operational impacts
Source and Smoke Testing	No construction impacts	Emissions from vehicle trips to perform periodic tests

For the purpose of conducting a worst-case CEQA analysis for the 11 facilities that would be subject to PR 1407.1, the following assumptions have been made:

Emission Control Devices (Baghouses and HEPA/ULPA Filtration Units)

- Five facilities would need to install five baghouses, and nine facilities (including the five) would need to install ~~15~~ 19 HEPA/ULPA filtration units. The two facilities which would not have to install new emission control devices already have baghouses followed by HEPA filtration units.

- Each baghouse is assumed to contain approximately 4,000 square feet of fabric and is expected to require approximately 24 watts of electric power to operate. Installation of one baghouse would require one aerial lift, air compressor, forklift, and welder, operating four hours per day for five days. For each baghouse installation, five workers are assumed to commute approximately 30 miles round trip each day driving vehicles with an average fuel economy of 21 miles per gallon (mpg), and one worker would drive a vendor truck with an average fuel economy of 10 mpg at a distance of 15 miles round trip per affected facility.

- Each baghouse is capable of collecting approximately one additional drum (0.25 cubic yard) of waste every three months. The analysis assumes that the collected waste would be collected and hauled away once every three months per facility by a heavy-duty truck with an average fuel economy of 6.6 mpg, traveling 40 miles round trip.

- HEPA/ULPA filtration units would require the same amount and type of construction equipment and vehicles as needed to construct the baghouses, but construction can be completed in one day per unit. Construction of ~~15~~ 19 HEPA/ULPA filtration units could conservatively be rounded up to 20, and would be equivalent to ~~three~~ four baghouses and require ~~15~~ 20 days.

- The lifetime of a HEPA or ULPA filter is typically three to five years before replacement is needed because they are preceded by a preliminary stage of control such as a baghouse which is capable of removing the largest sized particles. The dimensions of each HEPA/ULPA filter is approximately 24"x24"x2" and disposal of one HEPA/ULPA filter would result in the generation of 0.025 cubic yard of waste every three years. ~~15~~ 19 HEPA/ULPA filtration units would generate an additional ~~0.03~~ 0.04 cubic yard of waste every three months.

Stack Emission Points (Remove Weather Caps)

- All facilities would be required to remove weather caps that restrict the flow of exhaust on any stack that is a source of emissions from chromium alloy melting operations. Facilities may choose to replace the existing weather caps with butterfly caps or dampers. The number of existing weather caps to be removed and new butterfly caps that may be installed is not known. Removal of existing weather caps and installation of new butterfly caps for example can be accomplished within a short amount of time with the use of electric or manual hand tools, ladders, and a minimal number of on-site workers (e.g., one to two employees). The analysis assumes that no gasoline or diesel-fueled construction equipment or additional vehicle trips would be necessary to accomplish this task.

Housekeeping

- All 11 facilities would be required to perform housekeeping. The majority of housekeeping requirements are expected to be completed by existing staff such that no new vehicle trips would be needed, thus no new air quality impacts would occur. Because each affected facility currently has periodic waste collection activities occurring as part of the existing setting, no additional waste or hauling trips are anticipated to be necessary as a result of conducting routine housekeeping activities required by PR 1407.1.

Building Modification (Enclosing Building and Roof Openings and Plastic Strip Curtains)

- All 11 facilities would need to close building and roof openings by employing any of the following methods: the use of automatic doors; installation of overlapping floor-to-ceiling plastic strip curtains; vestibules; and airlock systems. However, 10 facilities are assumed to install overlapping plastic strip curtains at entryways. Installations of plastic strip curtains are assumed to be accomplished within a relatively short amount of time using electric or manual hand tools, ladders, and a minimal number of construction workers. Two workers are assumed to commute approximately 30 miles round trip each day driving vehicles with an average fuel economy of 21 mpg. In addition, the analysis assumes that one worker would drive a vendor truck with an average fuel economy of 10 mpg approximately 15 miles round trip per facility.

Monitoring Equipment (Bag Leak Detection Systems and Pressure Gauges)

- All 11 facilities would be required to install a total of 14 bag leak detection systems and ~~31~~ 35 pressure gauges with data acquisition systems. The installation of bag leak detection systems, pressure gauges, and data acquisition systems can be accomplished within a relatively short amount of time using of electric or manual hand tools, ladders, and a minimal number of construction workers. The analysis assumes that two construction workers would commute approximately 30 miles round trip each day by driving gasoline-fueled vehicles with an average fuel economy of 21 mpg and one worker would drive a vendor truck 15 miles round trip with an average fuel economy of 10 mpg.

Source Testing and Smoke Tests

- A total ~~17~~ 21 source tests for ~~76~~ 80 equipment units would need to be conducted, with the initial source tests to be completed by July 1, 2024 followed by additional source tests conducted every 60 months thereafter. Owners/operators of affected facilities would be expected to hire a company to conduct the source tests. This analysis assumes that one light duty vehicle with a fuel economy averaging 21 mpg and one medium duty maintenance truck with a fuel economy averaging 10 mpg would each drive approximately 40 miles round trip as part of conducting source tests at each facility.

- All facilities would be required to conduct smoke tests with each source test, Additional smoke tests are required to be conducted once every six months after the initial source test. This analysis assumes that one light duty testing vehicle with a fuel economy averaging 21 mpg would drive approximately 40 miles round trip to conduct the required smoke tests at each facility.

Timing of Construction and Operation Activities

PR 1407.1 would require enclosures of ~~building and~~ rooftop openings to meet the building definition ~~to be constructed~~ by July 1, 2021, and enclosure of building openings by January 1, 2022. However, this analysis assumes that facilities would complete all enclosure construction in one project rather than two resulting in impacts which reflect a worst-case analysis. By July 1, 2024, the baghouses, HEPA/ULPA filtration units, and corresponding monitoring equipment all need to be installed and the initial source tests need to be completed. There is a three-year period between the first and last required deadlines. Therefore, the analysis assumes that the construction activities needed to implement the aforementioned requirements would not be expected to overlap with each other.

Construction Impacts

Criteria pollutant emissions were calculated for all off-road construction equipment and on-road vehicles transporting workers, vendors, and material removal and delivery during construction using the California Emissions Estimator Model[12]® (CalEEMod), version 2016.3.2. The detailed output reports for the CalEEMod[14] runs are included in Appendix B. The following tables present the results of the construction air quality analysis by phase. Appendix B also contains the spreadsheets with the results and assumptions used for this analysis.

Total mobile emissions were estimated using emission factors for on-road vehicles from CARB's EMFAC2017[15] for the following mobile sources: heavy-duty diesel fueled trucks used to haul baghouse waste, medium-duty diesel fueled trucks used to deliver equipment and supplies; and light duty gasoline-fueled passenger vehicles used for transporting workers to facilities in order to install equipment or perform modifications. Table 2-4 summarizes the peak daily emissions associated with construction activities occurring at all affected facilities.

[14] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects.

[15] The EMFAC emissions model is developed and used by CARB to assess emissions from on-road vehicles including cars, trucks, and buses in California. It should be noted that EMFAC2017 has not yet been approved by U.S. EPA but does provide the latest emission factors available.

Table 2-4
Peak Daily Construction Emissions by Pollutant (lb/day)

Construction Activity	VOC	NOx	CO	SOx	PM10	PM2.5
Phase 1: Building Modification by July 1, 2021						
11 Medium-Duty Vendor Truck Trips to Deliver Plastic Strip Curtains and Supplies to Enclose Building and Roof Openings	0.06	0.05	0.60	0.00	0.02	0.01
22 Light-Duty Auto Worker Trips to Install Plastic Strip Curtains and Enclose Building and Roof Openings	0.29	3.09	1.60	0.01	0.26	0.16
Phase 1 Total	0.36	3.14	2.20	0.01	0.27	0.17
Significance Threshold for Construction	75	100	550	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Phase 2: Installation of Air Pollution Control Equipment and Monitoring Devices by July 1, 2024						
Install 9 Baghouse or HEPA/ULPA Filtration Units	4.86	35.13	38.03	0.07	2.83	2.11
20 Medium-Duty Vendor Truck Trips to Deliver Emission Control Device (9), and Monitoring Equipment (11)	0.12	0.09	1.09	0.00	0.03	0.01
67 Light-Duty Auto Worker Trips to Install Emission Control Device (45), and Monitoring Equipment (22)	0.88	9.41	4.88	0.04	0.78	0.49
Phase 2 Total	5.87	44.64	44.00	0.11	3.64	2.62
Significance Threshold for Construction	75	100	550	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Assumptions: Nine facilities would be required to install baghouses or HEPA/ULPA filtration units. All 11 facilities would be required to install monitoring equipment. A peak day would involve nine control device installations and 11 monitoring installations. See Appendix B for additional assumptions and calculations.

The air quality analysis indicates that the peak daily construction emissions do not exceed the South Coast AQMD's air quality significance thresholds for any pollutant during construction; thus, the air quality impacts during construction are concluded to be less than significant.

Operational Impacts

Source testing, smoke testing, and waste haul trips would cause recurring operation emissions. Pursuant to PR 1407.1 paragraph (h)(3), a smoke test must be conducted during each source test. Typically, source testing personnel would conduct any required same-day smoke tests, but it is conservatively assumed that each test would have its own dedicated staff and vehicles. Although unlikely, it is also assumed that two source tests, two smoke tests, and a waste hauling trip would occur on the same day at a facility. Finally, as a conservative estimate, the analysis assumes that all 11 facilities would conduct these activities on the same day.

Table 2-5 summarizes the peak daily emissions associated with operation.

Table 2-5
Peak Daily Operation Emissions by Pollutant (lb/day)

Operation Activity	VOC	NOx	CO	SOx	PM10	PM2.5
2 Medium-Duty Truck Trips to Conduct Source Testing	0.03	0.02	0.29	0.00	0.01	0.00
4 Light-Duty Auto Worker Trips to Conduct Source Testing and Smoke Testing	0.07	0.75	0.39	0.00	0.06	0.04
1 Heavy-Duty Waste Truck Trip to Collect Baghouse and Filter Waste	0.02	0.48	0.10	0.00	0.02	0.01
Subtotal for One Facility	0.12	1.25	0.78	0.00	0.09	0.05
Total for All 11 Facilities	1.32	13.79	8.54	0.05	0.95	0.57
Significance Threshold for Operation	55	55	550	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

The air quality analysis indicates that the peak daily operation emissions are well below the South Coast AQMD's air quality significance thresholds for any pollutant during operation. Thus, the analysis concludes that the air quality impacts during operation are expected to be less than significant.

Cumulatively Considerable Impacts

Based on the foregoing analysis, since criteria pollutant project-specific air quality impacts from implementing PR 1407.1 would not be expected to exceed any of the air quality significance thresholds in Table 2-2, cumulative air quality impacts are also expected to be less than significant. South Coast AQMD cumulative air quality significance thresholds are the same as project-specific air quality significance thresholds. Therefore, potential adverse impacts from implementing PR 1407.1 would not be "cumulatively considerable" as defined by CEQA Guidelines Section 15064(h)(1) for air quality impacts. Per CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

The South Coast AQMD's guidance on addressing cumulative impacts for air quality is as follows: "As Lead Agency, the South Coast AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR." "Projects that exceed the project-specific significance thresholds are considered by the South Coast AQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."[16]

[16] South Coast AQMD Cumulative Impacts Working Group White Paper on Potential Control Strategies to Address Cumulative Impacts From Air Pollution, August 2003, Appendix D, Cumulative Impact Analysis Requirements Pursuant to CEQA, at D-3. http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper-appendix.pdf

This approach was upheld by the Court in *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal. App. 4th 327, 334. The Court determined that where it can be found that a project did not exceed the South Coast AQMD's established air quality significance thresholds, the City of Chula Vista properly concluded that the project would not cause a significant environmental effect, nor result in a cumulatively considerable increase in these pollutants. The court found this determination to be consistent with CEQA Guidelines Section 15064.7, stating, "The lead agency may rely on a threshold of significance standard to determine whether a project will cause a significant environmental effect." The court found that, "Although the project will contribute additional air pollutants to an existing non-attainment area, these increases are below the significance criteria…" "Thus, we conclude that no fair argument exists that the Project will cause a significant unavoidable cumulative contribution to an air quality impact." As in *Chula Vista*, here the South Coast AQMD has demonstrated, when using accurate and appropriate data and assumptions, that the project will not exceed the established South Coast AQMD significance thresholds. See also, *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal. App. 4th 899. Here again the court upheld the South Coast AQMD's approach to utilizing the established air quality significance thresholds to determine whether the impacts of a project would be cumulatively considerable. Thus, it may be concluded that the proposed project would not contribute to a significant unavoidable cumulative air quality impact. Since no cumulatively significant air quality impacts were identified, no mitigation measures are necessary or required.

III. c) Less Than Significant Impact.

Toxic Air Contaminants (TACs) During Construction and Operation

Diesel powered vehicles and equipment would be utilized during construction activities. Diesel PM is considered a carcinogenic and chronic TAC. The construction activities would be completed within six months at all the 11 affected facilities; thus, a Health Risk Assessment (HRA) was not conducted, which is consistent with the Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual (2015)[17]. The analysis in Section III b) and e) concluded that the quantity of pollutants that may be generated from implementing the proposed project would be less than significant during construction only and operation only. Because the emissions from all activities that may occur as part of implementing PR1407.1 are at less than significant levels, the emissions that may be generated from implementing the proposed project would not be substantial, regardless of whether sensitive receptors are located near the affected facilities. Furthermore, implementation of PR 1407.1: conducting housekeeping activities, enclosing building and roof openings, and installing air pollution control equipment would decrease emissions of hexavalent chromium, arsenic, cadmium, and nickel from chromium alloy melting facilities. Overall, the implementation of PR 1407.1 would reduce TACs, an air quality benefit. Therefore, PR 1407.1 is not expected to generate significant adverse TAC impacts from construction or expose sensitive receptors to substantial pollutant concentrations. Since no significant air quality impacts were identified for TACs, no mitigation measures are necessary or required.

[17] OEHHA, Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments, March 6, 2015. https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0

III. d) Less Than Significant Impact.

Odor Impacts

Odor problems depend on individual circumstances. For example, individuals can differ quite markedly from the populated average in their sensitivity to odor due to any variety of innate, chronic or acute physiological conditions. This includes olfactory adaptation or smell fatigue (i.e., continuing exposure to an odor usually results in a gradual diminution or even disappearance of the small sensation).

During both construction and operation, diesel-fueled equipment and vehicles would be operated. Diesel fuel is required to have a low sulfur content (e.g., 15 ppm by weight or less) in accordance with South Coast AQMD Rule 431.2 – Sulfur Content of Liquid Fuels[18]; thus, the fuel is expected to have minimal odor. The operation of construction equipment would occur within the confines of existing affected facilities. It would be expected that sufficient dispersion of diesel emissions over distance generally occurs such that odors associated with diesel emissions may not be discernable to off-site receptors, depending on the location of the equipment and its distance relative to the nearest off-site receptor. The diesel trucks and equipment that would be operated on-site as a part of construction activities would not be allowed to idle longer than five minutes per any one location in accordance with the CARB idling regulation[19], so lingering odors from idling vehicles would not be expected. In addition, construction activities for constructing building modifications and installing emission control devices would be temporary (completed by July 1, 2021 and July 1, 2024, respectively). Operation within the buildings and having equipment within the buildings vented to emission control devices would be expected to reduce any odors from facilities. The use of trucks as part of conducting source tests, smoke tests, replacing baghouse filters, hauling waste, etc.) would be intermittent and occur over a relatively short period of time; therefore, the proposed project would not be expected to generate diesel exhaust odor greater than what is already typically present at the affected facilities. Thus, PR 1407.1 is not expected to create significant adverse objectionable odors during construction or operation. Since no significant air quality impacts were identified for odors, no mitigation measures for odors are necessary or required.

III. f) and g) Less Than Significant Impacts.

Greenhouse Gas (GHG) Impacts

Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of GHG emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities, appears to be closely associated with global warming. State law defines GHG to include the following: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6)

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[18] South Coast AQMD, Rule 431.2 – Sulfur Content of Liquid Fuels, September 15, 2000. http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-431-2.pdf

[19] CARB, Multi-Regulation Summary (MRS) Requirements for Diesel Truck and Equipment Owners, https://www.arb.ca.gov/msprog/onrdiesel/documents/multirule.pdf

(Health and Safety Code Section 38505(g)). The most common GHG that results from human activity is CO2, followed by CH4 and N2O.

Traditionally, GHGs and other global warming pollutants are perceived as solely global in their impacts and that increasing emissions anywhere in the world contributes to climate change anywhere in the world. A study conducted on the health impacts of CO2 "domes" that form over urban areas cause increases in local temperatures and local criteria pollutants, which have adverse health effects[20].

The analysis of GHGs is a different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, the significance thresholds are based on daily emissions because attainment or non-attainment is primarily based on daily exceedances of applicable ambient air quality standards. Further, several ambient air quality standards are based on relatively short-term exposure effects on human health (e.g., one-hour and eight-hour standards). Since the half-life of CO2 is approximately 100 years, for example, the effects of GHGs occur over a longer term which means they affect the global climate over a relatively long timeframe. As a result, the South Coast AQMD's current position is to evaluate the effects of GHGs over a longer timeframe than a single day (i.e., annual emissions). GHG emissions are typically considered to be cumulative impacts because they contribute to global climate effects.

It is assumed one HEPA or ULPA filtration unit requires one-fifth of the construction time needed for a baghouse with the same equipment, such that construction can be completed in one day instead of five. Because the construction equipment would be the same, peak day calculations assumed nine baghouses were being constructed in one day because nine facilities would need to install a total of five baghouses and ~~15~~ 19 HEPA or ULPA filtration units to comply with the proposed rule. Construction of nine baghouses would also be representative of actual construction emissions ~~Actual construction emissions would be more accurately estimated as eight baghouses being constructed~~ (~~15~~e.g., 19 HEPA or ULPA filtration units ~~requiring~~ are estimated to require about the same equipment and time as ~~three~~ four baghouses). Since GHG impacts are defined on an annual, instead of a peak daily basis, the GHG emissions for construction were quantified by summing all of the GHGs occurring during construction for eight baghouses which should be completed by July 1, 2024 and then amortizing the total construction GHGs over 30 years.

The South Coast AQMD convened a "Greenhouse Gas CEQA Significance Threshold Working Group" to consider a variety of benchmarks and potential significant thresholds to evaluate GHG impacts. On December 5, 2008, the South Coast AQMD adopted an interim CEQA GHG Significance Threshold for projects where the South Coast AQMD is the lead agency (South Coast AQMD 2008). This GHG interim threshold is set at 10,000 metric tons (MT) of CO2 equivalent emissions (CO2eq) per year. Projects with incremental increases below this threshold will not be cumulatively considerable. GHG impacts from the implementation of PR 1407.1 were calculated at the project-specific level during construction and operation activities.

[20] Jacobsen, Mark Z. "Enhancement of Local Air Pollution by Urban CO2 Domes," Environmental Science and Technology, as describe in Stanford University press release on March 16, 2010 available at: http://news.stanford.edu/news/2010/march/urban-carbon-domes-031610.html.

Table 2-6 summarizes the GHG analysis which shows that PR 1407.1 may result in the generation of 2.79 MT per year of CO2eq, which is less than the South Coast AQMD's air quality significance threshold for GHGs. Detailed calculations of project GHG emissions can be found in Appendix B.

Table 2-6
Summary of GHG Emissions from Affected Facilities

Phase	Activity	CO2eq Emissions (MT/yr)
Construction	Air Pollution Control Device (APCD) Installation	0.47 ~~0.41~~
	Medium Duty Vendor Truck Trips to Deliver APCD, Monitoring Equipment, and Supplies for Plastic Strip Curtains and to Enclose Roof Openings	0.03
	Light Duty Auto Worker Trips to Install APCD, Monitoring Equipment, and Supplies for Plastic Strip Curtains and to Enclose Roof Openings	0.10 ~~0.09~~
	Subtotal	**0.59** ~~0.52~~
Operation	Smoke Test Trips	0.60 ~~0.49~~
	Source Test Trips	0.21 ~~0.17~~
	Baghouse Waste and Spent Filter Waste Hauling	2.30 ~~1.28~~
	Baghouse Operation (Electricity)	0.34 ~~0.34~~
	Subtotal	**3.45** ~~2.27~~
Overall	**Total**	**4.05** ~~2.79~~
	Significance Threshold	10,000
	Significant?	**No**

Note: 1 metric ton = 2,205 pounds. GHGs from short-term construction activities are amortized over 30 years.

As shown in Table 2-6, the South Coast AQMD air quality significance threshold for GHGs would not be exceeded. For this reason, implementing the proposed project would not be expected to generate significant adverse cumulative GHG air quality impacts. Further, as noted in Section III. a), implementation of PR 1407.1 would not be expected to conflict with an applicable plan, policy or regulation adopted for the purpose of reducing criteria pollutants and the same is true for GHG emissions since GHG emissions would not be impacted in any way by PR 1407.1. Therefore, GHG impacts are not considered significant. Since no significant air quality impacts were identified for GHGs, no mitigation measures are necessary or required.

Conclusion

Based upon these considerations, significant air quality and GHG emissions impacts are not expected from implementing PR 1407.1. Since no significant air quality and GHG emissions impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IV.	**BIOLOGICAL RESOURCES.** Would the project:				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☑
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☑
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☑
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☑
f)	Conflict with the provisions of an adopted Habitat Conservation plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☑

Significance Criteria

Impacts on biological resources will be considered significant if any of the following criteria apply:

- The project results in a loss of plant communities or animal habitat considered to be rare, threatened or endangered by federal, state or local agencies.
- The project interferes substantially with the movement of any resident or migratory wildlife species.
- The project adversely affects aquatic communities through construction or operation of the project.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

IV. a), b), c), & d) No Impact. Implementation of PR 1407.1 would occur at existing affected facilities, which are located in industrial areas. Additionally, the physical improvements are expected to occur within the existing facility property boundaries which have been previously disturbed. Thus, PR 1407.1 is not expected to adversely affect in any way habitats that support riparian habitat, federally protected wetlands, or migratory corridors. Similarly, special status plants, animals, or natural communities identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service are not expected to be found on or in close proximity to affected facilities. Therefore, PR 1407.1 would have no direct or indirect impacts that could adversely affect plant or animal species or the habitats on which they rely. PR 1407.1 does not require the acquisition of additional land or further conversions of riparian habitats or sensitive natural communities where endangered or sensitive species may be found. In addition, any construction from the implementation of PR 1407.1 would take place at the existing facilities and would not occur on or near a wetland or in the path of migratory species.

IV. e) & f) No Impact. The 11 facilities subject to PR 1407.1 are located throughout Los Angeles, Orange, and San Bernardino counties. According to the California Department of Fish and Wildlife, Natural Community Conservation Plans (NCCP) Plan Summaries[21] and the U.S. Department of Fish and Wildlife list of Habitat Conservation Plans (HCP)[22], there are no NCCPs or HCPs for either Los Angeles County or San Bernardino County. However, Orange County has

[21] California Department of Fish and Wildlife, NCCP Plan Summaries, Accessed October 2020. https://wildlife.ca.gov/conservation/planning/nccp/plans.

[22] U.S. Fish and Wildlife Service, Habitat Conservation Plans, Accessed October 2020. https://ecos.fws.gov/ecp0/conservationPlan/region/summary?region=8&type=HCP

both a NCCP and HCP (e.g., Orange County Central/Coastal region or Southern Subregion HCP/NCCP and the Orange County Transportation Authority NCCP. Nonetheless, because PR 1407.1 does not contain any requirements that would involve facility modifications or require divisions in any existing communities and since compliance with PR 1407.1 would occur at existing facilities located in previously disturbed areas, none of the affected facilities are subject to the HCP or NCCP. Thus, PR 1407.1 would not be expected to conflict with any adopted HCP, NCCP, or any other relevant habitat conservation plan, and would not create divisions in any existing communities. The proposed project is also not expected to conflict with local policies or ordinances protecting biological resources or local, regional, or state conservation plans, because land use and other planning considerations are determined by local governments and no land use or planning requirements would be altered by implementation of PR 1407.1.

Conclusion

Based upon these considerations, significant biological resource impacts are not expected from implementing PR 1407.1. Since no significant biological resource impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
V.	**CULTURAL AND TRIBAL CULTURAL RESOURCES.** Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?	☐	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	☐	☐	☐	☑
c)	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☑
d)	Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code §21074, as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is either:				
	• Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code §5020.1(k)?	☐	☐	☐	☑
	• A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code §5024.1(c)? (In applying the criteria set forth in Public Resources Code §5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.)	☐	☐	☐	☑

Significance Criteria

Impacts to cultural resources will be considered significant if:

- The project results in the disturbance of a significant prehistoric or historic archaeological site or a property of historic or cultural significance, or tribal cultural significance to a community or ethnic or social group or a California Native American tribe.
- Unique resources or objects with cultural value to a California Native American tribe are present that could be disturbed by construction of the proposed project.
- The project would disturb human remains.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

V. a) No Impact. There are existing laws in place that are designed to protect and mitigate potential impacts to cultural resources. For example, CEQA Guidelines state that generally, a resource shall be considered "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources, which include the following:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possesses high artistic values;
- Has yielded or may likely to yield information important in prehistory or history (CEQA Guidelines Section 15064.5).

Buildings, structures, and other potential culturally significant resources that are less than 50 years old are generally excluded from listing in the National Register of Historic Places, unless they are shown to be exceptionally important. Buildings or structures that may be affected by PR 1407.1 are used for industrial purposes and would generally not be considered to be historically significant, since they would not have any of the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values. Therefore, PR 1407.1 is not expected to cause any impacts to significant historic cultural resources.

V. b), c), & d) No Impact. Construction-related activities are expected to be confined within the affected existing industrial facility boundaries with the implementation of PR 1407.1. Thus, PR 1407.1 is not expected to require physical changes to the environment which may disturb paleontological or archaeological resources. Furthermore, it is envisioned that these areas are already either devoid of significant cultural resources or whose cultural resources have been previously disturbed. Therefore, PR 1407.1 has no potential to cause a substantial adverse change to a historical or archaeological resource, directly or indirectly to destroy a unique paleontological resource or site or unique geologic feature, or to disturb any human remains, including those interred outside formal cemeteries. Implementing PR 1407.1 is, therefore, not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources.

PR 1407.1 is not expected to require physical changes to a site, feature, place, cultural landscape, sacred place or object with cultural value to a California Native American Tribe. Furthermore, PR 1407.1 is not expected to result in a physical change to a resource determined to be eligible for inclusion or listed in the California Register of Historical Resources or included in a local register of historical resources. Similarly, PR 1407.1 is not expected to result in a physical change to a resource determined by the South Coast AQMD to be significant to any tribe. For these reasons, PR 1407.1 is not expected to cause any substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074.

As part of releasing this CEQA document for public review and comment, the South Coast AQMD also provided a formal notice of the proposed project to all California Native American Tribes (Tribes) that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code Section 21080.3.1(b)(1). The NAHC notification list provides a 30-day period during which a Tribe may respond to the formal notice, in writing, requesting consultation on the proposed project.

In the event that a Tribe submits a written request for consultation during this 30-day period, the South Coast AQMD will initiate a consultation with the Tribe within 30 days of receiving the request in accordance with Public Resources Code Section 21080.3.1(b). Consultation ends when either: 1) both parties agree to measures to avoid or mitigate a significant effect on a Tribal Cultural Resource and agreed upon mitigation measures shall be recommended for inclusion in the environmental document [see Public Resources Code Section 21082.3(a)]; or, 2) either party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached [see Public Resources Code Section 21080.3.2(b)(1)-(2) and Section 21080.3.1(b)(1)].

Conclusion

Based upon these considerations, significant adverse cultural and tribal cultural resources impacts are not expected from implementing PR 1407.1. Since no significant cultural and tribal cultural resources impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VI.	**ENERGY.** Would the project:				
a)	Conflict with or obstruct adopted energy conservation plans, a state or local plan for renewable energy, or energy efficiency?	☐	☐	☐	☑
b)	Result in the need for new or substantially altered power or natural gas utility systems?	☐	☐	☑	☐
c)	Create any significant effects on local or regional energy supplies and on requirements for additional energy?	☐	☐	☑	☐
d)	Create any significant effects on peak and base period demands for electricity and other forms of energy?	☐	☐	☑	☐
e)	Comply with existing energy standards?	☐	☐	☐	☑
f)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☑
g)	Require or result in the relocation or construction of new or expanded electric power, natural gas or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☑

Significance Criteria

Impacts to energy resources will be considered significant if any of the following criteria are met:

- The project conflicts with adopted energy conservation plans or standards.
- The project results in substantial depletion of existing energy resource supplies.
- An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.
- The project uses energy resources in a wasteful and/or inefficient manner.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

VI. a), e) & f) No Impact. PR 1407.1 is not expected to conflict with any adopted energy conservation plans or violate any energy conservation standards because existing facilities would be expected to continue implementing any existing energy conservation plans that are currently in place regardless of whether PR 1407.1 is implemented. The effects of implementing PR 1407.1 would apply to existing facilities. PR 1407.1 would also be applicable to new chromium alloy melting facilities; however, South Coast AQMD staff is not aware of any new facilities planned to be constructed in the immediate future and is unable to predict or forecast, when, if any, would be built in the long-term. Any energy resources that may be necessary to enclose building and roof openings, install and operate baghouses, HEPA or ULPA filtration units, and monitoring equipment, and conduct source tests and smoke tests would be used to achieve reductions in hexavalent chromium, arsenic, cadmium, and nickel; and therefore, would not be using non-renewable resources in a wasteful manner. For these reasons, PR 1407.1 is not expected to conflict with energy conservation plans or existing energy standards, or use non-renewable resources in a wasteful manner.

VI. b), c), & d) Less Than Significant Impact. & g) No Impact. Implementation of PR 1407.1 would result in the installation of baghouses, HEPA or ULPA filtration units, and emission control device monitoring equipment. In addition, all affected facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors; installation of overlapping floor-to-ceiling plastic strip curtains; vestibules; and airlock systems. Lastly, all affected facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests. To accomplish these various activities, use of energy in terms of gasoline and diesel fuel would be needed for on-road passenger vehicles and light-, medium- and heavy duty trucks associated with delivering supplies and construction materials, conducting source testing and smoke testing, and hauling collected waste from the baghouses and spent HEPA/ULPA filters. In addition, once the air pollution control devices are operational, electricity would be needed to operate the five new blowers which are necessary to be able to pull exhaust air from the chromium alloy melting operations through the baghouses and HEPA/ULPA filtration units. The amount of electricity needed to operate five new baghouses is relatively small and capable of being supplied by existing utilities such that no new or substantially altered power or natural gas utility systems would be necessary. HEPA or ULPA filtration units are not expected to require significant amounts of electricity beyond that already necessary for baghouses. The projected increased electricity demands that may result from PR 1407.1 are presented below.

Table 2-7
Increases in Electricity Demand For Operating Baghouses

Equipment	Energy Demand (GWhr)
Baghouse[a]	0.001
South Coast AQMD Jurisdiction Electricity End Use Consumption[b]	120,210
Total Increase Above Baseline	0.000001%
Significance Threshold	1%
Significant?	**No**

Notes:
a) This analysis assumes baghouse blowers operate at 24 kilowatts, 24 hours per day, 365 days per year
b) South Coast AQMD, 2016 Air Quality Management Plan, Chapter 10 (https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/chapter10.pdf~~?sfvrsn=4~~)
c) One GWhr (Gigawatt-hour) = 10^9 watt-hours

Implementing PR 1407.1 would not require utilities providing additional electricity to the affected facilities to substantially alter their power systems because any additional energy needed can be provided from existing supplies. Further, since natural gas would not be needed to implement any of the physical changes that may occur as part of implementing PR 1407.1, no change to existing natural gas supplies and usage would be expected to occur. In addition, because PR 1407.1 would not require new facilities to be constructed and because new energy demands can be satisfied from existing power systems, implementation PR 1407.1 would not result in the relocation or construction of new or expanded electric power, natural gas or telecommunication facilities.

Fuel Usage during Construction

During construction, portable construction equipment (e.g., welders, forklifts, etc.) used to install baghouses and HEPA or ULPA filtration units would consume diesel fuel, as would vendor trucks providing deliveries of equipment. Gasoline would be required to operate workers' vehicles as they commute to the construction sites as well.

To estimate "worst-case" energy impacts associated with construction activities, South Coast AQMD staff estimated the total gasoline and diesel fuel consumption for each affected facility during construction and operation based on CARB's OFFROAD2017 model.

CalEEMod version 2016.3.2 was used to calculate construction emissions for emission control device installation which was determined from the default trip lengths for construction worker commute trips (e.g., 30 miles per worker round trip to/from the construction site per day) and vendor trips (e.g., 15 miles per vendor round trip to/from the construction site per day). Additional worker trips and vendor trips were modeled to account for building modification and emission control device monitoring equipment installation. Worker trips were assumed to occur in gasoline vehicles, getting a fuel economy rate of approximately 21 mpg, and vendor truck trips were assumed to be fueled by diesel, getting approximately 10 mpg. Table 2-8 summarizes the projected fuel use impacts associated with construction activities. Detailed fuel use calculations can be found in Appendix B.

Table 2-8
Annual Total Projected Fuel Usage for Construction Activities

	Diesel	**Gasoline**
Projected Operational Energy Use (gal/yr)[a]	101 ~~93~~	384 ~~349~~
Year 2017 South Coast AQMD Jurisdiction Estimated Fuel Demand (gal/yr)[b]	775,000,000	7,086,000,000
Total Increase Above Baseline	0.00001%	0.000005%
Significance Threshold	1%	1%
Significant?	**No**	**No**

Notes:

a) Estimated peak fuel usage from construction activities. Diesel usage estimates are based on the vendor trips and off-road equipment. Gasoline usage estimates are derived from worker trips.

b) California Annual Retail Fuel Outlet Report Results (CEC-A15) Spreadsheets, 2017 California Energy Commission (http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). [Accessed June 21, 2019.]

The 2017 California Annual Retail Fuel Outlet Report Results from the California Energy Commission (CEC) show that 775 million gallons of diesel and 7,086 million gallons of gasoline were consumed in 2017 in the Basin. Thus, even if an additional ~~93~~ 101 gallons of diesel and ~~349~~ 384 gallons of gasoline are consumed during construction, the fuel usages are 0.00001% and 0.000005% above the 2017 baseline for diesel and gasoline, respectively, and both projected increases are well below the South Coast AQMD's significance threshold for fuel supply. Thus, no significant adverse impact on fuel supplies would be expected during construction.

Fuel Usage during Operation

Once construction is completed, waste generated from the five new baghouses and ~~15~~ 19 HEPA or ULPA filtration units would need to be collected and hauled away at least once every three months by diesel trucks. Further, diesel-fueled trucks hauling source testing gear and gasoline-fueled passenger vehicles for the source test workers would need travel to the 11 facilities to conduct 17 source tests, initially and then once every five years, thereafter. In addition, gasoline-fueled vehicles would be used to transport technicians to perform smoke tests at ~~the~~ 11 facilities initially, and then every six months thereafter. The analysis assumes that each trip associated with conducting source tests, smoke tests and hauling waste would be 40 miles round trip. The analysis also assumes an average fuel economy of 21 mpg for gasoline-fueled passenger vehicles, 10 mpg for diesel-fueled source testing trucks, and 6.6 mpg for diesel-fueled hauling trucks. The projected fuel demand during operation is presented in Table 2-9.

Table 2-9
Annual Total Projected Fuel Usage for Operation Activities

	Diesel	Gasoline
Projected Operational Energy Use (gal/yr)[a]	235 ~~135~~	88 ~~71~~
Year 2017 South Coast AQMD Jurisdiction Estimated Fuel Demand (gal/yr)[b]	775,000,000	7,086,000,000
Total Increase Above Baseline	0.00003% ~~0.00002%~~	0.000001%
Significance Threshold	1%	1%
Significant?	**No**	**No**

Notes:
a) Estimated peak fuel usage from operation activities. Diesel usage estimates are based on source test and hauling trips. Gasoline usage estimates are derived from source test and smoke test trips.
b) California Annual Retail Fuel Outlet Report Results (CEC-A15) Spreadsheets, 2017 California Energy Commission (http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). [Accessed June 21, 2019.]

The use of passenger vehicles is estimated to consume about ~~71~~ 88 gallons of gasoline, approximately 0.000001% of the annual gasoline supply. Similarly, the use of trucks is estimated to consume approximately ~~135~~ 235 gallons of diesel, which is only ~~0.00002~~ 0.00003% of the annual diesel supply. The projected increased use of gasoline and diesel fuels as a result of implementing PR 1407.1 are well below the South Coast AQMD significance threshold for fuel supply. Thus, no significant adverse impact on fuel supplies would be expected during operation.

Based on the foregoing analyses, the construction and operation-related activities associated with the implementation of PR 1407.1 would not use energy in a wasteful manner and would not result in substantial depletion of existing energy resource supplies, create a significant demand of energy when compared to existing supplies. Thus, there are no significant adverse energy impacts associated with the implementation of PR 1407.1.

Conclusion
Based upon these considerations, significant adverse energy impacts are not expected from implementing PR 1407.1. Since no significant energy impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☐	☑
• Strong seismic ground shaking?	☐	☐	☐	☑
• Seismic-related ground failure, including liquefaction?	☐	☐	☐	☑
• Landslides?	☐	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☑
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☑
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☐	☑

Significance Criteria
Impacts on the geological environment will be considered significant if any of the following criteria apply:

- Topographic alterations would result in significant changes, disruptions, displacement, excavation, compaction or over covering of large amounts of soil.
- Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed project.
- Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction or landslides.
- Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.
- Other geological hazards exist which could adversely affect the facility, e.g., landslides, mudslides.
- Unique paleontological resources or sites or unique geologic features are present that could be directly or indirectly destroyed by the proposed project.

Discussion
PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

VII. a) No Impact. PR 1407.1 would result in construction activities at existing affected facilities located in developed industrial settings. Affected facilities are expected to make minor building improvements on existing structures to enclose buildings and roof openings, and install air pollution control equipment, such that only minor site preparation is anticipated. Further, the proposed project does not cause or require any new facilities to be constructed and all construction activities would occur within the existing facility boundaries. Therefore, PR 1407.1 is not expected to adversely affect geophysical conditions in the South Coast AQMD.

Southern California is an area of known seismic activity. As part of the issuance of building permits, local jurisdictions are responsible for assuring that the Uniform Building Code is adhered to and can conduct inspections to ensure compliance. The Uniform Building code is considered to be a standard safeguard against major structural failures and loss of life. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represents the foundation condition at the site. The Uniform Building Code requirements also consider liquefaction potential and establish stringent requirements for building foundations in areas potentially subject to liquefaction. The modification of existing structures at existing facilities to complete minor upgrades to enclose buildings and roof openings, and install new baghouses and HEPA or ULPA filtration units would be expected to conform to the Uniform Building Code and all other applicable state and local building codes. Structures must be designed to comply with the Uniform Building Code Zone 4 requirements if they are located in a seismically active area. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. Thus, PR 1407.1 would not alter the exposure of people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. As a result, substantial exposure of people or structures to the risk of loss, injury, or death involving the rupture of an earthquake fault, seismic ground shaking, ground failure or landslides is not anticipated.

VII. b) Less than Significant Impact. Since PR 1407.1 would require the installation of air pollution control equipment, construction activities such as minor grading may be necessary to prepare a level foundation in the affected areas. As such, temporary erosion resulting from grading activities could occur if any areas need to be graded. However, grading activities and any associated temporary erosion that may occur are expected to be relatively minimal since the existing facilities are generally flat and have previously been graded and paved. For this reason, no unstable earth conditions or changes in geologic substructures are expected to result from implementing PR 1407.1. Therefore, impacts to the loss of topsoil and soil erosion are less than significant.

VII. c) No Impact. Since PR 1407.1 would affect existing facilities, it is expected that the soil types present at the affected facilities would not be made further susceptible to expansion or liquefaction due to the proposed project. Furthermore, subsidence is not anticipated to be a problem since only minor construction for building improvements are expected to occur at affected facilities. The areas, where the existing facilities are located are not envisioned to be prone to new landslide impacts or have unique geologic features since the existing facilities are currently operational. Thus, the proposed project would not be expected to increase or exacerbate any existing risks at the affected facility locations. Implementation of PR 1407.1 would not involve re-locating facilities on a geologic unit or soil that is unstable or that would become unstable as a result of the project; therefore, it would not be expected to potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. No impacts are anticipated.

VII. d) & e) No Impact. The implementation of PR 1407.1 involves activities to enclose building and roof openings; install plastic strip curtains, baghouses, HEPA/ULPA filtration units, bag leak detection systems, and pressure gauges with digital acquisition systems; and remove weather caps. All of these activities are expected to be confined within the property lines of each affected facility. Further, PR 1407.1 would not require the installation of septic tanks or other alternative wastewater disposal systems since each affected facility would be expected to have an existing sanitary system that is connected to the local sewer system. Therefore, no persons or property would be exposed to new impacts related to expansive soils or soils incapable of supporting water disposal. Thus, the implementation of PR 1407.1 would not adversely affect soils associated with a installing a new septic system or alternative wastewater disposal system or modifying an existing sewer.

VII. f) No Impact. PR 1407.1 would result in construction activities at existing affected facilities located in developed industrial settings. Affected facilities are expected to make improvements to existing structures enclosing building and roof openings, and installing air pollution control equipment, such that only minor site preparation is anticipated. Further, the proposed project does not cause or require the construction of any new facilities. No previously undisturbed land that may contain a unique paleontological resource or site or unique geological feature would be affected. Therefore, PR 1407.1 is not expected to directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

Conclusion

Based upon these considerations, significant adverse geology and soils impacts are not expected from the implementation of PR 1407.1. Since no significant geology and soils impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☑	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☑	☐
c) Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☑	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would create a significant hazard to the public or the environment?	☐	☐	☐	☑
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
g) Significantly increased fire hazard in areas with flammable materials?	☐	☐	☑	☐

Significance Criteria
Impacts associated with hazards will be considered significant if any of the following occur:

- Non-compliance with any applicable design code or regulation.
- Non-conformance to National Fire Protection Association standards.
- Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

Discussion
PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

VIII. a) & b) Less than Significant Impact. PR 1407.1 has been developed to reduce public health impacts and exposure to fugitive emissions of hexavalent chromium, nickel, arsenic, and cadmium through installing new air pollution control equipment (e.g., baghouses and HEPA/ULPA filtration units), enclosing building and roof openings to minimize cross-draft conditions, and removing weather caps. Additionally, facilities would be required to comply with housekeeping and parameter monitoring requirements in PR 1407.1 that would also contribute to the prevention of fugitive emissions and consequently reduce the potential for the public and the environment to be exposed to toxic air contaminants.

Facilities with existing air pollution control equipment which collect toxic metal waste currently recycle or haul away hazardous waste or materials off-site to a hazardous waste landfill. PR 1407.1 requires dust emitting waste to be transported in sealed containers which can be helpful in limiting its potential release and thereby decreasing the risk of hazardous waste exposure to the public and environment. Thus, no new significant hazards are expected to the public or environment through the continued routine transport, disposal or recycling of hexavalent chromium, arsenic, cadmium, and nickel waste generated at metal melting facilities. Therefore, PR 1407.1 is not expected to create a new significant hazard to the public or environment through reasonably foreseeable upset conditions involving the release of hazardous materials into the environment.

VIII. c) Less than Significant Impact. Of the 11 facilities subject to PR 1407.1, two facilities are located within one-quarter mile of a school and they currently utilize hazardous materials and handle hazardous waste. Under PR 1407.1, both of these facilities would be required to enclose building and roof openings, install plastic strip curtains, and install air pollution control equipment to minimize fugitive emissions of toxic air contaminants. One facility is currently equipped with a baghouse but would be required to install a HEPA filtration unit to comply with PR 1407.1. The other facility would be required to install a baghouse and ULPA filtration unit. Each facility would be required to conduct source tests within 90 days after Permits to Construct are issued for each modification. Construction activities are expected to be minor and once they are completed, emissions from these facilities are expected to be reduced. Further, any required source testing and smoke testing is not expected to generate additional hazards at the affected facilities but instead are necessary to ensure that the air pollution control equipment is working properly. Compliance with housekeeping requirements and improvements to the buildings would also be expected to minimize fugitive emissions. These facilities and their proximities to the nearest sensitive receptors are identified in Appendix C.

VIII. d) No Impact. Government Code Section 65962.5 refers to hazardous waste handling practices at facilities subject to the Resources Conservation and Recovery Act (RCRA). Two of the 11 facilities presented in Appendix C are identified on lists of California Department of Toxics Substances Control hazardous waste facilities per Government Code Section 65962.5. Implementation of PR 1407.1 would limit the exposure to hexavalent chromium, nickel, arsenic, and cadmium, and reduce public health impacts by establishing collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; and housekeeping and building provisions to limit fugitive emissions. Housekeeping requirements, such as to collect materials captured by air pollution control equipment into sealed leakproof containers except when materials are actively removed from the containers for disposal, decrease the risk of inadvertent emissions and contact with hazardous waste. PR 1407.1 is not expected to interfere with existing hazardous waste management programs since facilities handling hazardous waste would be expected to continue to manage any and all hazardous materials and hazardous waste, in accordance with applicable federal, state, and local rules and regulations. Therefore, compliance with PR 1407.1 would not create a new significant hazard to the public or environment.

VIII. e) No Impact. Federal Aviation Administration regulation, 14 CFR Part 77 – Safe, Efficient Use and Preservation of the Navigable Airspace, provide information regarding the types of projects that may affect navigable airspace. Projects may adversely affect navigable airspace if they involve construction or alteration of structures greater than 200 feet above ground level within a specified distance from the nearest runway or objects within 20,000 feet of an airport or seaplane base with at least one runway more than 3,200 feet in length and the object would exceed a slope of 100:1 horizontally (100 feet horizontally for each one foot vertically from the nearest point of the runway).

One facility identified in Appendix C is located within two miles of an airport. However, construction at this facility would be limited to its existing building structure height, well below the 200 feet limit specified in 14 CFR Part 77. Therefore, implementation of PR 1407.1 is not expected to increase or create any new safety hazards to peoples working or residing in the vicinity of public/private airports.

VIII. f) No Impact. Health and Safety Code Section 25506 specifically requires all businesses handling hazardous materials to submit a business emergency response plan to assist local administering agencies in the emergency release or threatened release of a hazardous material. Business emergency response plans generally require the following:

- Identification of individuals who are responsible for various actions, including reporting, assisting emergency response personnel and establishing an emergency response team;
- Procedures to notify the administering agency, the appropriate local emergency rescue personnel, and the California Office of Emergency Services;
- Procedures to mitigate a release or threatened release to minimize any potential harm or damage to persons, property or the environment;
- Procedures to notify the necessary persons who can respond to an emergency within the facility;
- Details of evacuation plans and procedures;
- Descriptions of the emergency equipment available in the facility;
- Identification of local emergency medical assistance; and,
- Training (initial and refresher) programs for employees in:
  1. The safe handling of hazardous materials used by the business;
  2. Methods of working with the local public emergency response agencies;
  3. The use of emergency response resources under control of the handler;
  4. Other procedures and resources that will increase public safety and prevent or mitigate a release of hazardous materials.

In general, every county or city and all facilities using a minimum amount of hazardous materials are required to formulate detailed contingency plans to eliminate, or at least minimize, the possibility and effect of fires, explosion, or spills. In conjunction with the California Office of Emergency Services, local jurisdictions have enacted ordinances that set standards for area and business emergency response plans. These requirements include immediate notification, mitigation of an actual or threatened release of a hazardous material, and evacuation of the emergency area.

Emergency response plans are typically prepared in coordination with the local city or county emergency plans to ensure the safety of not only the public (surrounding local communities), but the facility employees as well. The proposed project would not impair the implementation of, or physically interfere with any adopted emergency response plans or emergency evacuation plans that may be in place at existing facilities. Physical modifications to the 11 facilities necessary to comply with PR 1407.1 may require an update of each affected facility's existing emergency response plan to reflect the building modifications; however, the act of modifying an emergency response plan to reflect these anticipated building modifications would not create any environmental impacts. Therefore, PR 1407.1 is not expected to impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

VIII. g) Less Than Significant Impact. The Uniform Fire Code and Uniform Building Code set standards intended to minimize risks from flammable or otherwise hazardous materials. Local jurisdictions are required to adopt the uniform codes or comparable regulations. Local fire agencies require permits for the use or storage of hazardous materials and permit modifications for proposed increases in their use. Permit conditions depend on the type and quantity of the hazardous materials at the facility. Permit conditions may include, but are not limited to, specifications for sprinkler systems, electrical systems, ventilation, and containment. The fire departments make annual business inspections to ensure compliance with permit conditions and other appropriate regulations. Further, businesses are required to report increases in the storage or use of flammable and otherwise hazardous materials to local fire departments. Local fire departments ensure that adequate permit conditions are in place to protect against the potential risk of upset. PR 1407.1 would not change the existing requirements and permit conditions for the proper handling of flammable materials. Further, PR 1407.1 does not contain any requirements that would prompt facility owners/operators to begin using new flammable materials. In addition, the National Fire Protection Association has special designations for deflagrations (e.g., explosion prevention) when using materials that may be explosive. Therefore, operators of metal melting facilities that may install new baghouses to meet emission control requirements are expected to comply with National Fire Protection requirements for explosion control. Additional information pertaining to these types of protective measures is available in Chapter 8 of the *Industrial Ventilation, A Manual for Recommended Practice for Design*, 28th Edition, published by the American Conference of Governmental Industrial Hygienists, ©2013.

Conclusion

Based upon these considerations, significant adverse hazards and hazardous materials impacts are not expected from implementing PR 1407.1. Since no significant hazards and hazardous materials impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards, waste discharge requirements, or otherwise substantially degrade surface or ground water quality?	☐	☐	☑	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☑
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
• Result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☑
• Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☑
• Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☑
• Impede or redirect flood flows?	☐	☐	☐	☑
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☑
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
f)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, facilities or new storm water drainage facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☑	☐
g)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☑	☐
h)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑	☐

Significance Criteria

Potential impacts on water resources will be considered significant if any of the following criteria apply:

<u>Water Demand:</u>

- The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use more than 262,820 gallons per day of potable water.
- The project increases demand for total water by more than five million gallons per day.

<u>Water Quality:</u>

- The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.
- The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.

- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

Discussion
PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

IX. a) Less than Significant Impact. PR 1407.1 would require facilities to enclose building and rooftop opening and to install baghouses and HEPA/ULPA filtration units. None of these activities utilize water and as such, no wastewater would be expected to be generated. However, PR 1407.1 contains a wide variety of periodic housekeeping to be conducted and requires an approved cleaning method to be used.

Approved methods for conducting cleaning activities include wet washing, wet mopping, wiping surfaces with a damp cloth, or applying low pressure spray; sweeping with use of dust suppressing sweeping compounds; or vacuuming with a vacuum equipped with filter(s) rated by the manufacturer to achieve a 99.97 percent control efficiency for 0.3 micron particles (e.g. HEPA or better).

For any facility that conducts wet cleaning, but that does not currently have a wastewater treatment system or a wastewater discharge permit, the wastewater resulting from wet cleaning would need to be collected, stored, and disposed of as hazardous materials, and these facilities would be required to comply with applicable hazardous waste disposal regulations. The collected wastewater at these facilities would not be allowed to be discharged as typical wastewater. For this reason, facilities that do not currently have a wastewater treatment system or a wastewater discharge permit, would be expected to utilize other approved methods to conduct cleaning without the use of water such as HEPA vacuuming or sweeping with use of dust suppressing sweeping compounds. Of course, any facility that conducts wet cleaning and has a wastewater discharge permit would be expected to comply with the permitted effluent discharge concentration and flow limits which means the wastewater generated from wet cleaning would likely need to be treated prior to discharge.

Further, reductions of hexavalent chromium, arsenic, cadmium, and nickel from point and fugitive sources would correspond to reductions in the atmospheric dispersion of toxic air contaminants if PR 1407.1 is implemented. Moreover, the potential for the deposition of metal contamination, either directly or indirectly via stormwater, into water bodies, soils, or other surfaces would also be reduced. The air quality benefits associated with PR 1407.1 are not quantifiable, but would provide an indirect co-benefit by preventing further metal contamination to water bodies within South Coast AQMD's jurisdiction.

For these reasons, implementing PR 1407.1 would not be expected to violate any water quality standards, waste discharge requirements, exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, or otherwise substantially degrade water quality.

IX. b) & e) No Impact. As previously explained in Section IX. a), water is not needed to enclose building or rooftop openings, or operate baghouses and HEPA/ULPA filtration units. However, water may be used to conduct wet cleaning pursuant to the proposed housekeeping requirements in PR 1407.1. Any additional water utilized for conducting wet cleaning is expected to be supplied by each facility's current water supplier. The quality of water that would likely be supplied at each affected facility would be potable water since potable water is currently supplied at all of the affected facilities in order to provide drinking water for employees, water for sinks and toilets, and water for any landscaping, as applicable. Should any facility have a groundwater well onsite with groundwater pumping rights, the facility would likely not use groundwater for wet cleaning purposes, because groundwater contains sand and other particles or debris which is not suitable for wet cleaning. Therefore, implementing PR 1407.1 would not be expected to cause facilities to utilize groundwater for conducting wet cleaning, substantially deplete groundwater supplies, or interfere substantially with groundwater recharge. Additionally, the implementation of PR 1407.1 would not result in any changes to the release of pollutants into ground or surface water, nor would it affect the ground or surface water located in the vicinity of the affected facilities in any way. For these reasons, PR 1407.1 would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

IX. c) No Impact. Implementation of PR 1407.1 would not be expected to substantially alter the existing drainage pattern of the site or area beyond what currently exists at existing facilities. No streams or rivers are expected to run through existing facilities, because these facilities operate in urban industrial areas. Thus, PR 1407.1 would not cause an alteration of the course of a stream or river. Building improvements to construct building enclosure or install emission control devices may require some minor earthwork to prepare affected areas at the affected facility. Any construction activities, however, would not be expected to permanently create unpaved areas that would be vulnerable to surface runoff in a manner that would result in substantial erosion or siltation on- or off-site or flooding on- or off-site. In addition, PR 1407.1 would not create new or contribute to existing runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff, because PR 1407.1 does not contain any requirements that would change existing drainage patterns or the procedures for how surface runoff is handled.

IX. d) No Impact. As previously explained in Section IV – Biological Resources, PR 1407.1 would not require new development to occur in undeveloped areas. Construction at affected facilities would be short-term and take place within existing facility settings. Therefore, PR 1407.1 would not be expected to expose people or structures to a significant risk of loss, injury or death involving flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami, or mudflow because any flood event of this nature would be part of the existing setting or topography that is present for reasons unrelated to PR 1407.1. Similarly, there is no risk of release of pollutants due to inundation as a result of PR 1407.1.

IX. f), g), & h) Less than Significant Impact. Affected facilities would be required to conduct housekeeping, such as wet cleaning of floors, ducting, vents, and at openings of air pollution control equipment, as outlined in PR 1407.1. The analysis assumes that a basic 35-quart capacity (~nine gallons) commercial mop bucket would be used for wet cleaning. If on a peak day, all 11 facilities decided to conduct wet cleaning, a total of 97 additional gallons of water would be used and result in the same amount of wastewater. Thus, the amount of water that may be used to conduct wet cleaning is less the significance threshold of 262,820 gallons per day of potable water and 5,000,000 gallons per day of total water.

However, wet cleaning is not the only option. PR 1407.1 also would allow sweeping with use of dust suppressing sweeping compounds; or vacuuming with a vacuum equipped with a HEPA filter or better. Because each facility would have the option to choose either wet or dry cleaning to satisfy the housekeeping requirements, the decision to conduct wet cleaning would largely depend on what equipment is available. Also, for previous South Coast AQMD rule development projects regulating toxic air contaminants and requiring with housekeeping to be conducted, facility owners/operators, indicated a preference to use dry vacuuming in lieu of wet cleaning primarily to avoid having to deal with handling and processing or treating hazardous wastewater. Thus, the estimated use of water for wet cleaning as result of PR 1407.1 and the corresponding generation of wastewater on a peak day may be less than estimated. Because the water demand and wastewater generation is relatively minor when compared to the significance thresholds for water usage, as well as expected to be within each affected facility's supporting infrastructure to handle these projected quantities of water and wastewater, PR 1407.1 would not be expected to require the construction or relocation of new water or wastewater treatment facilities or new storm water drainage facilities, or cause the expansion of existing facilities. Similarly, because existing water supplies would be sufficient to support the implementation of housekeeping activities that utilize wet cleaning techniques, the availability of sufficient water supplies to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years is not expected to be significantly impacted by PR 1407.1. Further, because wet cleaning would not result in substantial wastewater generation, PR 1407.1 would not result in a determination by the wastewater treatment provider which serves the affected facilities that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

Conclusion

Based upon these considerations, significant adverse hydrology and water quality impacts are not expected from implementing PR 1407.1. Since no significant hydrology and water quality impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
X. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☑
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☑

Significance Criteria

Land use and planning impacts will be considered significant if the project conflicts with the land use and zoning designations established by local jurisdictions.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

X. a) & b) No Impact. PR 1407.1 does not require the construction of new facilities, and the physical effects that would result from PR 1407.1 would occur at existing facilities located in industrial areas and would occur within existing facility boundaries. For this reason, implementation of PR 1407.1 is not expected to physically divide an established community. Therefore, no impacts are anticipated.

Further, land use and other planning considerations are determined by local governments and PR 1407 does not alter any land use or planning requirements. Compliance with PR 1407.1 would take place within existing facilities. Thus, it would not be expected to affect or conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Conclusion

Based upon these considerations, significant adverse land use and planning impacts are not expected from implementing PR 1407.1. Since no significant land use and planning impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XI.	**MINERAL RESOURCES.** Would the project:				
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☑
b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☑

Significance Criteria
Project-related impacts on mineral resources will be considered significant if any of the following conditions are met:

- The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
- The proposed project results in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Discussion
PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

XI. a) & b) No Impact. There are no provisions in PR 1407.1 that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plant or other land use plant. Some examples of mineral resources are gravel, asphalt, bauxite, and gypsum, which are commonly used for construction activities or industrial processes. Implementation of the proposed project would result in building modifications, installation of emission control devices, and require operators to conduct housekeeping, source testing, material testing, parameter monitoring, and recordkeeping; all of which have no effects on the use of minerals, such as those described above. Therefore, no new demand on mineral resources is expected to occur and significant adverse mineral resources impacts from implementing PR 1407.1 are not anticipated.

Conclusion

Based upon these considerations, significant adverse mineral resource impacts are not expected from implementing PR 1407.1. Since no significant mineral resource impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XII.	**NOISE.** Would the project result in:				
a)	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b)	Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
c)	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☑

Significance Criteria

Noise impact will be considered significant if:

- Construction noise levels exceed the local noise ordinances or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers.
- The proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

XII. a) & b) Less than Significant Impact. The facilities subject to PR 1407.1 are located in urbanized industrial areas. The existing noise environment at each of the facilities is typically dominated by noise from existing equipment on-site, vehicular traffic around the facilities, and trucks entering and existing facility premises. Large, potentially noise-intensive construction equipment may be needed temporarily to enclosure building or roof openings, or install air pollution control equipment as part of implementing PR 1407.1. Operation of the construction equipment would be expected to comply with all existing noise control laws and ordinances. Since the facilities are located in industrial areas, which have a higher background noise level when compared to other areas, the noise generated during construction would likely be indistinguishable from the background noise levels at the property line. In addition, once building modification is completed at the affected facilities, the overall noise profile would be expected to lessen when compared to baseline noise levels from day-to-day operations at these facilities because the noise generating activities would occur inside existing buildings. Further, Occupational Safety and Health Administration (OSHA) and California-OSHA have established noise standards to protect worker health both indoors and outdoors. Furthermore, compliance with local noise ordinances typically limit the hours of construction to reduce the temporary noise impacts from construction to sensitive and offsite receptors. These potential noise increases would only be temporary until construction is completed and would be expected to be within the allowable noise levels established by the local noise ordinances for industrial areas; thus, impacts are expected to be less than significant.

XII. c) No Impact. As stated in Section VIII e), one facility identified in Appendix C is located within two miles of an airport. The existing noise environment at this facility is dominated by noise from existing equipment on-site, vehicular traffic around the facilities, and trucks entering and exiting facility premises. Thus, any new noise impacts from temporary construction activities to enclose building and rooftop openings and install air pollution control equipment and monitoring equipment would be likely to generate noise that is indistinguishable from the background levels at the property line. Thus, PR 1407.1 is not expected to expose persons residing or working within two miles of a public airport or private airstrip to excessive noise levels.

Conclusion

Based upon these considerations, significant adverse noise impacts are not expected from the implementing PR 1407.1. Since no significant noise impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIII.	**POPULATION AND HOUSING.** Would the project:				
a)	Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☑
b)	Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Significance Criteria

Impacts of the proposed project on population and housing will be considered significant if the following criteria are exceeded:

- The demand for temporary or permanent housing exceeds the existing supply.
- The proposed project produces additional population, housing or employment inconsistent with adopted plans either in terms of overall amount or location.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

XIII. a) No Impact. The construction activities associated with PR 1407.1 are not expected to involve the relocation of individuals, require new housing or commercial facilities, or change the distribution of the population. Only a handful workers per facility may be needed to perform construction activities to comply with PR 1407.1 and these workers can be supplied from the existing labor pool in the local Southern California area. Housekeeping and maintenance activities resulting from PR 1407.1 would also not be expected to result in the need for a substantial number of additional employees because facilities have existing personnel who perform similar day-to-day operations. It is possible that new employees may be needed to operate new emission control devices that are expected to be installed at nine facilities. In the event that new employees are hired, it is expected that the number of new employees hired at any one facility would be relatively small, perhaps no more than one per facility. Regardless of implementing PR 1407.1, human population within the jurisdiction of the South Coast AQMD is expected to stay about the same.

As such, PR 1407.1 is not anticipated to not result in changes in population densities, population distribution, or induce significant growth in population.

XIII. b) No Impact. PR 1407.1 would result in construction activities that are expected to occur within the confines of existing facilities. Additional housekeeping and maintenance requirements would not be expected to substantially alter existing operations. Consequently, PR 1407.1 is not expected to result in the creation of any industry that would affect population growth, directly or indirectly induce the construction of single- or multiple-family units, or require the displacement of persons or housing elsewhere within the South Coast AQMD's jurisdiction.

Conclusion

Based upon these considerations, significant adverse population and housing impacts are not expected from implementing PR 1407.1. Since no significant population and housing impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
a) Fire protection?	☐	☐	☐	☑
b) Police protection?	☐	☐	☐	☑
c) Schools?	☐	☐	☐	☑
d) Parks?	☐	☐	☐	☑
e) Other public facilities?	☐	☐	☐	☑

Significance Criteria

Impacts on public services will be considered significant if the project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time, or other performance objectives.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

XIV. a) & b) No Impact. Implementation of PR 1407.1 would require minor modifications to enclose building and roof openings, install strip curtains, and install air pollution control equipment. Facilities subject to PR 1407.1 currently handle hazardous materials and hazardous waste. While PR 1407.1 requires additional air pollution control equipment which would allow facilities to capture more hazardous material, PR 1407.1 does not require the new use or handling of hazardous materials. As such, no special circumstances with handling sensitive materials during construction would be expected. For these reasons, new safety hazards are not expected to occur during construction, and implementation of PR 1407.1 is not expected to substantially alter or increase the need or demand for additional public services (e.g., fire and police departments and related emergency services, etc.) above current levels. No significant impact to these existing services is anticipated.

XIV. c), d), & e) No Impact. As explained in Section XIII. a), PR 1407.1 is not anticipated to generate any significant effects, either direct or indirect, on the population or population distribution within South Coast AQMD's jurisdiction as no additional workers are anticipated to be required for compliance. Because PR 1407.1 is not expected to induce substantial population growth in any way, and because the local labor pool (e.g., workforce) would remain the same since PR 1407.1 would not trigger changes to current usage practices, no additional schools would need to be constructed. Any construction activities would be temporary. Although nine facilities would be required to install air pollution control equipment and trained personnel may be needed in order to maintain the new equipment, an increase in the labor force of one job per affected facility is insignificant. There would be no corresponding impacts to local schools or parks, and there would be no corresponding need for new or physically altered public facilities in order to maintain acceptable service ratios, response times, or other performance objectives. Therefore, no impacts would be expected to schools, parks or other public facilities.

Conclusion

Based upon these considerations, significant adverse public services impacts are not expected from implementing PR 1407.1. Since no significant public services impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XV. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment or recreational services?	☐	☐	☐	☑

Significance Criteria

Impacts to recreation will be considered significant if:

- The project results in an increased demand for neighborhood or regional parks or other recreational facilities.
- The project adversely affects existing recreational opportunities.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ <u>18</u> HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ <u>35</u> pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

XV. a) & b) No Impact. As previously explained in Section XIII – Population and Housing, PR 1407.1 is not expected to affect population growth or distribution within the South Coast AQMD's jurisdiction because workers needed to conduct construction activities to comply with PR 1407.1 can be supplied by the existing labor pool in the local Southern California area. As such, PR 1407.1 is not anticipated to generate any significant adverse effects, either indirectly or directly on population growth within the South Coast AQMD's jurisdiction or population distribution, and thus no additional demand for recreational facilities would be necessary or expected. No requirements in PR 1407.1 would be expected to affect recreation in any way. Therefore, PR 1407.1 would not increase the demand for or use of existing neighborhood and regional parks or other recreational facilities or require the construction of new or expansion of existing recreational facilities that might have an adverse physical effect on the environment because it would not directly or indirectly increase or redistribute population.

Conclusion

Based upon these considerations, significant adverse recreation impacts are not expected from implementing PR 1407.1. Since no significant recreation impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVI. SOLID AND HAZARDOUS WASTE. Would the project:				
a) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☑	☐
b) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	☐	☐	☐	☑

Significance Criteria

The proposed project impacts on solid and hazardous waste will be considered significant if the following occurs:

- The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

XVI. a) Less Than Significant Impact. PR 1407.1 would cause construction activities to occur at affected facilities, and these activities may result in the generation of some solid construction waste that may need to be disposed of in a landfill. However, because PR 1407.1 does not specifically require demolition to occur beyond the requirement for facilities to remove weather caps from rooftop ventilation points, no significant amount of construction waste is expected to be generated.

The operation of baghouses and HEPA/ULPA filtration systems would result in the collection of hazardous waste, and periodic maintenance of this air pollution control equipment involves emptying the baghouse and storing the hazardous waste in 50-gallon drums, and replacing the spent filters with fresh filters. The waste and spent filters would be sent to a certified hazardous waste landfill or recycling center for proper disposal or recycling.

Each baghouse is expected to be emptied once every three months, producing one drum (0.25 cubic yard) of waste. Total waste to be collected from five new baghouses would be approximately 1.5 cubic yards every three months. For comparison, the smallest available commercial dumpster has double that capacity at three cubic yards. Similar dumpsters are regularly filled and emptied weekly by small businesses.

HEPA and ULPA filters generate solid waste from the collection of metal PM and from the replacement of spent filters; they are not re-used. The lifetime of a HEPA or ULPA filter is typically three to five years because they are most often preceded by a preliminary stage of control such as a baghouse. A 24"x24"x2" HEPA or ULPA filter would result in the generation of 0.025 cubic yard of waste over three years, and the 15 new HEPA or ULPA filters: 0.37 cubic yard every three years.

Thus, solid and hazardous waste generation is not expected to significantly impact existing permitted landfill capacity, and all affected facilities would be able to be served by a landfill with sufficient permitted capacity to accommodate to each facility's solid disposal needs.

XVI. b) No Impact. Current operations at facilities are assumed to comply with all applicable local, state, or federal waste disposal regulations, and PR 1407.1 does not contain any provisions that would weaken, alter, or interfere with current practices. While PR 1407.1 would require housekeeping to be conducted which may result in hazardous waste being stored and hauled away in sealed containers, these requirements are considered best management practices for handling hazardous waste, and in turn, help to reduce risk of exposure to hazardous waste during transport for disposal. Thus, implementation of PR 1407.1 is not expected to interfere with any affected facility's ability to comply with applicable local, state, or federal waste disposal regulations in a manner that would cause a significant adverse solid and hazardous waste impact.

Conclusion

Based upon these considerations, significant adverse solid and hazardous waste impacts are not expected from implementing PR 1407.1. Since no significant solid and hazardous waste impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION. Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☑	☐
b) Conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b)?	☐	☐	☑	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
d) Result in inadequate emergency access?	☐	☐	☐	☑

Significance Criteria

Impacts on transportation and traffic will be considered significant if any of the following criteria apply:

- A major roadway is closed to all through traffic, and no alternate route is available.
- The project conflicts with applicable policies, plans, or programs establishing measures of effectiveness, thereby decreasing the performance or safety of any mode of transportation.
- There is an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.
- The demand for parking facilities is substantially increased.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists, or pedestrians are substantially increased.
- The need for more than 350 employees.
- An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day.
- Increase customer traffic by more than 700 visits per day.

Discussion
PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

XVII. a) & b) Less than Significant Impact. As previously discussed in Section III – Air Quality and Greenhouse Gas Emissions, compliance with PR 1407.1 would require construction activities to modify buildings by enclosing roofs, installing plastic strip curtains, and removing weather caps, and to install baghouses, HEPA or ULPA filtration units, and emission control device monitoring equipment. All affected facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests. To accomplish these various activities, on-road passenger vehicles and light-, medium- and heavy duty trucks would be dispatched to the affected facilities in order to deliver supplies and construction materials, conduct source tests and smoke tests, and haul collected waste from the baghouses and spent HEPA/ULPA filters.

Table 2-10 presents the number of vehicle round trips that may occur on a peak day.

Table 2-10
Number of Round Trips on a Peak Day

Activity	Vehicle Trips
11 Building Modifications	11 Delivery Trucks 22 Passenger Autos
Total (by July 1, 2021)	**33 Vehicle Trips**
9 Baghouse or HEPA/ULPA Filtration Unit Installations	9 Delivery Trucks 45 Passenger Autos
11 Emission Control Device Monitoring Equipment Installations	11 Delivery Trucks 22 Passenger Autos
2 Smoke Tests	2 Passenger Autos
2 Source Tests	2 Support Trucks 2 Passenger Autos
1 Haul Trip	1 Haul Truck
Total (by July 1, 2024)	**112 Vehicle Trips**

11 medium-duty trucks and 22 passenger vehicles would be used on a peak day for building modifications, and 22 medium-duty trucks, 71 passenger vehicles, one heavy-duty haul truck, nine

aerial lifts, and nine forklifts would be used on a peak day for other activities. Because the compliance dates required for building modifications versus other activities are separated by 3 years, the two periods are not expected to overlap. The totals of 33 and 112 additional vehicle trips respectively, are below the significance threshold of 350 round trips. Forklifts and aerial lifts are expected to remain on the job site, and not contribute to on-road traffic.

In accordance with the promulgation of SB 743 which requires analyses of transportation impacts in CEQA documents to consider a project's vehicle miles traveled (VMT) in lieu of applying a LOS metric when determining significance for transportation impacts, CEQA Guidelines Section 15064.3(b)(4) gives a lead agency to use discretion to choose the most appropriate methodology to evaluate a project's VMT, allowing the metric to be expressed as a change in absolute terms, per capita, per household, or in any other measure.

Nonetheless, by applying emission factors from CARB's EMFAC2017, VMT from implementing PR 1407.1 has been quantified (see Appendix B-2 for this analysis). The total VMT quantified represents a worst-case year of construction and operation activities overlapping. During the first year when all source tests and smoke tests would be conducted and construction impacts would occur, these activities are estimated to result in 10,682 total VMT. For perspective, an additional 10,682 VMT is equivalent to adding one or two vehicles to the road over the period of one year. PR 1407.1 is not expected to cause a significant adverse transportation impact. Therefore, PR 1407.1 would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b). Further, because implementation of PR 1407.1 would not alter any transportation plans, PR 1407.1 would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

XVII. c) & d) No Impact. Since the focus of PR 1407.1 is to control hexavalent chromium, arsenic, cadmium, and nickel emissions from chromium alloy melting facilities, no existing roadways would need to be modified and no new roadways would need to be constructed. Thus, there would be no change to current public roadway designs including a geometric design feature that could increase traffic hazards. Further, PR 1407.1 is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the facilities. Construction-related activities are expected to be temporary and occur over a short-term. Since construction activities and associated passenger vehicle trips and delivery truck trips would cease after construction is completed, the proposed project is not expected to alter the existing long-term circulation patterns within the areas of each affected facility during construction. Similarly, during operation, the projected increase of additional vehicle trips that may be needed at each affected facility would be less than significant levels individually and cumulatively such that the implementation of the proposed project is not expected to require a modification to circulation. Thus, no long-term impacts on the traffic circulation system are expected to occur during construction or operation. Further, impacts to existing emergency access at the affected facilities would also not be affected because PR 1407.1 does not contain any requirements specific to emergency access points and each facility would be expected to continue to maintain their existing emergency access. As a result, PR 1407.1 is not expected to result in inadequate emergency access.

Conclusion

Based upon these considerations, significant adverse transportation and traffic impacts are not expected from implementing PR 1407.1. Since no significant transportation and traffic impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVIII. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☑
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☑
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☑
e) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildfires?	☐	☐	☐	☑

Significance Criteria

A project's ability to contribute to a wildfire will be considered significant if the project is located in or near state responsibility areas or lands classified as very high fire hazard severity zones, and any of the following conditions are met:

- The project would substantially impair an adopted emergency response plan or emergency evacuation plan.
- The project may exacerbate wildfire risks by exposing the project's occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors.
- The project may exacerbate wildfire risks or may result in temporary or ongoing impacts to the environment because the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) are required.

- The project would expose people or structures to significant risks such as downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.
- The project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildfires.

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

XVIII. a), b), c), d), & e) No Impact. Implementation of PR 1407.1 would neither require the construction of any new facilities nor result in the construction of any occupied buildings or structures beyond the current boundaries of each affected facility. Thus, PR 1407.1 is not expected to substantially impair an adopted emergency response plan or emergency evacuation plan. Further, the existing facilities which are subject to PR 1407.1 are located in industrial areas, and not near wildlands. In the event of a wildfire, no exacerbation of wildfire risks, and no consequential exposure of the project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, or other factors would be expected to occur. Similarly, the existing facilities which are subject to PR 1407.1 are located in industrial areas and no new facilities are required to be constructed. Thus, PR 1407.1 would neither expose people or structures to new significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes, nor would it expose people or structures, either directly or indirectly, to a new significant risk of loss, injury or death involving wildfires. Finally, because PR 1407.1 does not require any construction beyond existing facility boundaries, the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment are not required.

Conclusion

Based upon these considerations, significant adverse wildfire risks are not expected from implementing PR 1407.1. Since no significant wildfire risks were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☑
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☐	☑	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☑	☐

Discussion

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping requirements and building enclosure provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. As detailed in Table 2-1, a total of five baghouses, ~~14~~ 18 HEPA and one ULPA filtration units, 14 bag leak detection systems, and ~~31~~ 35 pressure gauges with data acquisition systems are anticipated to be installed at ~~the~~ 11 facilities. In addition, all 11 facilities would be required to employ any of the following methods to close building and roof openings, including: the use of automatic doors, installation of overlapping floor-to-ceiling plastic strip curtains, vestibules, and airlock systems. Lastly, all 11 facilities would be required to conduct housekeeping, remove weather caps, and periodically conduct source tests and smoke tests.

XIX. a) No Impact. As explained in Section IV - Biological Resources, PR 1407.1 is not expected to significantly adversely affect plant or animal species, or the habitat on which they rely because any construction and operational activities are expected to occur entirely within the boundaries of existing developed facilities in areas that have been greatly disturbed and that currently do not support any species of concern or the habitat on which they rely. For these reasons, PR 1407.1 is not expected to reduce or eliminate any plant or animal species or destroy prehistoric records of the past.

XIX. b) Less Than Significant Impact. Based on the foregoing analyses, PR 1407.1 would not result in significant adverse project-specific environmental impacts. Potential adverse impacts from implementing PR 1407.1 would not be "cumulatively considerable" as defined by CEQA Guidelines Section 15064(h)(1) for any environmental topic because there are no, or only minor incremental project-specific impacts that were concluded to be less than significant. Per CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulative considerable. South Coast AQMD cumulative significant thresholds are the same as project-specific significance thresholds.

Therefore, there is no potential for significant adverse cumulative or cumulatively considerable impacts to be generated by PR 1407.1 for any environmental topic.

XIX. c) Less Than Significant Impact. Based on the foregoing analyses, PR 1407.1 is not expected to cause adverse effects on human beings for any environmental topic, either directly or indirectly because: 1) the air quality and GHG impacts were determined to be less than the significance thresholds as analyzed in Section III – Air Quality and Greenhouse Gases; 2) energy impacts were determined to be less than significant as analyzed in Section VI – Energy; 3) geological and soil impacts were determined to be less than significant as analyzed in VII – Geology and Soils; 4) the hazards and hazardous materials impacts were determined to be less than significant as analyzed in Section VIII – Hazards and Hazardous Materials; 5) the increased water usage and wastewater was determined to be less than significant as analyzed in Section IX – Hydrology and Water Quality; 6) the noise impacts were determined to be less than significant as analyzed in Section XII – Noise; 7) solid and hazardous waste impacts were determined to be less than significant as analyzed in Section XVI – Solid and Hazardous Waste; and 8) transportation and traffic impacts were determined to be less than the significant as analyzed in Section XVII – Transportation. In addition, the analysis concluded that there would be no significant environmental impacts for the remaining environmental impact topic areas: aesthetics, agriculture and forestry resources, biological resources, cultural and tribal cultural resources, land use and planning, mineral resources, population and housing, recreation, solid and hazardous waste, and wildfire.

Conclusion

As previously discussed in environmental topics I through XIX, the proposed project has no potential to cause significant adverse environmental effects. Since no mitigation measures are necessary or required.

APPENDICES

Appendix A: Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations

Appendix B: Modeling Files, Assumptions, and Calculations

Appendix C: Proposed Rule 1407.1 List of Affected Facilities

Appendix D: Comment Letters Received on the Draft EA and Responses

APPENDIX A

Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations

In order to save space and avoid repetition, please refer to the latest version of PR 1407.1 located elsewhere in the Governing Board Package (meeting date January 8, 2021). The version of PR 1407.1 that was circulated with the Draft EA and released on November 13, 2020 for a 32-day public review and comment period ending on December 15, 2020 was identified as Proposed Rule 1407.1 – Preliminary Draft Rule Language (Public Workshop Version 20-10-14) which is available from South Coast AQMD's website at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1407/proposed-rule-1407-1-preliminary-draft-rule-language---october-14-2020.pdf. Original hard copies of the Draft EA, which include the preliminary draft version of the proposed rule listed above can be obtained by contacting the Public Information Center by phone at (909) 396-2001 or by email at PICrequests@aqmd.gov.

APPENDIX B

Modeling Files, Assumptions, and Calculations

APPENDIX B-1-A

CalEEMod – Baghouse/HEPA Construction in the Draft EA

Baghouse/HEPA Construction_Annual

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	9.00	1000sqft	0.21	9,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2022
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumption: (5 days Installation per Baghouse for 5 Total) + (1 day Installation per HEPA/ULPA Filter Unit for 15 Total = 3 Additional Baghouses)

Off-road Equipment - Assumption: 1 APCD Installation per Facility (Each Has 1 Air Compressor, 1 Welder, 1 Forklift, 1 Aerial Lift)

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	100.00	5.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	0.00
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	8.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblTripsAndVMT	VendorTripNumber	1.00	11.00
tblTripsAndVMT	WorkerTripNumber	4.00	55.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0108	0.0783	0.0848	1.4000e-004	1.6800e-003	4.4300e-003	6.1100e-003	4.5000e-004	4.2600e-003	4.7100e-003	0.0000	12.1371	12.1371	2.1800e-003	0.0000	12.1916
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0108**	**0.0783**	**0.0848**	**1.4000e-004**	**1.6800e-003**	**4.4300e-003**	**6.1100e-003**	**4.5000e-004**	**4.2600e-003**	**4.7100e-003**	**0.0000**	**12.1371**	**12.1371**	**2.1800e-003**	**0.0000**	**12.1916**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0108	0.0783	0.0848	1.4000e-004	1.6800e-003	4.4300e-003	6.1100e-003	4.5000e-004	4.2600e-003	4.7100e-003	0.0000	12.1370	12.1370	2.1800e-003	0.0000	12.1916
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0108**	**0.0783**	**0.0848**	**1.4000e-004**	**1.6800e-003**	**4.4300e-003**	**6.1100e-003**	**4.5000e-004**	**4.2600e-003**	**4.7100e-003**	**0.0000**	**12.1370**	**12.1370**	**2.1800e-003**	**0.0000**	**12.1916**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-30-2020**	**1-29-2021**	0.0891	0.0891
		Highest	0.0891	0.0891

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0367	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Energy	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203
Mobile	4.9600e-003	0.0292	0.0735	2.9000e-004	0.0246	2.3000e-004	0.0249	6.6000e-003	2.1000e-004	6.8100e-003	0.0000	26.7760	26.7760	1.2400e-003	0.0000	26.8069
Waste						0.0000	0.0000		0.0000	0.0000	1.7173	0.0000	1.7173	0.1015	0.0000	4.2546
Water						0.0000	0.0000		0.0000	0.0000	0.6603	0.0000	0.6603	0.0678	1.6000e-003	2.8329
Total	**0.0417**	**0.0295**	**0.0740**	**2.9000e-004**	**0.0246**	**2.6000e-004**	**0.0249**	**6.6000e-003**	**2.4000e-004**	**6.8400e-003**	**2.3776**	**27.1941**	**29.5717**	**0.1706**	**1.6100e-003**	**34.3150**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0367	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Energy	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203
Mobile	4.9600e-003	0.0292	0.0735	2.9000e-004	0.0246	2.3000e-004	0.0249	6.6000e-003	2.1000e-004	6.8100e-003	0.0000	26.7760	26.7760	1.2400e-003	0.0000	26.8069
Waste						0.0000	0.0000		0.0000	0.0000	1.7173	0.0000	1.7173	0.1015	0.0000	4.2546
Water						0.0000	0.0000		0.0000	0.0000	0.6603	0.0000	0.6603	0.0678	1.6000e-003	2.8329
Total	**0.0417**	**0.0295**	**0.0740**	**2.9000e-004**	**0.0246**	**2.6000e-004**	**0.0249**	**6.6000e-003**	**2.4000e-004**	**6.8400e-003**	**2.3776**	**27.1941**	**29.5717**	**0.1706**	**1.6100e-003**	**34.3150**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/30/2020	10/29/2020	5	0	
2	Site Preparation	Site Preparation	11/13/2020	11/12/2020	5	0	
3	Grading	Grading	11/14/2020	11/13/2020	5	0	
4	Building Construction	Building Construction	11/18/2020	11/24/2020	5	5	
5	Paving	Paving	4/7/2021	4/6/2021	5	0	
6	Architectural Coating	Architectural Coating	4/14/2021	4/13/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 13,500; Non-Residential Outdoor: 4,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Aerial Lifts	8	4.00	63	0.31
Building Construction	Air Compressors	8	4.00	78	0.48
Building Construction	Forklifts	8	4.00	89	0.20
Building Construction	Welders	8	4.00	46	0.45
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	35	55.00	11.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0101	0.0748	0.0789	1.2000e-004		4.4000e-003	4.4000e-003		4.2400e-003	4.2400e-003	0.0000	10.1026	10.1026	2.1000e-003	0.0000	10.1551
Total	**0.0101**	**0.0748**	**0.0789**	**1.2000e-004**		**4.4000e-003**	**4.4000e-003**		**4.2400e-003**	**4.2400e-003**	**0.0000**	**10.1026**	**10.1026**	**2.1000e-003**	**0.0000**	**10.1551**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0000e-005	2.9300e-003	7.3000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.9000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.6764	0.6764	4.0000e-005	0.0000	0.6775
Worker	6.1000e-004	4.7000e-004	5.2100e-003	2.0000e-005	1.5100e-003	1.0000e-005	1.5200e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.3580	1.3580	4.0000e-005	0.0000	1.3590
Total	**7.0000e-004**	**3.4000e-003**	**5.9400e-003**	**3.0000e-005**	**1.6800e-003**	**2.0000e-005**	**1.7100e-003**	**4.5000e-004**	**2.0000e-005**	**4.7000e-004**	**0.0000**	**2.0344**	**2.0344**	**8.0000e-005**	**0.0000**	**2.0365**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0101	0.0748	0.0789	1.2000e-004		4.4000e-003	4.4000e-003		4.2400e-003	4.2400e-003	0.0000	10.1026	10.1026	2.1000e-003	0.0000	10.1551
Total	**0.0101**	**0.0748**	**0.0789**	**1.2000e-004**		**4.4000e-003**	**4.4000e-003**		**4.2400e-003**	**4.2400e-003**	**0.0000**	**10.1026**	**10.1026**	**2.1000e-003**	**0.0000**	**10.1551**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0000e-005	2.9300e-003	7.3000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.9000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.6764	0.6764	4.0000e-005	0.0000	0.6775
Worker	6.1000e-004	4.7000e-004	5.2100e-003	2.0000e-005	1.5100e-003	1.0000e-005	1.5200e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.3580	1.3580	4.0000e-005	0.0000	1.3590
Total	**7.0000e-004**	**3.4000e-003**	**5.9400e-003**	**3.0000e-005**	**1.6800e-003**	**2.0000e-005**	**1.7100e-003**	**4.5000e-004**	**2.0000e-005**	**4.7000e-004**	**0.0000**	**2.0344**	**2.0344**	**8.0000e-005**	**0.0000**	**2.0365**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.9600e-003	0.0292	0.0735	2.9000e-004	0.0246	2.3000e-004	0.0249	6.6000e-003	2.1000e-004	6.8100e-003	0.0000	26.7760	26.7760	1.2400e-003	0.0000	26.8069
Unmitigated	4.9600e-003	0.0292	0.0735	2.9000e-004	0.0246	2.3000e-004	0.0249	6.6000e-003	2.1000e-004	6.8100e-003	0.0000	26.7760	26.7760	1.2400e-003	0.0000	26.8069

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	15.12	15.12	15.12	64,800	64,800
Total	15.12	15.12	15.12	64,800	64,800

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-No Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Unrefrigerated Warehouse-No Rail	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203
NaturalGas Unmitigated	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Unrefrigerated Warehouse-No Rail	7830	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203
Total		**4.0000e-005**	**3.8000e-004**	**3.2000e-004**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.4178**	**0.4178**	**1.0000e-005**	**1.0000e-005**	**0.4203**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Unrefrigerated Warehouse-No Rail	7830	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203
Total		**4.0000e-005**	**3.8000e-004**	**3.2000e-004**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.4178**	**0.4178**	**1.0000e-005**	**1.0000e-005**	**0.4203**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Unrefrigerated Warehouse-No Rail	35100	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Unrefrigerated Warehouse-No Rail	35100	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0367	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Unmitigated	0.0367	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.1700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Total	**0.0367**	**0.0000**	**1.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.4000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.1700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Total	**0.0367**	**0.0000**	**1.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.4000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6603	0.0678	1.6000e-003	2.8329
Unmitigated	0.6603	0.0678	1.6000e-003	2.8329

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Unrefrigerated Warehouse-No Rail	2.08125 / 0	0.6603	0.0678	1.6000e-003	2.8329
Total		**0.6603**	**0.0678**	**1.6000e-003**	**2.8329**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Unrefrigerated Warehouse-No Rail	2.08125 / 0	0.6603	0.0678	1.6000e-003	2.8329
Total		**0.6603**	**0.0678**	**1.6000e-003**	**2.8329**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.7173	0.1015	0.0000	4.2546
Unmitigated	1.7173	0.1015	0.0000	4.2546

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Unrefrigerated Warehouse-No Rail	8.46	1.7173	0.1015	0.0000	4.2546
Total		**1.7173**	**0.1015**	**0.0000**	**4.2546**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Unrefrigerated Warehouse-No Rail	8.46	1.7173	0.1015	0.0000	4.2546
Total		**1.7173**	**0.1015**	**0.0000**	**4.2546**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Baghouse/HEPA Construction

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	9.00	1000sqft	0.21	9,000.00	0

1.2 Other Project Characteristics

Urbanization Urban | **Wind Speed (m/s)** 2.2 | **Precipitation Freq (Days)** 31

Climate Zone 9 | **Operational Year** 2022

Utility Company

CO2 Intensity (lb/MWhr) 0 | **CH4 Intensity (lb/MWhr)** 0 | **N2O Intensity (lb/MWhr)** 0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumption: 5 days Installation for Baghouse

Off-road Equipment - Assumption: 1 APCD Installation per Facility (Each Has 1 Air Compressor, 1 Welder, 1 Forklift, 1 Aerial Lift)

Trips and VMT - Assumption: Each APCD Installation Requires 1 Hauling Trip and 5 Workers/day for 9 Facilities. Each Monitoring Equipment Installation Requires 1 Hauling Trip and 2 Workers/day for 11 Facilities.

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	100.00	5.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	0.00
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	9.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblTripsAndVMT	VendorTripNumber	1.00	20.00
tblTripsAndVMT	WorkerTripNumber	4.00	67.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.8332	35.1177	38.0313	0.0657	0.8769	1.9495	2.8264	0.2355	1.8785	2.1139	0.0000	6,216.8546	6,216.8546	1.0623	0.0000	6,243.4117
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.4491	0.0000	0.0000	0.4241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**4.8332**	**35.1177**	**38.0313**	**0.0657**	**0.8769**	**1.9495**	**2.8264**	**0.2355**	**1.8785**	**2.1139**	**0.0000**	**6,216.8546**	**6,216.8546**	**1.0623**	**0.0000**	**6,243.4117**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.8332	35.1177	38.0313	0.0657	0.8769	1.9495	2.8264	0.2355	1.8785	2.1139	0.0000	6,216.8546	6,216.8546	1.0623	0.0000	6,243.4117
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.4491	0.0000	0.0000	0.4241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**4.8332**	**35.1177**	**38.0313**	**0.0657**	**0.8769**	**1.9495**	**2.8264**	**0.2355**	**1.8785**	**2.1139**	**0.0000**	**6,216.8546**	**6,216.8546**	**1.0623**	**0.0000**	**6,243.4117**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2011	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388
Mobile	0.0292	0.1536	0.4284	1.6600e-003	0.1378	1.2500e-003	0.1390	0.0369	1.1700e-003	0.0380		168.7337	168.7337	7.5600e-003		168.9228
Total	**0.2305**	**0.1557**	**0.4311**	**1.6700e-003**	**0.1378**	**1.4100e-003**	**0.1392**	**0.0369**	**1.3300e-003**	**0.0382**		**171.2594**	**171.2594**	**7.6200e-003**	**5.0000e-005**	**171.4636**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2011	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388
Mobile	0.0292	0.1536	0.4284	1.6600e-003	0.1378	1.2500e-003	0.1390	0.0369	1.1700e-003	0.0380		168.7337	168.7337	7.5600e-003		168.9228
Total	**0.2305**	**0.1557**	**0.4311**	**1.6700e-003**	**0.1378**	**1.4100e-003**	**0.1392**	**0.0369**	**1.3300e-003**	**0.0382**		**171.2594**	**171.2594**	**7.6200e-003**	**5.0000e-005**	**171.4636**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/30/2020	10/29/2020	5	0	
2	Site Preparation	Site Preparation	11/13/2020	11/12/2020	5	0	
3	Grading	Grading	11/14/2020	11/13/2020	5	0	
4	Building Construction	Building Construction	11/18/2020	11/24/2020	5	5	
5	Paving	Paving	4/7/2021	4/6/2021	5	0	
6	Architectural Coating	Architectural Coating	4/14/2021	4/13/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 13,500; Non-Residential Outdoor: 4,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Aerial Lifts	9	4.00	63	0.31
Building Construction	Air Compressors	9	4.00	78	0.48
Building Construction	Forklifts	9	4.00	89	0.20
Building Construction	Welders	9	4.00	46	0.45
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	39	67.00	20.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4643	32.8152	34.7925	0.0529		1.9334	1.9334		1.8633	1.8633		4,901.198 0	4,901.198 0	1.0058		4,926.342 4
Total	**4.4643**	**32.8152**	**34.7925**	**0.0529**		**1.9334**	**1.9334**		**1.8633**	**1.8633**		**4,901.198 0**	**4,901.198 0**	**1.0058**		**4,926.342 4**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0657	2.0987	0.4998	5.1500e-003	0.1280	0.0104	0.1384	0.0369	9.9500e-003	0.0468		548.8969	548.8969	0.0345		549.7585
Worker	0.3031	0.2038	2.7391	7.7000e-003	0.7489	5.6800e-003	0.7546	0.1986	5.2300e-003	0.2038		766.7597	766.7597	0.0220		767.3108
Total	**0.3688**	**2.3025**	**3.2388**	**0.0129**	**0.8769**	**0.0161**	**0.8930**	**0.2355**	**0.0152**	**0.2506**		**1,315.6566**	**1,315.6566**	**0.0565**		**1,317.0693**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4643	32.8152	34.7925	0.0529		1.9334	1.9334		1.8633	1.8633	0.0000	4,901.1980	4,901.1980	1.0058		4,926.3424
Total	**4.4643**	**32.8152**	**34.7925**	**0.0529**		**1.9334**	**1.9334**		**1.8633**	**1.8633**	**0.0000**	**4,901.1980**	**4,901.1980**	**1.0058**		**4,926.3424**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0657	2.0987	0.4998	5.1500e-003	0.1280	0.0104	0.1384	0.0369	9.9500e-003	0.0468		548.8969	548.8969	0.0345		549.7585
Worker	0.3031	0.2038	2.7391	7.7000e-003	0.7489	5.6800e-003	0.7546	0.1986	5.2300e-003	0.2038		766.7597	766.7597	0.0220		767.3108
Total	**0.3688**	**2.3025**	**3.2388**	**0.0129**	**0.8769**	**0.0161**	**0.8930**	**0.2355**	**0.0152**	**0.2506**		**1,315.6566**	**1,315.6566**	**0.0565**		**1,317.0693**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0292	0.1536	0.4284	1.6600e-003	0.1378	1.2500e-003	0.1390	0.0369	1.1700e-003	0.0380		168.7337	168.7337	7.5600e-003		168.9228
Unmitigated	0.0292	0.1536	0.4284	1.6600e-003	0.1378	1.2500e-003	0.1390	0.0369	1.1700e-003	0.0380		168.7337	168.7337	7.5600e-003		168.9228

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	15.12	15.12	15.12	64,800	64,800
Total	15.12	15.12	15.12	64,800	64,800

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-No Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Unrefrigerated Warehouse-No Rail	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388
NaturalGas Unmitigated	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	21.4521	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388
Total		**2.3000e-004**	**2.1000e-003**	**1.7700e-003**	**1.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**		**2.5238**	**2.5238**	**5.0000e-005**	**5.0000e-005**	**2.5388**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	0.0214521	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388
Total		**2.3000e-004**	**2.1000e-003**	**1.7700e-003**	**1.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**		**2.5238**	**2.5238**	**5.0000e-005**	**5.0000e-005**	**2.5388**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2011	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Unmitigated	0.2011	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0229					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1782					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.2012**	**1.0000e-005**	**9.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0229					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1782					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.2012**	**1.0000e-005**	**9.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Baghouse/HEPA Construction

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	9.00	1000sqft	0.21	9,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2022
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumption: 5 days Installation for Baghouse

Off-road Equipment - Assumption: 1 APCD Installation per Facility (Each Has 1 Air Compressor, 1 Welder, 1 Forklift, 1 Aerial Lift)

Trips and VMT - Assumption: Each APCD Installation Requires 1 Hauling Trip and 5 Workers/day for 9 Facilities. Each Monitoring Equipment Installation Requires 1 Hauling Trip and 2 Workers/day for 11 Facilities.

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	100.00	5.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	0.00
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	9.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblTripsAndVMT	VendorTripNumber	1.00	20.00
tblTripsAndVMT	WorkerTripNumber	4.00	67.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.8638	35.1348	37.8159	0.0651	0.8769	1.9497	2.8266	0.2355	1.8786	2.1141	0.0000	6,151.3681	6,151.3681	1.0634	0.0000	6,177.9520
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.4491	0.0000	0.0000	0.4241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**4.8638**	**35.1348**	**37.8159**	**0.0651**	**0.8769**	**1.9497**	**2.8266**	**0.2355**	**1.8786**	**2.1141**	**0.0000**	**6,151.3681**	**6,151.3681**	**1.0634**	**0.0000**	**6,177.9520**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.8638	35.1348	37.8159	0.0651	0.8769	1.9497	2.8266	0.2355	1.8786	2.1141	0.0000	6,151.3681	6,151.3681	1.0634	0.0000	6,177.9520
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.4491	0.0000	0.0000	0.4241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**4.8638**	**35.1348**	**37.8159**	**0.0651**	**0.8769**	**1.9497**	**2.8266**	**0.2355**	**1.8786**	**2.1141**	**0.0000**	**6,151.3681**	**6,151.3681**	**1.0634**	**0.0000**	**6,177.9520**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2011	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388
Mobile	0.0278	0.1573	0.3965	1.5700e-003	0.1378	1.2600e-003	0.1391	0.0369	1.1700e-003	0.0380		159.9233	159.9233	7.5200e-003		160.1113
Total	**0.2291**	**0.1595**	**0.3992**	**1.5800e-003**	**0.1378**	**1.4200e-003**	**0.1392**	**0.0369**	**1.3300e-003**	**0.0382**		**162.4490**	**162.4490**	**7.5800e-003**	**5.0000e-005**	**162.6521**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2011	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Energy	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388
Mobile	0.0278	0.1573	0.3965	1.5700e-003	0.1378	1.2600e-003	0.1391	0.0369	1.1700e-003	0.0380		159.9233	159.9233	7.5200e-003		160.1113
Total	**0.2291**	**0.1595**	**0.3992**	**1.5800e-003**	**0.1378**	**1.4200e-003**	**0.1392**	**0.0369**	**1.3300e-003**	**0.0382**		**162.4490**	**162.4490**	**7.5800e-003**	**5.0000e-005**	**162.6521**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/30/2020	10/29/2020	5	0	
2	Site Preparation	Site Preparation	11/13/2020	11/12/2020	5	0	
3	Grading	Grading	11/14/2020	11/13/2020	5	0	
4	Building Construction	Building Construction	11/18/2020	11/24/2020	5	5	
5	Paving	Paving	4/7/2021	4/6/2021	5	0	
6	Architectural Coating	Architectural Coating	4/14/2021	4/13/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 13,500; Non-Residential Outdoor: 4,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Aerial Lifts	9	4.00	63	0.31
Building Construction	Air Compressors	9	4.00	78	0.48
Building Construction	Forklifts	9	4.00	89	0.20
Building Construction	Welders	9	4.00	46	0.45
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Baghouse/HEPA Construction - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	39	67.00	20.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4643	32.8152	34.7925	0.0529		1.9334	1.9334		1.8633	1.8633		4,901.1980	4,901.1980	1.0058		4,926.3424
Total	**4.4643**	**32.8152**	**34.7925**	**0.0529**		**1.9334**	**1.9334**		**1.8633**	**1.8633**		**4,901.1980**	**4,901.1980**	**1.0058**		**4,926.3424**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0688	2.0965	0.5572	5.0000e-003	0.1280	0.0106	0.1386	0.0369	0.0101	0.0470		533.0256	533.0256	0.0370		533.9509
Worker	0.3306	0.2231	2.4662	7.2000e-003	0.7489	5.6800e-003	0.7546	0.1986	5.2300e-003	0.2038		717.1445	717.1445	0.0206		717.6587
Total	**0.3994**	**2.3197**	**3.0234**	**0.0122**	**0.8769**	**0.0162**	**0.8931**	**0.2355**	**0.0153**	**0.2508**		**1,250.1701**	**1,250.1701**	**0.0576**		**1,251.6096**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.4643	32.8152	34.7925	0.0529		1.9334	1.9334		1.8633	1.8633	0.0000	4,901.1980	4,901.1980	1.0058		4,926.3424
Total	**4.4643**	**32.8152**	**34.7925**	**0.0529**		**1.9334**	**1.9334**		**1.8633**	**1.8633**	**0.0000**	**4,901.1980**	**4,901.1980**	**1.0058**		**4,926.3424**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0688	2.0965	0.5572	5.0000e-003	0.1280	0.0106	0.1386	0.0369	0.0101	0.0470		533.0256	533.0256	0.0370		533.9509
Worker	0.3306	0.2231	2.4662	7.2000e-003	0.7489	5.6800e-003	0.7546	0.1986	5.2300e-003	0.2038		717.1445	717.1445	0.0206		717.6587
Total	**0.3994**	**2.3197**	**3.0234**	**0.0122**	**0.8769**	**0.0162**	**0.8931**	**0.2355**	**0.0153**	**0.2508**		**1,250.1701**	**1,250.1701**	**0.0576**		**1,251.6096**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0278	0.1573	0.3965	1.5700e-003	0.1378	1.2600e-003	0.1391	0.0369	1.1700e-003	0.0380		159.9233	159.9233	7.5200e-003		160.1113
Unmitigated	0.0278	0.1573	0.3965	1.5700e-003	0.1378	1.2600e-003	0.1391	0.0369	1.1700e-003	0.0380		159.9233	159.9233	7.5200e-003		160.1113

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	15.12	15.12	15.12	64,800	64,800
Total	15.12	15.12	15.12	64,800	64,800

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-No Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Unrefrigerated Warehouse-No Rail	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388
NaturalGas Unmitigated	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	21.4521	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388
Total		**2.3000e-004**	**2.1000e-003**	**1.7700e-003**	**1.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**		**2.5238**	**2.5238**	**5.0000e-005**	**5.0000e-005**	**2.5388**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Unrefrigerated Warehouse-No Rail	0.0214521	2.3000e-004	2.1000e-003	1.7700e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5238	2.5238	5.0000e-005	5.0000e-005	2.5388
Total		**2.3000e-004**	**2.1000e-003**	**1.7700e-003**	**1.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**		**2.5238**	**2.5238**	**5.0000e-005**	**5.0000e-005**	**2.5388**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2011	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Unmitigated	0.2011	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0229					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1782					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.2012**	**1.0000e-005**	**9.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0229					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1782					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.0000e-005	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.9700e-003	1.9700e-003	1.0000e-005		2.1000e-003
Total	**0.2012**	**1.0000e-005**	**9.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.9700e-003**	**1.9700e-003**	**1.0000e-005**		**2.1000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B-1-B

CalEEMod – Baghouse/HEPA Construction in the Final EA

The Final EA analyzed four additional HEPA filtration unit installations compared to the Draft EA. Peak day emissions are unchanged because the number of facilities conducting construction on a peak day is the same; but the annual emissions are increased. CalEEMod files for the modified annual emission calculations are provided in this appendix.

Baghouse/HEPA Construction

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	9.00	1000sqft	0.21	9,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2022
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Assumption: 5 days Installation for Baghouse

Off-road Equipment - Assumption: 1 APCD Installation per Facility (Each Has 1 Air Compressor, 1 Welder, 1 Forklift, 1 Aerial Lift)

Trips and VMT - Assumption: Each APCD Installation Requires 1 Hauling Trip and 5 Workers/day for 9 Facilities. Each Monitoring Equipment Installation Requires 1 Hauling Trip and 2 Workers/day for 11 Facilities.

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	100.00	5.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	0.00
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	NumDays	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	9.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	9.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	9.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	9.00
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	UsageHours	6.00	4.00
tblTripsAndVMT	VendorTripNumber	1.00	20.00
tblTripsAndVMT	WorkerTripNumber	4.00	67.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0121	0.0880	0.0947	1.6000e-004	2.1500e-003	4.8700e-003	7.0300e-003	5.8000e-004	4.7000e-003	5.2800e-003	0.0000	13.9998	13.9998	2.4100e-003	0.0000	14.0601
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0121**	**0.0880**	**0.0947**	**1.6000e-004**	**2.1500e-003**	**4.8700e-003**	**7.0300e-003**	**5.8000e-004**	**4.7000e-003**	**5.2800e-003**	**0.0000**	**13.9998**	**13.9998**	**2.4100e-003**	**0.0000**	**14.0601**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0121	0.0880	0.0947	1.6000e-004	2.1500e-003	4.8700e-003	7.0300e-003	5.8000e-004	4.7000e-003	5.2800e-003	0.0000	13.9998	13.9998	2.4100e-003	0.0000	14.0601
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0121**	**0.0880**	**0.0947**	**1.6000e-004**	**2.1500e-003**	**4.8700e-003**	**7.0300e-003**	**5.8000e-004**	**4.7000e-003**	**5.2800e-003**	**0.0000**	**13.9998**	**13.9998**	**2.4100e-003**	**0.0000**	**14.0601**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-30-2020**	**1-29-2021**	0.1000	0.1000
		Highest	0.1000	0.1000

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0367	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Energy	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203
Mobile	4.9600e-003	0.0292	0.0735	2.9000e-004	0.0246	2.3000e-004	0.0249	6.6000e-003	2.1000e-004	6.8100e-003	0.0000	26.7760	26.7760	1.2400e-003	0.0000	26.8069
Waste						0.0000	0.0000		0.0000	0.0000	1.7173	0.0000	1.7173	0.1015	0.0000	4.2546
Water						0.0000	0.0000		0.0000	0.0000	0.6603	0.0000	0.6603	0.0678	1.6000e-003	2.8329
Total	**0.0417**	**0.0295**	**0.0740**	**2.9000e-004**	**0.0246**	**2.6000e-004**	**0.0249**	**6.6000e-003**	**2.4000e-004**	**6.8400e-003**	**2.3776**	**27.1941**	**29.5717**	**0.1706**	**1.6100e-003**	**34.3150**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0367	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Energy	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203
Mobile	4.9600e-003	0.0292	0.0735	2.9000e-004	0.0246	2.3000e-004	0.0249	6.6000e-003	2.1000e-004	6.8100e-003	0.0000	26.7760	26.7760	1.2400e-003	0.0000	26.8069
Waste						0.0000	0.0000		0.0000	0.0000	1.7173	0.0000	1.7173	0.1015	0.0000	4.2546
Water						0.0000	0.0000		0.0000	0.0000	0.6603	0.0000	0.6603	0.0678	1.6000e-003	2.8329
Total	**0.0417**	**0.0295**	**0.0740**	**2.9000e-004**	**0.0246**	**2.6000e-004**	**0.0249**	**6.6000e-003**	**2.4000e-004**	**6.8400e-003**	**2.3776**	**27.1941**	**29.5717**	**0.1706**	**1.6100e-003**	**34.3150**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/30/2020	10/29/2020	5	0	
2	Site Preparation	Site Preparation	11/13/2020	11/12/2020	5	0	
3	Grading	Grading	11/14/2020	11/13/2020	5	0	
4	Building Construction	Building Construction	11/18/2020	11/24/2020	5	5	
5	Paving	Paving	4/7/2021	4/6/2021	5	0	
6	Architectural Coating	Architectural Coating	4/14/2021	4/13/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 13,500; Non-Residential Outdoor: 4,500; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Aerial Lifts	9	4.00	63	0.31
Building Construction	Air Compressors	9	4.00	78	0.48
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	9	4.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	9	4.00	46	0.45
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	39	67.00	20.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0112	0.0820	0.0870	1.3000e-004		4.8300e-003	4.8300e-003		4.6600e-003	4.6600e-003	0.0000	11.1157	11.1157	2.2800e-003	0.0000	11.1728
Total	**0.0112**	**0.0820**	**0.0870**	**1.3000e-004**		**4.8300e-003**	**4.8300e-003**		**4.6600e-003**	**4.6600e-003**	**0.0000**	**11.1157**	**11.1157**	**2.2800e-003**	**0.0000**	**11.1728**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	5.3400e-003	1.3200e-003	1.0000e-005	3.2000e-004	3.0000e-005	3.4000e-004	9.0000e-005	3.0000e-005	1.2000e-004	0.0000	1.2298	1.2298	8.0000e-005	0.0000	1.2318
Worker	7.5000e-004	5.7000e-004	6.3400e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6543	1.6543	5.0000e-005	0.0000	1.6555
Total	**9.2000e-004**	**5.9100e-003**	**7.6600e-003**	**3.0000e-005**	**2.1600e-003**	**4.0000e-005**	**2.1900e-003**	**5.8000e-004**	**4.0000e-005**	**6.2000e-004**	**0.0000**	**2.8841**	**2.8841**	**1.3000e-004**	**0.0000**	**2.8873**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0112	0.0820	0.0870	1.3000e-004		4.8300e-003	4.8300e-003		4.6600e-003	4.6600e-003	0.0000	11.1157	11.1157	2.2800e-003	0.0000	11.1727
Total	**0.0112**	**0.0820**	**0.0870**	**1.3000e-004**		**4.8300e-003**	**4.8300e-003**		**4.6600e-003**	**4.6600e-003**	**0.0000**	**11.1157**	**11.1157**	**2.2800e-003**	**0.0000**	**11.1727**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	5.3400e-003	1.3200e-003	1.0000e-005	3.2000e-004	3.0000e-005	3.4000e-004	9.0000e-005	3.0000e-005	1.2000e-004	0.0000	1.2298	1.2298	8.0000e-005	0.0000	1.2318
Worker	7.5000e-004	5.7000e-004	6.3400e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6543	1.6543	5.0000e-005	0.0000	1.6555
Total	**9.2000e-004**	**5.9100e-003**	**7.6600e-003**	**3.0000e-005**	**2.1600e-003**	**4.0000e-005**	**2.1900e-003**	**5.8000e-004**	**4.0000e-005**	**6.2000e-004**	**0.0000**	**2.8841**	**2.8841**	**1.3000e-004**	**0.0000**	**2.8873**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.9600e-003	0.0292	0.0735	2.9000e-004	0.0246	2.3000e-004	0.0249	6.6000e-003	2.1000e-004	6.8100e-003	0.0000	26.7760	26.7760	1.2400e-003	0.0000	26.8069
Unmitigated	4.9600e-003	0.0292	0.0735	2.9000e-004	0.0246	2.3000e-004	0.0249	6.6000e-003	2.1000e-004	6.8100e-003	0.0000	26.7760	26.7760	1.2400e-003	0.0000	26.8069

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	15.12	15.12	15.12	64,800	64,800
Total	15.12	15.12	15.12	64,800	64,800

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Unrefrigerated Warehouse-No Rail	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Unrefrigerated Warehouse-No Rail	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203
NaturalGas Unmitigated	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Unrefrigerated Warehouse-No Rail	7830	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203
Total		**4.0000e-005**	**3.8000e-004**	**3.2000e-004**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.4178**	**0.4178**	**1.0000e-005**	**1.0000e-005**	**0.4203**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Unrefrigerated Warehouse-No Rail	7830	4.0000e-005	3.8000e-004	3.2000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4178	0.4178	1.0000e-005	1.0000e-005	0.4203
Total		**4.0000e-005**	**3.8000e-004**	**3.2000e-004**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.4178**	**0.4178**	**1.0000e-005**	**1.0000e-005**	**0.4203**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Unrefrigerated Warehouse-No Rail	35100	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Unrefrigerated Warehouse-No Rail	35100	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0367	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Unmitigated	0.0367	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.1700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Total	**0.0367**	**0.0000**	**1.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.4000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.1700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0325					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2000e-004	2.2000e-004	0.0000	0.0000	2.4000e-004
Total	**0.0367**	**0.0000**	**1.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.4000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6603	0.0678	1.6000e-003	2.8329
Unmitigated	0.6603	0.0678	1.6000e-003	2.8329

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Unrefrigerated Warehouse-No Rail	2.08125 / 0	0.6603	0.0678	1.6000e-003	2.8329
Total		**0.6603**	**0.0678**	**1.6000e-003**	**2.8329**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Unrefrigerated Warehouse-No Rail	2.08125 / 0	0.6603	0.0678	1.6000e-003	2.8329
Total		**0.6603**	**0.0678**	**1.6000e-003**	**2.8329**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.7173	0.1015	0.0000	4.2546
Unmitigated	1.7173	0.1015	0.0000	4.2546

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Unrefrigerated Warehouse-No Rail	8.46	1.7173	0.1015	0.0000	4.2546
Total		**1.7173**	**0.1015**	**0.0000**	**4.2546**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Unrefrigerated Warehouse-No Rail	8.46	1.7173	0.1015	0.0000	4.2546
Total		**1.7173**	**0.1015**	**0.0000**	**4.2546**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B-2-A

EMFAC – Operational Emissions in the Draft EA

EMFAC – Operational Emissions in the Draft EA

Mobile Source Emissions for Operation and Construction

Activity	Description	Trip Distance (miles)	CO2 Emissions (lb/mile)	Number Trips/yr	CO2 Emissions (lb/yr)	CO2 Emissions (MT/yr)
Smoke Test Trips - Passenger Auto	17 Smoke Tests Every 6 Months	40	0.79	34.00	1,074.40	0.49
Source Test Trips - Passenger Auto	17 Source Tests Every 5 Years	40	0.79	3.40	107.44	0.05
Source Test Trips - Medium Duty Truck	17 Source Tests Every 5 Years	40	1.93	3.40	262.48	0.12
Equipment Delivery - Medium Duty Vendor Trucks	11 Building Modifications, 8 APCD, and 11 sets of Monitoring Equipment, Amortized over 30 Years	15	1.93	2.07	59.83	0.03
Equipment Installation - Passenger Auto	2 Workers each for Building Modifications and Monitoring Equipment, and 5 Workers each for APCD, Amortized over 30 years	30	0.79	8.13	192.76	0.09
Baghouse Waste Hauling - Heavy Duty Truck	5 Facilities, 4 Trips Each per Year	40	3.52	20.00	2,818.56	1.28
Total					4,515.47	2.05

CO2 emission factors obtained from EMFAC 2017

Baghouse Emissions

Activity	Description	# Baghouses	Fabric Area (sf)	Annual Energy Use (kWhr)	CO2 Intensity (lb/kWhr)	CO2 Emissions (lb/yr)	CO2 Emissions (MT/yr)
Baghouse Operation Electricity	24 Hour/Day, 365 Days/Year	5	4000	1060	0.702	744.12	0.34

Note: CO2 intensity of electricity obtained from CalEEMod

Baghouse Power Equation, P (kwh/yr, continuous operation) = 0.053*Area, USA EPA, 1998. Particulate Matter Controls, Baghouses and Filters. Available at: https://www3.epa.gov/ttn/catc/dir1/cs6ch1.pdf

Construction Emissions

Activity	Description	CO2/Event (MT)	# Events	CO2 Emissions (MT)	CO2 Emissions (MT/yr)
APCD Installation	5 Baghouses and 15 HEPA/ULPA Filtration Units to be Installed	12.1916	1	12.1916	0.40638667

Construction emissions obtained from CalEEMod, amortized over 30 years

On-Road Vehicles, VMT + Fuel Usage

Phase	Activity	Description	Trip Distance (miles)	Number Trips/yr	VMT	Fuel Type	MPG	Gallons Fuel
Operation	Smoke Test Trips - Passenger Auto	17 Smoke Tests Every 6 Months	40	34.00	1,360.0	Gas	21	65
	Source Test Trips - Passenger Auto	17 Source Tests Every 5 Years	40	3.40	136.0	Gas	21	6
	Source Test Trips - Medium Duty Truck	17 Source Tests Every 5 Years	40	3.40	136.0	Diesel	10	14
	Baghouse Waste Hauling - Heavy Duty Truck	5 Facilities, 4 Trips Each per Year	40	20.00	800.0	Diesel	7	121
Construction	Equipment Delivery - Medium Duty Vendor Trucks	11 Building Modifications, 8 APCD, and 11 sets of Monitoring Equipment	15	62.00	930.0	Diesel	10	93
	Equipment Installation - Passenger Auto	2 Workers each for Building Modifications and Monitoring Equipment, and 5 Workers each for APCD	30	244.00	7,320.0	Gas	21	349
	Total VMT				**10,682**			

Fuel Usage = VMT / MPG

Offroad Equipment Fuel Usage

Activity	Equipment	Number of Equipment	Usage Hours/day	Horsepower	Load Factor	Fuel Rate (Gal/hr)	Fuel Use (Gal/day)
Baghouse Installation (8)	Aerial Lifts	8	4	63	0.31	1.2	11.4
Baghouse Installation (8)	Air Compressors	8	4	78	0.48	1.0	15.7
Baghouse Installation (8)	Forklifts	8	4	89	0.2	0.9	5.8
Baghouse Installation (8)	Welders	8	4	46	0.45	1.2	17.2
Total Diesel Fuel Usage from Offroad Equipment (Gal)							250.7

Fuel Usage = Hours/day * Days * Load Factor * Fuel Rate

2019 Fleet Mix EMFAC 2017 Emission Factors (lbs/mile)

Vehicle Type	-	VOC	NOx	CO	SOx	PM10	PM2.5	CO2	CH4
Heavy Duty Hauling	-	0.000446	0.012004	0.002427	0.000033	0.000388	0.000244	3.523200	0.000026
Light Duty Auto	-	0.000440	0.004682	0.002427	0.000019	0.000388	0.000244	1.927986	0.000042
Medium Duty/ Delivery	-	0.000392	0.000299	0.003638	0.000008	0.000104	0.000044	0.789383	0.000041

Mobile Emissions (lbs/trip)

Trip Type	Miles	VOC	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	CO2e
One Heavy Duty Hauling Trip	40	0.018	0.480	0.097	0.001	0.016	0.010	140.928	0.001	140.954
One Light Duty Auto Worker Trip - Install Equipment	30	0.013	0.140	0.073	0.001	0.012	0.007	57.840	0.001	57.871
One Light Duty Auto Worker Trip - Source/Smoke Test	40	0.018	0.187	0.097	0.001	0.016	0.010	77.119	0.002	77.161
One Medium Duty Source Testing Trip	40	0.016	0.012	0.146	0.000	0.004	0.002	31.575	0.002	31.617
One Medium Duty Vendor Delivery Trip	15	0.006	0.004	0.055	0.000	0.002	0.001	11.841	0.001	11.856

Calculations
Mobile Emissions = Emission Factor * Miles
CO2e = CO2 + 25*CH4

APPENDIX B-2-B

EMFAC – Operational Emissions in the Final EA

The Final EA analyzed four additional HEPA filtration unit installations which would require four additional source tests and smoke tests, and off-road equipment similar to one additional baghouse installation. Vehicular traffic fuel and CO_2 emissions were updated accordingly. The number of heavy duty trucks hauling baghouse waste was also increased from five to nine to reflect the number of all facilities installing new air pollution control devices, as opposed to those solely installing baghouses. The 2019 Fleet Mix EMFAC 2017 Emission Factors and Mobile Emissions listed on pg. B-2-A-3 were not changed.

EMFAC – Operational Emissions in the Final EA

Mobile Source Emissions for Operation and Construction

Activity	Description	Trip Distance (miles)	CO2 Emissions (lb/mile)	Number Trips/yr	CO2 Emissions (lb/yr)	CO2 Emissions (MT/yr)
Smoke Test Trips - Passenger Auto	21 Smoke Tests Every 6 Months	40	0.79	42.00	1,327.20	0.60
Source Test Trips - Passenger Auto	21 Source Tests Every 5 Years	40	0.79	4.20	132.72	0.06
Source Test Trips - Medium Duty Truck	21 Source Tests Every 5 Years	40	1.93	4.20	324.24	0.15
Equipment Delivery - Medium Duty Vendor Trucks	11 Building Modifications, 9 APCD, and 11 sets of Monitoring Equipment, Amortized over 30 Years	15	1.93	2.23	64.66	0.03
Equipment Installation - Passenger Auto	2 Workers each for Building Modifications and Monitoring Equipment, and 5 Workers each for APCD, Amortized over 30 years	30	0.79	8.97	212.51	0.10
Baghouse Waste Hauling - Heavy Duty Truck	9 Facilities, 4 Trips Each per Year	40	3.52	36.00	5,073.41	2.30
Total					7,134.73	3.24

CO2 emission factors obtained from EMFAC 2017

Baghouse Emissions

Activity	Description	# Baghouses	Fabric Area (sf)	Annual Energy Use (kWhr)	CO2 Intensity (lb/kWhr)	CO2 Emissions (lb/yr)	CO2 Emissions (MT/yr)
Baghouse Operation Electricity	24 Hour/Day, 365 Days/Year	5	4000	1060	0.702	744.12	0.34

Note: CO2 intensity of electricity obtained from CalEEMod
Baghouse Power Equation, P (kwh/yr, continuous operation) = 0.053*Area, USA EPA, 1998. Particulate Matter Controls, Baghouses and Filters. Available at: https://www3.epa.gov/ttn/catc/dir1/cs6ch1.pdf

Construction Emissions

Activity	Description	CO2/Event (MT)	# Events	CO2 Emissions (MT)	CO2 Emissions (MT/yr)
APCD Installation	5 Baghouses and ~20 HEPA/ULPA Filtration Units to be Installed	14.0601	1	14.0601	0.46867

Construction emissions obtained from CalEEMod, amortized over 30 years

On-Road Vehicles, VMT + Fuel Usage

Phase	Activity	Description	Trip Distance (miles)	Number Trips/yr	VMT	Fuel Type	MPG	Gallons Fuel
Operation	Smoke Test Trips - Passenger Auto	21 Smoke Tests Every 6 Months	40	42.00	1,680.0	Gas	21	80
	Source Test Trips - Passenger Auto	21 Source Tests Every 5 Years	40	4.20	168.0	Gas	21	8
	Source Test Trips - Medium Duty Truck	21 Source Tests Every 5 Years	40	4.20	168.0	Diesel	10	17
	Baghouse Waste Hauling - Heavy Duty Truck	9 Facilities, 4 Trips Each per Year	40	36.00	1,440.0	Diesel	7	218
Construction	Equipment Delivery - Medium Duty Vendor Trucks	11 Building Modifications, 8 APCD, and 11 sets of Monitoring Equipment	15	67.00	1,005.0	Diesel	10	101
	Equipment Installation - Passenger Auto	2 Workers each for Building Modifications and Monitoring Equipment, and 5 Workers each for APCD	30	269.00	8,070.0	Gas	21	384
	Total VMT				**12,531**			

Fuel Usage = VMT / MPG

Offroad Equipment Fuel Usage

Activity	Equipment	Number of Equipment	Usage Hours/day	Horsepower	Load Factor	Fuel Rate (Gal/hr)	Fuel Use (Gal/day)
Baghouse Installation (9)	Aerial Lifts	9	4	63	0.31	1.2	12.9
Baghouse Installation (9)	Air Compressors	9	4	78	0.48	1.0	17.7
Baghouse Installation (9)	Forklifts	9	4	89	0.2	0.9	6.6
Baghouse Installation (9)	Welders	9	4	46	0.45	1.2	19.3
Total Diesel Fuel Usage from Offroad Equipment (Gal)							282.0

Fuel Usage = Hours/day * Days * Load Factor * Fuel Rate

APPENDIX C

Proposed Rule 1407.1 List of Affected Facilities

Proposed Rule 1407.1 List of Affected Facilities

Facility ID	Facility Name	Address	On DTSC List per Government Code 65962.5 (Envirostor)?	Nearest Senstive Receptor (Miles)	Located within 1/4 Mile of a School?	Located within Two Miles of an Airport?
11298	Pacific Alloy Casting Inc.	5900-10 E Firestone Blvd, South Gate 90280	No	0.02	No	No
126544	PAC Foundries (CPP City of Industry)	16800 Chestnut St, City Of Industry 91745	No	0.26	No	No
184960	West Coast Foundry LLC	2450 E 53rd St, Huntington Park 90255	No	0.03	No	No
22953	Certified Alloy Products	3245 Cherry Ave, Long Beach 90807-5213	No	0.18	No	Yes
189638 (formerly 117608)	Griswold Industries (formerly Strategic Materials Corp.)	8616 Otis St, South Gate 90280	No	0.13	Yes	No
7796	Techni-Cast Corporation	11220 S Garfield Ave, South Gate 90280-7586	Yes	0.08	No	No
140871	PAC Rancho (CPP Rancho Cucamonga)	11000 Jersey Blvd, Rancho Cucamonga 91730-5103	No	0.28	No	No
69833	Fenico Precision Casting	7805 Madison St, Paramount 90723-4220	No	0.00	Yes	No
800318	Griswold (Cla-Val)	1701-41 Placentia Ave, Costa Mesa 92627-4416	Yes	0.01	No	No
46580	Miller Castings	2503-25 Pacific Park Dr, Whittier 90601-1610	No	0.26	No	No
183510	Pro Cast Industries	15555 Minnesota Ave, Paramount, CA 90723	No	0.04	No	No

APPENDIX D

Comment Letters Received on the Draft EA and Responses

Comment Letter #1

PALA ENVIRONMENTAL DEPARTMENT
PALA BAND OF MISSION INDIANS
PMB 50, 35008 Pala Temecula Road | Pala, CA 92059
Phone 760-891-3510 | Fax 760-742-3189

November 24, 2020

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178
Attention: Kevin Ni

Re: Notice of Completion of a Draft EA for Proposed Rule 1407.1

Dear Mr. Ni,

Thank you for the notice referenced above. This letter constitutes our response on behalf of Robert Smith, Chairman of the Pala Band of Mission Indians.

At this time, the Pala Band has no objection to the action outlined in the notice. We reserve the right to comment in the future should there be modifications or if new information becomes available.

If you have any questions or comments, please contact Darold Wallick, Air Technician for the Pala Environmental Department, at dwallick@palatribe.com or 760-891-3540.

Sincerely,

Shasta C. Gaughen, PhD
Environmental Director

THINK GLOBALLY | ACT TRIBALLY

Response to Comment Letter #1

Thank you for your letter. This letter does not raise any CEQA issues relative to the analysis in the Draft EA or the PR 1407.1 rule language. Therefore, no further response is required.

Comment Letter #2

AUGUSTINE BAND OF CAHUILLA INDIANS
PO Box 846 84-481 Avenue 54 Coachella CA 92236
Telephone: (760) 398-4722
Fax (760) 369-7161
Tribal Chairperson: Amanda Vance
Tribal Vice-Chairperson: William Vance
Tribal Secretary: Victoria Martin

Date: November 16, 2020

21865 Copley Drive
Diamond Bar, California 91765

RE: PROPOSED RULE 1407.1- CONTROL OF TOXIC AIR CONTAMINANT EMISSIONS FROM CHROMIUM ALLOY MELTING OPERATIONS

Dear: Barbara Radlein
Program Supervisor, CEQA

Thank you for the opportunity to offer input concerning the development of the above-identified project. We appreciate your sensitivity to the cultural resources that may be impacted by your project and the importance of these cultural resources to the Native American peoples that have occupied the land surrounding the area of your project for thousands of years. Unfortunately, increased development and lack of sensitivity to cultural resources have resulted in many significant cultural resources being destroyed or substantially altered and impacted. Your invitation to consult on this project is greatly appreciated.

At this time, we are unaware of specific cultural resources that may be affected by the proposed project, however, in the event, you should discover any cultural resources during the development of this project please contact our office immediately for further evaluation.

Very truly yours,

Victoria Martin, Tribal Secretary
Augustine Band of Cahuilla Indians

Response to Comment Letter #2

Thank you for your letter. This letter does not raise any CEQA issues relative to the analysis in the Draft EA or the PR 1407.1 rule language. Therefore, no further response is required.

ATTACHMENT I

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Socioeconomic Impact Assessment for
Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations

January 2021

Deputy Executive Officer
Planning, Rule Development, and Area Sources
Philip M. Fine, Ph.D.

Assistant Deputy Executive Officer
Planning, Rule Development, and Area Sources
Sarah L. Rees, Ph.D.

Author:	Brian Vlasich, Air Quality Specialist
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Reviewed By:	Shah Dabirian, Ph.D., Program Supervisor Ian MacMillan, Planning and Rules Manager Susan Nakamura, Assistant Deputy Executive Officer William Wong, Principal Deputy District Counsel

EXECUTIVE SUMMARY

A socioeconomic analysis was conducted to assess the potential impacts of Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations on the four-county region of Los Angeles, Orange, Riverside, and San Bernardino. A summary of the analysis and findings is presented below.

Elements of Proposed Amendments	Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations (PR 1407.1) establishes requirements to reduce toxic air contaminant emissions from melting operations of metals that contain greater than 0.5 percent chromium content, including, but not limited to alloy steel, chromium non-ferrous alloys, stainless steel, and superalloys. PR 1407.1 was proposed in April 2018 as a bifurcation from its companion rule, Rule 1407 – Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Chromium Metal Melting Operations, which was amended in October 2019 with expanded requirements for non-chromium metal melting. PR 1407.1 will regulate toxic air contaminant emissions, including hexavalent chromium, from melting of metal alloys containing chromium. PR 1407.1 applies to facilities that conduct metal melting of chromium alloys, such as smelters, foundries, die-casters, mills, and other establishments where metals are processed in molten form. Melting of chromium alloys has the potential to emit toxic air contaminants, including hexavalent chromium. PR 1407.1 establishes point source emission limits, housekeeping requirements and building enclosure provisions to address fugitive emissions, source testing requirements, material testing, and monitoring, reporting, and recordkeeping requirements.
Potentially Affected Facilities and Industries	PR 1407.1 is expected to potentially affect 11 identified facilities classified under a three North American Industry Classification System (NAICS) industry codes in the manufacturing sector (NAICS 31-33), including foundries (NAICS 3315), iron and steel mills and ferroalloy manufacturing (NAICS 3311), and other fabricated metal product manufacturing (NAICS 3329). Out of these 11 facilities, nine are in Los Angeles (LA) County, one in Orange (OR) County, and one in San Bernardino (SB) County.

Proposed Requirements and Cost Assumptions	**Emission control devices (i.e. baghouses with HEPA/ULPA) and supporting equipment** To comply with PR 1407.1, South Coast AQMD staff expects five new baghouses at five facilities to be installed. Staff estimates these baghouses will cost $256,000 each including purchase, installation, and permitting along with $275,000 annually for each baghouse's operation and maintenance (O&M). Staff also assumes that 18 HEPA (high-efficiency particle air) systems will be installed at eight facilities. The capital cost of each HEPA system ranges from $35,000 to $40,000, and annual O&M cost for each HEPA system is $35,000. One ULPA (ultra-low particulate air) system is expected for one facility with a one-time cost of $39,000, and an annual O&M costs of $39,000. In total, the present worth value of one-time costs for emission controls is estimated at $3.5 million in 2021, and the average annualized cost is estimated at $245,000 across all the affected facilities between 2021 and 2041. The annual O&M costs for emission controls is estimated at $2.0 million for all the affected facilities. **Bag leak detection systems and pressure gauges with data acquisition systems** To comply with PR 1407.1, staff expects 14 baghouses (new and existing) at 11 affected facilities to use bag leak detection systems (BLDS), and 35 pressure gauges with data acquisition systems (DAS). Staff estimates one-time purchase and installation of the BLDS to be $1,500, and purchase and installation of the pressure gauges with DAS to be $1,200. The present worth costs for BLDS and pressure gauge with DAS systems is estimated at $113,000 across all the identified facilities in 2021. **Building modifications (e.g. minor building modifications and plastic strip curtains)** To comply with PR 1407.1 cross-draft minimization requirements (subdivision (g)), South Coast AQMD staff expects 11 facilities to construct minor building modifications (closing roof openings near melting furnaces and where molten metal is processed) and install plastic strip curtains. Staff estimates one-time building modifications to cost $13,750 per facility, and plastic-strip curtains to cost $9,000 per facility. In total, PR 1407.1 is conservatively expected to result in (present worth value) of about $250,000 in one-time costs for building enclosures across all identified facilities in 2021. **Source tests** To comply with PR 1407.1, South Coast AQMD staff expects all new and existing control equipment to require an initial source test followed by periodic source testing every 60 months, provided that the facility complies with the required parameter monitoring pursuant to subdivision (j). Staff

estimates each source test will cost $20,000. It is also assumed that eight facilities would conduct only one source test; two facilities would conduct two source tests; and one facility would conduct nine source tests.

Staff estimates the total (present worth value) cost of source testing to be $1.4 million in 2021 or $95,000 annually between 2021 to 2041.

Smoke tests, anemometers, and slot velocity testing

To comply with PR 1407.1, South Coast AQMD staff expects all the affected 11 facilities to require an anemometer, smoke tests, and slot velocity tests. Staff estimates a one-time cost for an anemometer to be $1,000 each. Smoke tests and slot velocity testing are required every six months for each piece of control equipment, for an estimated 60 emission collection devices across 11 facilities. Each piece of equipment requires a smoke test every six months at a cost of $1,000 per test ($2,000 annually), and slot velocity tests of $180 annually per piece of equipment.

In total, PR 1407.1 is expected to result in $11,000 in one-time costs for anemometers in 2021, along with an additional $130,000 annual cost for smoke and slot velocity tests starting in 2021.

Housekeeping and Roof Cleaning

To comply with PR 1407.1, South Coast AQMD staff expects the purchase of HEPA vacuum equipment to comply with the required housekeeping procedures. All 11 facilities are expected to incur an annual expense of $1,000 in additional labor for housekeeping requirements. Roof cleaning is expected to cost $1,400 annually for each facility. Four facilities are expected to purchase rider HEPA vacuums at a cost of $11,600 each, and the remaining seven will purchase backpack (portable) HEPA vacuums at a cost of $600 each.

All facilities are expected to purchase HEPA-equipped shop vacuums at a cost of $500 each. HEPA vacuum replacement parts (HEPA filters) are expected to cost each facility $2,000 annually, while rider vacuums parts and cleaning supplies are expected to cost $15,000 and $10,000, respectively. One-time cost for housekeeping equipment is estimated at $155,000 in 2021. The average annual cost of housekeeping and roof cleaning expenses including labor and equipment is estimated at $140,000 across all the identified affected facilities between 2021 and 2041.

Butterfly Cap Installation

Purchase and installation of a butterfly cap in place of a weather cap is expected to cost about $9,100 per stack for 17 stacks across 11 facilities. One-time costs for butterfly caps including purchase and installation is estimated at $276,000, or $19,000 annualized average between 2021 and 2041.

Standards and Calibration Materials
Facility operators can perform on-site material testing pursuant to the requirements in subdivision (i). Conducting in-house material testing requires the purchase of chemical standards for method development and calibration, which is estimated for a one-time cost of $20,000. Only one facility is expected to incur this cost, which results in an average annualized cost of $1,000 between 2021 and 2041.

Compliance Costs

PR 1407.1 Industry-Wide Expected Compliance Costs (2021-2041)

Real interest rate scenario	Total cost if all expenses incurred in 2021	Annualized cost
High-rate scenario (4% interest rate)	$39,659,000	$2,794,000
Low-rate scenario (1% interest rate)	$53,821,000	$2,749,000

Note: A higher assumed real interest rate means future expenses have lower current value. The real interest rate corrects for inflation and is closely approximated by the nominal interest rate minus inflation.

PR 1407.1's overall compliance cost is expected to be incurred almost entirely by the industries of iron and steel mills and ferroalloy manufacturing (NAICS 3311), Foundries (NAICS 3315), and other fabricated metal product manufacturing (NAICS 3329). Total annualized compliance cost for PR 1407.1 from 2021 to 2041 is expected to be about $2.8 million.

Based on the high-rate scenario, nearly 80 percent of the costs of PR 1407.1 stem from purchasing, engineering, and installation, of new pollution control devices (baghouses, HEPA and ULPA systems) and annual operation and maintenance of all (existing and new) baghouses with HEPA/ULPA controls. The remaining costs of PR 1407.1 stem from minor building modifications, HEPA vacuums, source testing, smoke testing, housekeeping, pressure gauges with DAS, and anemometers.

PR 1407.1 targets air toxic contaminant emissions from chromium alloy melting operations, which occurs almost exclusively in the foundry industry. Nearly ~~79~~ 77 percent of the total compliance costs in the high rate (4%) scenario fall under the foundry industry (NAICS 3315), which includes nine of the 11 affected facilities. The other affected industries; iron and steel mills and ferroalloy manufacturing (NAICS 3311) and other fabricated metal product manufacturing (NAICS 3329) incur the remaining ~~21~~23% of the total compliance costs. Compliance costs of emission control equipment such as baghouses, HEPA, and ULPA systems apply to nine of 11 facilities, eight of which are designated to the foundry industry (NAICS 3315). Accordingly, the recurring costs of O&M for baghouses, HEPA, and ULPA systems which constitute nearly 74 percent of the total recurring cost, fall primarily onto the foundry industry facilities as a result of PR 1407.1.

PR 1407.1 ~~Average~~ Expected Compliance Cost ~~Per Facility~~ by Facility Category (2021-2041)

Facility Category	Number potentially affected facilities	Total cost if all PR 1407.1 expenses incurred in 2021 (4% scenario)	Annualized cost (2021-2041)
Iron and steel mills and ferroalloy manufacturing	1	$6,866,000	$483,000
Foundries	9	$30,567,000	$2,156,000
Other fabricated metal product manufacturing	1	$2,227,000	$156,000
Total	**11**	**$39,659,000**	**$2,794,000**

Jobs and Other Socioeconomic Impacts

PR 1407.1 Expected Annual Forgone Jobs (2021-2041)

Cost scenario	**Annual forgone jobs** (% of total jobs in LA, OR, RV, and SB counties)
High-rate scenario (4% interest rate)	100 (0.001%)
Low-rate scenario (1% interest rate)	98 (0.001%)

Based on the above assumptions, the compliance cost of PR 1407.1, and the application of the Regional Economic Models, Inc. (REMI) model, it is projected 98 to 100 jobs will be forgone on average annually from 2021 to 2041 in total across all South Coast AQMD industries. The projected job forgone impacts represent about 0.001% of total employment in the four-county region for both the low- and high-rate scenarios. Jobs foregone can come from current jobs lost, or potential future created jobs no longer being created.

PR 1407.1 is expected to impact the manufacturing industry (NAICS 31-33) an average of 27 jobs forgone annually, with 14 jobs forgone from the foundries industry (NAICS 3315) alone from 2021 to 2041. Iron and steel mills and ferroalloy manufacturing (NAICS 3311) and other fabricated metal product manufacturing (NAICS 3329) industries are expected to forego one or fewer jobs annually. Management, scientific, and technical services (NAICS 5416) industry is expected to gain an average of 11 jobs annually from 2021 to 2041 due to increased demand for source tests, smoke tests, and control equipment maintenance related to PR 1407.1.

Due to most expenditures from PR 1407.1 expected to be made outside the South Coast AQMD jurisdiction, PR 1407.1 is expected to reduce disposable

	income in the local economy, dampening the demand for local goods and services. Lower demand for local goods and services is expected to result in jobs forgone across the local economy, with 45 of the 100 foregone jobs (in the high-rate scenario) projected to be from construction (NAICS 23), retail trade (NAICS 44-45), administrative, support, waste management, and remediation services (NAICS 56), health care and social assistance (NAICS 62), accommodation and food services (NAICS 72), and other services (NAICS 81). State and local government (NAICS 92) also account for eight of the 100 jobs foregone.
Competitiveness	Due to PR 1407.1, the relative cost of production is expected to increase in the foundry industry (NAICS 3315) by less than 0.9% for any given year between 2021 and 2041, while iron and steel mills and ferroalloy manufacturing (NAICS 3311) and other fabricated metal product manufacturing (NAICS 3329) industries are expected to see increases of less than 0.04%. Relative delivered prices are expected to increase for the foundry industry by less than 0.3% for any given year between 2021 and 2041, while iron and steel mills and ferroalloy manufacturing and other fabricated metal product manufacturing industries are expected to see increases of less than 0.02%.

INTRODUCTION

Proposed Rule 1407.1 – Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations (PR 1407.1) establishes requirements to reduce toxic air contaminant emissions from melting operations of metals that contain greater than 0.5 percent chromium content, including, but not limited to alloy steel, chromium non-ferrous alloys, stainless steel, and superalloys. PR 1407.1 was proposed in April 2018 as a bifurcation from its companion rule, Rule 1407, which was amended in October 2019 with expanded requirements for non-chromium metal melting. PR 1407.1 will regulate toxic air contaminant emissions, including hexavalent chromium, from melting of metal alloys containing chromium. PR 1407.1 applies to facilities that conduct chromium alloy melting, such as smelters, foundries, die-casters, mills, and other establishments where metals are processed in molten form Melting of chromium alloys has the potential to emit toxic air contaminants, including hexavalent chromium.

PR 1407.1 proposes: (1) to establish collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions. Aggregate emission limits (milligram/hour) that are determined by the distance of a stack (or centroid of stacks) to the nearest property line of the closest sensitive receptor, and emission limit tiers are specified by distance to the closest sensitive receptor: less than 50 meters, 50 to 100 meters, and greater than 100 meters; (2) to use emission collection systems at a minimum capture velocity specified in paragraph (d)(2) using baghouse controls with HEPA or ULPA systems; (3) to require housekeeping and building provisions to limit fugitive emissions including: material storage, disposal, and transport requirements; routine cleaning of floors, roofs, emission control equipment, storage areas; HEPA-equipped shop or rider vacuums for routine cleaning of operations areas; and building requirements to prevent cross-drafts and fugitive dust emissions including closing roof openings and openings on opposite sides of a building; and (4) to require source testing, material testing, parameter monitoring, and recordkeeping.

Additional details about emission limits and emission controls are available in the staff report and in an independently conducted source test study.[1] PR 1407.1 parameter monitoring provisions in subdivision (j) ensure proper operation and maintenance of pollution controls.

Facilities that melt no more than one ton of chromium alloys per year are exempt from PR 1407.1. PR 1407.1 also identifies educational facilities and jewelers exempt from PR 1407.1, as well as facilities already subject to rules 1420.1 and 1420.2 (Lead melting facilities). Also exempt from PR 1407.1 are brazing, dip soldering, and wave soldering operations, as well as metal cutting, and metal grinding activities performed for maintenance of equipment and structures not associated with chromium alloy melting operations.

[1] Additional details of this source test study are available in the PR 1407.1 Source Testing page: http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/proposed-rule-1407-1-source-testing; Accessed 11/30/2020.

LEGISLATIVE MANDATES

The legal mandates directly related to the assessment of the proposed amended rule include South Coast AQMD Governing Board resolutions and various sections of the California Health & Safety Code.

South Coast AQMD Governing Board Resolutions

On March 17, 1989 the South Coast AQMD Governing Board adopted a resolution that calls for an economic analysis of regulatory impacts that includes the following elements:

- Affected industries
- Range of probable costs
- Cost-effectiveness of control alternatives
- Public health benefits

Health & Safety Code Requirements

Health and Safety Code sections 40440.8(a) and (b) require a socioeconomic analysis to be prepared for any proposed rule or rule amendment that "will significantly affect air quality or emissions limitations."

Specifically, the scope of the analysis should include:

- Type of affected industries
- Impact on employment and the regional economy
- Range of probable costs, including those to industry
- Availability and cost-effectiveness of alternatives to the rule
- Emission reduction potential
- Necessity of adopting, amending or repealing the rule in order to attain state and federal ambient air quality standards

Further, Health and Safety Code section 40728.5 requires the South Coast AQMD Governing Board to actively consider the socioeconomic impacts of regulations and make a good faith effort to minimize adverse socioeconomic impacts. It also expands socioeconomic impact assessments to include small business impacts, specifically:

- Type of industries or business affected, including small businesses
- Range of probable costs, including costs to industry or business, including small business

Finally, Health and Safety Code section 40920.6 requires incremental cost-effectiveness be performed for a proposed rule or amendment that imposes Best Available Retrofit Control Technology or “all feasible measures” requirements relating to ozone, carbon monoxide (CO), oxides of sulfur (SOx), oxides of nitrogen (NOx), and their precursors. This statute does not apply to PR 1407.1 as it addresses toxic pollutants, not criteria pollutants listed in the statute. Moreover, cost effectiveness in terms of dollars per ton is not meaningful for toxics-based regulations, since many other factors besides the amount of pollution affect the toxic risk such as the toxic potency and the location of receptors.

AFFECTED INDUSTRIES/FACILITIES

Affected Industries and Industry Profile

PR 1407.1 extends toxic emission controls for facilities not covered in the 2019 amendment to Rule 1407, specifically targeting the melting of chromium-containing alloys. Facilities that conduct chromium alloy melting, such as smelters, foundries, die-casters, mills, and other establishments where metals are processed in molten form, are potentially subject to PR 1407.1 because the provisions aim to reduce emissions of toxic air contaminants from chromium-containing alloys. PR 1407.1 primarily applies to foundries.

PR 1407.1 is expected to potentially affect 11 facilities classified under a three industry codes in the manufacturing sector (NAICS 31-33), including iron and steel mills and ferroalloy manufacturing (NAICS 3311), foundries (NAICS 3315), and other fabricated metal product manufacturing (NAICS 3329). Of the 11 identified facilities potentially affected by PR 1407.1, nine are in Los Angeles (LA) County, one in Orange (OR) County, and one in San Bernardino (SB) County. PR 1407.1 requirements for foundries comprise the majority of PR 1407.1 compliance costs due to the purchase and installation of baghouses with HEPA/ULPA emission controls.

Table 1: PR 1407.1 Potentially Affected Facilities by Industry Description

NAICS	Industry description	Potentially affected facilities
331110	Iron and Steel Mills and Ferroalloy Manufacturing	1
331512	Steel Investment foundry	4
331513	Steel Foundry	3
331529	Non-Ferrous Foundry, except Aluminum and Copper	2
332912	Fluid Power Valves and Hose Fittings	1
	TOTAL	**11**

Table 2 presents a 2020 economic profile of the general metal melting industries located in LA, OR, RV, and SB counties, of which PR 1407.1 facilities are a subset. This broader industry category consists of about 176 facilities; with average annual revenue of about $5.2 million. These industries have nearly 9,000 employees with an average annual salary of about $108,000.

Table 2: PR 1407.1 Potentially Affected Industries Industry Profile

Key statistics of PR 1407.1 potentially affected industries in 2020 in LA, OR, RV, and SB counties	
Approximate Number of Facilities	176
Approximate Number of Employees	8,987
Approximate Average Number of Employees per Facility	51
Approximate Annual Average Salary per Employee	$108,345
Approximate Annual Average Revenue per Facility (2019)	$5,204,545

Note: Data estimated and provided by Economic Modeling Specialists International (EMSI 2020) for all industries with facilities expected to be affected by PR 1407.1, specifically NAICS 331110, 331512, 331513, 331524, 331529, 332912.

Having an understanding of whether an industry is growing or declining can provide additional information about the extent to which an industry can bear additional costs of regulation without substantial negative consequences. Determining financial success of an industry requires information on industry profit. Industry profit is unknown to South Coast AQMD staff, however information is available about historical employment of PR 1407.1 potentially affected industries.

As illustrated by Figure 1, total employment in LA, OR, RV, and SB counties in the industries potentially affected by PR 1407.1 was 8,763 in 2010 and 8,987 in 2020. This indicates about a 2.5 percent growth in employment in the general metal melting industries from 2010 to 2020, while there has been a 2.9 percent growth for the same industries throughout all of California.

General metal melting industries on average employ more men; men account for nearly 80 percent and women 20 percent of their workforce. As illustrated by Figure 2, these industries on average employ more Hispanic/Latino individuals, with 57 percent of the workforce Hispanic/Latino, 28 percent White, 10 percent Asian, and three percent Black/African American.

Figure 1: General Metal Melting Industries Employment in LA, OR, RV, and SB Counties in 2010-2020

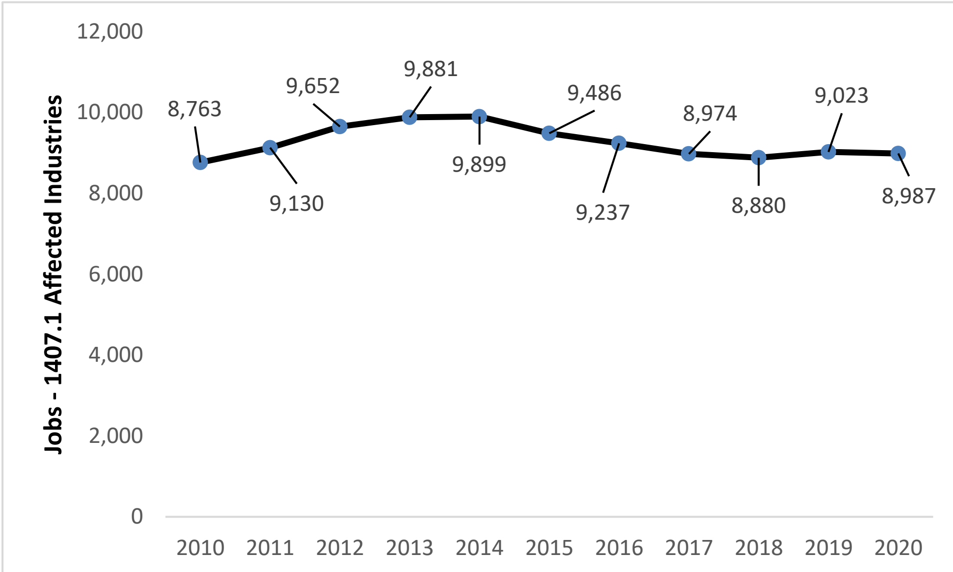
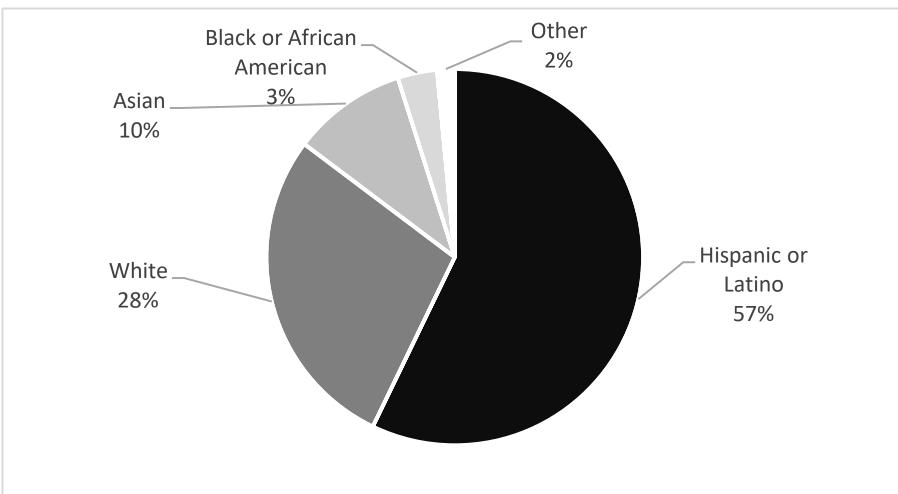


Figure 2: General Metal Melting Industries Employment Ethnicity Distribution in LA, OR, RV, and SB Counties



Small Businesses

South Coast AQMD defines a "small business" in Rule 102 as one which employs 10 or fewer persons and which earns less than $500,000 in gross annual receipts. South Coast AQMD also defines “small business” for the purpose of qualifying for access to services from the South Coast AQMD’s Small Business Assistance Office as a business with an annual receipt of $5 million or less, or with 100 or fewer employees.

U.S. Small Business Administration (SBA) definitions of small businesses vary by six-digit NAICS code, as shown in Table 3.[2]

Table 3: PR 1407.1 Potentially Affected Industries U.S. Small Business Administration (SBA) Small Business Classification

Employee Range	NAICS (Industry Description)
≤ 500	331513 (Steel Foundries (except Investment)), 331524 (Aluminum Foundries (except Die-Casting)), 331529 (Other Nonferrous Metal Foundries (except Die-Casting))
≤ 1,000	331512 (Steel Investment Foundries) 332912 (Fluid Power Valve and Hose Fitting Manufacturing)
≤ 1,500	331110 (Iron and Steel Mills and Ferroalloy Manufacturing)

In addition to South Coast AQMD's and SBA's definitions of a small business, the federal Clean Air Act Amendments (CAAA) of 1990 also provides a definition of a small business. The CAAA classifies a business as a "small business stationary source" if it: (1) employs 100 or fewer employees, (2) emits less than 10 tons per year of any single pollutant and less than 20 tons per year of all pollutants, and (3) is a small business as defined under the federal Small Business Act (15 U.S.C. Sec. 631, et seq.).

Revenue and employee data from the Dun and Bradstreet Enterprise Database was available for all PR 1407.1 potentially affected facilities. The number of facilities potentially affected by PR 1407.1 that are classified as small businesses and classification definition are listed in Table 4 below:

Table 4: PR 1407.1 Potentially Affected Facilities Small Business Tabulation

Small Business Definition	# Small Businesses
South Coast AQMD (Rule 102)	2 out of 11
South Coast AQMD (Small Business Assistance Office)	6 out of 11
U.S. Small Business Administration (SBA)	11 out of 11
1990 Clean Air Act Amendments (CAAA)	6 out of 11

COMPLIANCE COSTS

Methods and Sources of Data

Analysis Timeframe

To estimate meaningful costs associated with any rule, one must decide on a relevant time horizon over which to estimate the rule's costs. This analysis considers the cost of this rule, PR 1407.1, from 2021-2041. This timeframe is considered as some facilities are expected to incur compliance costs from PR 1407.1 as early as 2021 (requirement outlined in paragraph (g)(2) specifies building requirements are effective January 1, 2022), and 20

[2] The latest SBA definition of small businesses by industry can be found at the following website: http://www.sba.gov/content/table-small-business-size-standards.

years encompasses the longest life expectancy of PR 1407.1 required capital expenditures, which is building modifications. Capital costs with a shorter replacement interval assumes replacement according to the recommended life expectancy of equipment within the 20 year analysis horizon.

One-Time and Recurring Costs

The main requirements of PR 1407.1 which have cost impacts for potentially affected facilities can be split into two categories: "one-time costs," which are larger expenses seldom occurring (e.g. once every 10 and 20 years), and "recurring costs," which are smaller expenses frequently occurring (e.g. annually, twice a year, once every five years).[3] The one-time costs of PR 1407.1 include capital and installation costs for emission control equipment (baghouses with HEPA or ULPA systems), building modifications (roof enclosures and plastic strip curtains), bag leak detection systems (BLDS), pressure gauges with data acquisition systems, anemometers, stack modifications (butterfly cap installation), housekeeping equipment (HEPA vacuums), and standards and calibration materials.

Annual recurring costs of PR 1407.1 include housekeeping (e.g. cleaning furnace operation areas and rooftops), baghouse operating cost (e.g. electricity), emission control equipment maintenance (replacement of baghouse and HEPA/ULPA system filters), housekeeping equipment maintenance (replacement filters for HEPA vacuums and cleaning supplies), testing and reporting (e.g. additional source test, smoke tests, and slot velocity tests), and annual permit renewal fees for control equipment.

Cost assumptions are conservative estimates and represent a "worst-case scenario." Due to recently amended rules such as Rule 1407, many facilities may already be equipped for PR 1407.1 requirements such as building requirements for cross-draft minimization or owning vacuum equipment necessary for housekeeping requirements.

Cost Estimate Sources

Staff used the following sources to estimate costs of PR 1407.1:

1) U.S. EPA Control Cost Manual to estimate one-time and recurring costs associated with baghouses and butterfly cap installations.[4]
2) South Coast AQMD 2010 Final Socioeconomic Assessment for Rule 1420.1 for HEPA systems.
3) Camfil USA and Ceco Environmental for ULPA systems.
4) Dwyer Instruments for emissions control device bag leak detection systems.
5) Omega Engineering for emissions control device pressure gauges with data acquisition systems.
6) South Coast AQMD Rule 301 for permitting costs for baghouses.

[3] A rule's "one-time costs" are expected to have direct costs (e.g. equipment, installation, engineering, etc.), as well as indirect costs from not using the resources devoted to direct costs for other investments. By dividing up costs into "one-time" and "recurring" costs, the opportunity cost of lost investment value is estimated and included into the total cost of this rule for costs classified as "one-time" costs.

[4] U.S. EPA Air Pollution Control Cost Manual, Sixth Edition (https://www3.epa.gov/ttncatc1/dir1/c_allchs.pdf).

7) South Coast AQMD Rule 1407 building enclosures.
8) W.W. Grainger, Inc. for plastic strip curtains and anemometers.
9) Almega Environmental for source testing.
10) Accurate Environmental Services, Inc. for smoke tests.
11) Nassco Inc. for housekeeping (furnace and casting operation area cleaning).
12) Stakeholder provided costs for housekeeping (cleaning supplies and operation and maintenance costs for cleaning equipment)

Cost Estimate Year
All costs presented in this report are estimated 2020 dollars. The per-unit costs used for any expense required from PR 1407.1 passing are either 2020 reported costs, or costs from earlier years inflated to 2020 values using the all-industry producer price index reported by the CoreLogic® Marshall & Swift® Equipment Cost Index (M&S index).

Emissions Point Source Controls (Baghouses, HEPA/ULPA Systems)

Proposed Rule 1407.1 establishes requirements to reduce toxic air contaminant emissions from melting operations of metals that contain greater than 0.5 percent chromium content, including, but not limited to alloy steel, chromium non-ferrous alloys, stainless steel, and superalloys, metal melting operations, such as smelters, foundries, die-casters, mills, and other establishments where metals are processed in molten form. Melting of chromium alloys have the potential to emit toxic air contaminants, including hexavalent chromium.

PR 1407.1 establishes collection efficiency requirements and hexavalent chromium mass emission limits to control point source emissions; housekeeping and building provisions to limit fugitive emissions; and source testing, material testing, parameter monitoring, and recordkeeping requirements. Facilities which do not already meet the PR 1407.1 collection efficiency or mass emission limits are expected to install point-source emission controls. Cost assumptions in this analysis use baghouses as the primary emission controls in conjunction with HEPA or ULPA systems in order to meet the mass emission limits.

Of the identified 11 potentially affected facilities, staff expects five facilities to install a total of five new baghouses to comply with PR 1407.1. This is the same figure used in the socioeconomic impact assessment for Rule 1407 amendments adopted in October 2019, which used guidance for baghouse cost estimation contained in the U.S. EPA's Control Cost Manual.[5]

Staff estimates baghouses installed to comply with PR 1407.1 to cost $256,000 each for purchase and installation and permitting,[6] along with $275,000 for annual operation and

[5] Cost per square foot estimates come from the U.S. EPA Air Pollution Control Cost Manual, with costs inflated to 2019 values using the CoreLogic® Marshall & Swift® Equipment Cost Index (M&S index).
[6] Assumptions made to derive this estimate are the following: Baghouse purchased and installed has pulse-jet filters using a common housing; bags have a maximum gross cloth area of 4,000 square feet; bags have diameter of 4.875 inches and is made of nomex – resulting in a bag cost of $9.89/square foot; bags use pulse jet cartridge cleaning (discussion with Donaldson Torid and South Coast AQMD source-testing staff verified this is the most common type of baghouse used by metal melting facilities); sales tax assumed to be 9%, as most cities in South Coast AQMD jurisdiction have sales tax rates around this value (range from

maintenance (O&M) of each baghouse.[7] Staff also assumes that 14 HEPA systems at eight facilities will cost up to $40,000 each, with annual O&M costs of $35,000 each. One ULPA system is expected for one facility with a one-time cost of $39,000, with annual O&M costs of $39,000.

In total, the present worth value of one-time expenses for emission controls is estimated at $3.5 million. The total average annualized cost of this requirement is estimated at $245,000 across the affected facilities. The annual cost of recurring O&M costs for emission controls (baghouse, HEPA/ULPA systems) is $2.0 million for all affected facilities between 2021 and 2041.

Bag Leak Detection Systems and Pressure Gauges with Data Acquisition Systems

PR 1407.1 requires all emission control devices at facilities subject to PR 1407.1 to operate, calibrate, and maintain a bag leak detection system (BLDS). Moreover, each emission control device is required to use a gauge to continuously monitor the pressure drop across the emission control device. Each gauge is required by PR 1407.1 to be equipped with a continuous data acquisition system (DAS) which will record gauge output data at least once every 60 minutes. The gauge reading provides an indication of whether the filters are operating within the proper range of pressure differential recommended by the manufacturer or whether they may be clogged or have leaks.

To provide a conservative estimate of this cost of PR 1407.1, each new and existing baghouse is assumed to need a new BLDS and pressure gauge with a DAS. The HEPA or ULPA system also requires an additional pressure gauge, plus existing seven electrostatic precipitators (ESP) with HEPA systems will require a pressure gauge with DAS. In addition to the five new baghouses staff estimates to be installed due to PR 1407.1, staff also estimates facilities potentially affected by PR 1407.1 have nine existing baghouses. Therefore, staff expects 14 new bag leak detection systems and 35 gauges with data acquisition systems to be purchased and installed.

Each BLDS is assumed to be purchased in addition to the baghouse itself on July 1, 2024, with a one-time cost of $1,500.[8] Staff also assumes installation of a bag leak detection system to take up to 5 hours, that the installation will be performed by a facility's own

7.75% to 10.25%, https://www.cdtfa.ca.gov/taxes-and-fees/ArchiveRates-04-01-19-06-30-19.pdf). This estimates additionally assumes a South Coast AQMD baghouse permit fee of $5,900, which is the highest cost permit fee for baghouses which operate at temperatures below 350 degrees Fahrenheit.

[7] Assumptions made to derive this estimate, on top of those made for the purchase and installation cost estimate, are the following: Staff average wage rate of $40/hour; complete bag replacement every two years; a discount/real interest rate of 4%; complete baghouse replacement every 20 years (recommended by U.S. EPA Air Pollution Control Cost Manual, Chapter 6, subsection 1.5.2) and an industrial electricity price of $0.11/kilowatt-hour (U.S. Energy Information Administration's Electric Power Monthly 04/2019, https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a). This estimation leaves out additional operating materials cost, fuel, water, and dust disposal, all of which are expected to either not occur or be relatively small.

[8] http://www.dwyer-inst.com/Product/ProcessControl/Particulate-DustorBrokenBag-Transmitters/SeriesPMT2 (accessed 11/23/20).

staff, and that the wage rate received by a facility's own staff is $54 per hour.[9] Thus the total one-time cost of purchasing and installing bag leak detection systems due to PR 1407.1 is expected to be $38,000 if purchased in 2021.

Pressure gauges with the ability to log output data in line with PR 1407.1's DAS requirement are assumed to be around $1,200 on the high-range.[10] Staff again assumes installation to take up to 5 hours, that installation will be performed by a facility's own staff, and that the wage rate received by a facility's own staff is $54 per hour. Each facility is expected to pay $1,200 to purchase and install each pressure gauge with a DAS, resulting in a total cost one-time cost of purchasing and installing pressure gauges and data acquisition systems due to PR 1407.1 to be expected to be $75,000 if purchased in 2021.

Building Requirements

PR 1407.1 requires affected facilities to conduct all chromium alloy melting operations in a building by no later than July 1, 2021. By January 1, 2022, the buildings that house melting furnaces for chromium containing alloys must implement cross-draft minimization measures by enclosing one or more of the openings on opposite ends of the building using one or more of the following:

- Automated doors
- Overlapping plastic strip curtains
- Vestibules
- Barriers
- Airlock system
- Or alternative methods approved by the executive officer

For the cost assumptions in this analysis, staff considered the installation of plastic strip curtains and closing roof openings as the most likely minimum compliance route for facilities.

Staff expects all facilities affected by PR 1407.1 to potentially construct minor building modifications due to PR 1407.1. Affected facilities are expected to install plastic strip curtains. Staff expects purchase and installation costs associated with plastic strip curtains to be $9 per square foot,[11] with a maximum area covered by plastic strip curtains of 1,000

[9] According to EMSI data, average annual salary at PR 1407.1 potentially affected facilities is $108,345. Assuming 2,000 hours of work in a year (40 hours per week for 50 weeks) results in an average hourly wage of $54 per hour.

[10] Some models are closer to $600 (https://www.instrumart.com/products/43974/monarch-track-it-pressure-transmitter-data-logger, https://www.instrumart.com/products/42075/monarch-track-it-pressure-data-logger, https://www.instrumart.com/products/43295/wika-cpg1500-pressure-gauge, accessed 11/23/2020), while some are closer to $1,200 (https://www.transcat.com/fluke-700g30-fluke-700g30, https://www.omega.com/en-us/sensors-and-sensing-equipment/pressure-and-strain/pressure-gauges/p/DPG4000, accessed 11/23/2020).

[11] Search for plastic curtains from Grainger Industrial Supply provided a range of costs for plastic strip curtains (https://www.grainger.com/search/material-handling/dock-equipment/strip-doors-replacement-strips-and-hardware?sst=1&ts_optout=true&searchQuery=curtains, accessed 7/24/2019). The lowest cost was $1,437.88 for 14 feet by 14 feet smooth strip doors from TMI Incorporated. The highest cost was $1,850.91 for 14 feet by 14 feet ribbed strip doors from TMI Incorporated. South Coast AQMD staff

square feet. A facility is also expected to install plastic strip curtains at a cost of $9,000 by January 1, 2022. The total cost of plastic strip curtains due to PR 1407.1 is estimated at $99,000 by January 1, 2022.

Staff expects construction costs associated with minor building modifications to enclose roof openings to potentially affect all 11 facilities under PR 1407.1.[12] Any facility expected by staff to perform such building modifications is estimated to pay up to $13,750 by January 1, 2022. The total one-time cost of minor building modifications due to PR 1407.1 is estimated at $163,000 by January 1, 2022.

Source Tests

PR 1407.1 requires all chromium alloy melting facilities to perform source testing on all furnaces or their respective emissions control devices according to CARB Method 425 – *Determination of Total Chromium and Hexavalent Emissions from Stationary Sources,* pursuant to PR 1407.1 paragraph (h)(6). Emission limits for hexavalent chromium are set by aggregate levels (summation of measured levels for all operational furnaces under normal conditions), with a minimum run time of eight hours demonstrating the aggregate reporting limit of 0.05 micrograms or less. The source test deadline for existing furnaces is July 1, 2024 and must be conducted within 120 days of the source test protocol approval pursuant to paragraph (h)(1).

PR 1407.1 also requires an initial source test followed by periodic source tests every 60 months, provided that facilities comply with required parameter monitoring protocols in the period between valid source tests. Staff expects each source test to cost about $20,000 and eight affected facilities are expected to conduct only one initial source test, two facilities to conduct two source tests, and one facility to conduct nine source tests. Staff expects 21 HEPA or ULPA exhaust stacks to require source testing due to PR 1407.1. Staff estimates each source test will cost around $20,000.[13] Staff estimates the total cost of source testing to be $420,000 in 2021 and every subsequent 60 months.

Smoke Tests and Slot Velocity Tests

PR 1407.1 requires a smoke test be performed on every emission collection system leading to emissions control devices (e.g. baghouses) by January 1, 2022, and every six months thereafter. Staff estimates 60 total emission control devices across the 11 affected facilities. Each control device will be required to have a smoke test performed by January 1, 2022,

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expects PR 1407.1 to not require the most expensive equipment, but also recognizes associated with installation are not included in these costs. Therefore, South Coast AQMD staff assumes a per square foot strip curtain cost equal to the average of the lowest and highest cost curtains, i.e. $9 per square foot (rounded up).

[12] Construction costs estimated using the RSMeans Construction Cost Index (https://www.rsmeansonline.com/references/unit/refpdf/hci.pdf, accessed 11/29/2020).

[13] Source test cost estimates from Rule 1407 were used and were provided by Charles Figueroa of Almega Environmental for baghouses. The cost assumes submittal of a source-test protocol, setup and field blank collection, followed by three 12 hour work days in which an 8-hour M425 test run is conducted per location for total metals and hexavalent chromium analysis (Tier IV data package), plus three 1-hour gas density samples, and compiling a final report. The total cost including labor and testing was $20,000, conservatively, as overtime premium rates can vary.

and every six months thereafter, with a cost of $1,000 per test, per device. The same devices require a biannual slot velocity test at a cost of $90 per device. The annual cost of smoke and slot tests is estimated at $130,000 across all 11 identified facilities in 2021.

Anemometers and Butterfly Cap Installation

PR 1407.1 requires using a calibrated anemometer to measure the slot velocity at each slot and pressure at each push air manifold of every emission collection system by January 1, 2021, and every six months thereafter. Staff estimates that each of the PR 1407.1 potentially affected facilities will be required to purchase a new anemometer. Staff expects each anemometer to cost at most $1,000, as many hot-wire and rotating-vane digital anemometers are sold for less than $1,000.[14] Staff estimates total anemometer one-time cost to be $11,000 in January 1, 2022.

PR 1407.1 prohibits the use of a furnace emission stack weather cap (paragraph (e)(3)). The installation of a butterfly cap in place of a weather cap is a permissible alternative to a weather cap and is expected to cost about $9,100 per stack for 17 stacks at 11 facilities. This one-time expense is expected to cost a total of $276,000 in January 1, 2022.

Housekeeping and Recordkeeping

All of the 11 PR 1407.1 potentially affected facilities are expected to incur labor costs for required housekeeping from PR 1407.1. The provisions within PR 1407.1 subdivision (f) outline the following routine cleaning requirements for chromium alloy melting operations:

- Daily cleaning of all floor areas within 20 feet of chromium alloy melting operation(s)
- Weekly cleaning of all floor areas within 20 feet of specified areas (subdivision (f))
- Quarterly inspections for and cleaning of blockages from accumulated dust in vents, openings, and ducting for each emission control device
- Biannual cleaning of all floor areas outside of the building subject to foot or vehicle traffic
- Annual cleaning of the entire facility, including any area not specified in cleaning provisions, excluding roof areas
- Biennial cleaning of roof areas of buildings housing chromium alloy melting operations
- Cleaning is also required within an hour of any construction or maintenance/repair activity

Carrying out the routine cleaning requirements for PR 1407.1 varies by size of facility, so the following vacuum equipment was assumed for purchase for facilities as follows:

- Rider HEPA-equipped industrial sweeper/vacuum for four facilities ($11,600 each)
    - Annual maintenance, HEPA filter replacement, and cleaning supplies totaling $25,000 per rider vacuum

[14] https://www.grainger.com/category/test-instruments/air-movement/air-velocity-meters-and-anemometers?sortKey=price&sortOrder=desc (accessed 7/27/19).

- Backpack HEPA-equipped vacuums for the remaining seven facilities ($600 each)
    - Annual maintenance and replacement HEPA filters totaling $2,000
- HEPA-equipped shop vacuums for all 11 facilities ($500 each)
    - Annual maintenance and replacement HEPA filters totaling $2,500

The present worth value of all housekeeping expenditures (including labor, purchase and maintenance of equipment, cleaning supplies, and replacement filters for cleaning equipment) if they were all made in 2021 is $2.4 million for all facilities. The annualized capital and recurring costs associated housekeeping requirements is $175,000 across all 11 facilities.

PR 1407.1 outlines recordkeeping requirements in subdivision (k), and requires a facility owner/operator to maintain records for five years for the following:

- Quarterly quantities of raw materials processed, including purchase records
- Material testing data
- Source test protocols and reports
- Housekeeping activities conducted
- Maintenance and repair and construction activities
- Documentation of repairs to unintended breaches and log of notifications to 1-800-CUT-SMOG
- Inspection, calibration documentation, and maintenance of emission control devices and parameter monitoring equipment
- Parameter monitoring data
- Reporting log of failed parameter monitoring to 1-800-CUT-SMOG
- Documentation of repairs or replacements performed to correct failed parameter measurement

South Coast AQMD staff assumes that recordkeeping costs will be carried out by existing facility staff and costs a facility about $5,000 annually for each of the 11 affected facilities. In total, recordkeeping costs total around $56,000 annually across all facilities.

Cost Summary

Table 6 presents the distribution of overall predicted costs of PR 1407.1 by selected cost categories. Table 6 indicates the present worth value and annualized cost of each cost category. The present worth value ~~in 2020 dollars presents the estimated~~ total PR 1407.1 cost from 2021-2041 by cost category if all costs paid over this timeframe due to PR 1407.1 were paid in 2021. The annualized cost presents the estimated total PR 1407.1 annual cost from 2021-2041 by cost category, where one-time costs are spread over an equipment's lifetime while including lost investment value to facilities where the investments are assumed to have either a 4% or 1% real rate of return (nominal interest rate net inflation).

The majority of predicted costs, about $2.0 million annually, is attributed to annual operation and maintenance of baghouses, HEPA systems, and ULPA systems installed, or about 74 percent of the PR 1407.1 total capital and recurring cost. Costs for purchase and installation of baghouses and HEPA systems represent the largest portion of one-time expenditures with $3.5 million or 80 percent of the total one-time costs (4% scenario). The low-rate scenario assumes a real interest rate of 1%, while the high-rate scenario assumes a 4% real interest rate.[15] The average annual cost of PR 1407.1 is estimated to be $2.75 to $2.79 million between 2021 and 2041, for the low- and high-rate scenarios respectively. The relatively small difference in costs by real interest rate scenario is because capital costs associated with the rule (subject to interest rates) are small compared to the recurring costs (not subject to interest rate) of the rule requirements.

[15] The real interest rate can be viewed as the percentage return on an investment net inflation. A higher real interest rate entails a higher cost of using facility funds to meet regulatory requirements.

Table 6: PR 1407.1 Projected Total and Average Annual Cost by Cost Category for Potentially Affected Facilities (2020 Dollars)

	Present Worth Value ~~(2020)~~		Annual Average (2021-2041)	
Cost Categories	**1% Discount Rate**	**4% Discount Rate**	**1% Real Interest Rate**	**4% Real Interest Rate**
One-Time Cost				
Anemometer	$23,000	$20,000	$1,000	$1,000
Backpack HEPA vacuum	$14,000	$12,000	$1,000	$1,000
Bag leak detection system	$44,000	$38,000	$2,000	$3,000
Baghouse	$2,560,000	$2,160,000	$131,000	$153,000
Building Enclosure Modifications	$167,000	$163,000	$9,000	$11,000
HEPA	$1,483,000	$1,251,000	$76,000	$89,000
Install butterfly cap	$321,000	$276,000	$16,000	$19,000
Plastic curtains	$99,000	$97,000	$5,000	$7,000
Pressure gauge with DAS	$88,000	$75,000	$4,000	$5,000
Rider HEPA vacuum	$157,000	$128,000	$8,000	$9,000
Shop HEPA vacuum	$19,000	$15,000	$1,000	$1,000
Standard & Calibration Materials	$22,000	$21,000	$1,000	$1,000
ULPA	$77,000	$65,000	$4,000	$5,000
Total one-time cost	**$5,074,000**	**$4,321,000**	**$259,000**	**$305,000**
Recurring Cost				
Baghouse annual maintenance	$26,067,000	$18,834,000	$1,333,000	$1,333,000
HEPA annual maintenance	$12,717,000	$9,188,000	$650,000	$650,000
Housekeeping	$216,000	$159,000	$11,000	$11,000
Permit Renewal Fees	$479,000	$346,000	$24,000	$24,000
Recordkeeping	$1,098,000	$807,000	$56,000	$56,000
Replacement HEPA filters for shop vacuum	$467,000	$337,000	$24,000	$24,000
Roof Cleaning	$303,000	$223,000	$15,000	$15,000
Slot velocity test	$207,000	$151,000	$11,000	$11,000
Smoke test	$2,336,000	$1,703,000	$119,000	$119,000
Source test	$1,887,000	$1,417,000	$95,000	$95,000
ULPA annual maintenance	$728,000	$526,000	$37,000	$37,000
Rider Vacuum Parts & Maintenance	$1,180,000	$867,000	$60,000	$60,000
Backpack HEPA vacuum parts	$275,000	$202,000	$14,000	$14,000
Cleaning Supplies	$786,000	$578,000	$40,000	$40,000
Total recurring cost	**$48,746,000**	**$35,338,000**	**$2,489,000**	**$2,489,000**
Total	**$53,821,000**	**$39,659,000**	**$2,749,000**	**$2,794,000**

Note: Values rounded to nearest thousand dollars. Column total values may not add up due to rounding.

Table 7 presents total and average annual compliance costs of PR 1407.1 by industry. Most of the cost due to PR 1407.1 is expected to be incurred by foundries ($30.6 million to $41.5 million or about 77 percent of the total cost for both the low- and high-rate scenarios). The industry which incurs the second-highest expected cost due to PR 1407.1 is iron and steel mills and ferroalloy manufacturing ($6.9 to $9.3 million of the total cost or 17 percent for both the low- and high-rate scenarios). The remaining expected cost due to PR 1407.1 is expected to be incurred almost entirely by other fabricated metal manufacturing ($2.2 to 3.0 million of the total cost or about six~~5~~ percent for both low- and high-rate scenarios).

Table 7: PR 1407.1 Projected Total and Average Annual Compliance Cost by Industry for Potentially Affected Facilities (2020 Dollars)

Industry description	NAICS Code	Present Worth Value ~~(2020)~~		Average Annual Costs (2021-2041)	
		1% Discount Rate	4% Discount Rate	1% Discount Rate	4% Discount Rate
Iron and steel mills and ferroalloy manufacturing	3311	$9,291,000	$6,866,000	$474,000	$483,000
Foundries	3315	$41,523,000	$30,567,000	$2,121,000	$2,156,000
Other fabricated metal product manufacturing	3329	$3,007,000	$2,227,000	$153,000	$156,000
Total		**$53,821,000**	**$39,659,000**	**$2,749,000**	**$2,794,000**

Note: Values rounded to nearest thousand dollars.

PR 1407.1 sets aggregate emission limits for hexavalent chromium based on distance of a furnace stack (or centroid of multiple stacks) to a sensitive receptor's nearest property line. Table 8 shows that nine of 11 identified facilities fall under the *Greater than 100* meters category (least stringent PR 1407.1 aggregate emission limit). One facility falls in the *50 to 100 meter* category, and one facility is in the *Less than 50 meters* of a sensitive receptor category (most stringent emission limit). The higher cost per facility figures in the one *Less than 50 meters* facility and the nine *Greater than 100 meters* facilities are driven by the high cost ($276,000 each) of new baghouse installations. Therefore, cost per facility is not only a function of distance to a sensitive receptor, but rather by distance-determined emission rate requirement and the associated required emission reductions specific to a facility.

Table 8: PR 1407.1 Average Expected Compliance Cost Per Facility by Distance to Sensitive Receptors from 2021-2041

Facility Distance to Sensitive Receptor (meters)	Number of Facilities	Present Worth Value ~~(2020)~~		Average Annual Costs (2021-2041)	
		1% Discount Rate	4% Discount Rate	1% Discount Rate	4% Discount Rate
Less than 50	1	$7,109,000	$5,224,000	$363,000	$369,000
50 to 100	1	$1,238,000	$921,000	$63,000	$64,00
Greater than 100	9	$5,053,000	$3,724,000	$258,000	$262,000
~~**Total**~~	~~**11**~~	~~**$13,400,000**~~	~~**$9,869,000**~~	~~**$684,000**~~	~~**$695,000**~~

JOBS AND OTHER SOCIOECONOMIC IMPACTS

The REMI model (PI+ v2.4.1) was used to assess the total socioeconomic impacts of the regulatory change from PR 1407.1.[16] The model links the economic activities in the counties of Los Angeles, Orange, Riverside, and San Bernardino, and for each county, it is comprised of five interrelated blocks: (1) output and demand, (2) labor and capital, (3) population and labor force, (4) wages, prices and costs, and (5) market shares.[17]

The assessment herein is performed relative to a baseline ("business as usual") where PR 1407.1 would not be adopted. The baseline of this model has been calibrated with the latest data, made available in August 2020, which reflects the recent regional impacts on the local economy as a result of COVID-19. Adoption of PR 1407.1 would create a regulatory scenario under which the potentially affected facilities would incur average annual compliance costs totaling \$2.75 - \$2.79 million for low- and high-rate scenarios respectively. Direct effects of proposed rules/amendments must be estimated and used as inputs into the REMI PI+ model in order for the model to assess secondary and induced impacts for all actors in the four-county economy on an annual basis and across a user-defined horizon (2021 - 2041). Direct effects of PR 1407.1 include additional costs to the potentially affected facilities and additional sales by local vendors of equipment, devices, or services supplying the necessary goods/services to help the potentially affected facilities meet the proposed requirements of PR 1407.1.

While compliance expenditures may increase the cost of doing business for affected facilities, the purchase and installation of additional equipment combined with spending on operating and maintenance may increase sales in other sectors. Table 9 lists the industry sectors modeled in REMI PI+ that would either incur a cost or benefit from the compliance expenditures.[18]

All compliance costs expected due to PR 1407.1 are included fully into the REMI PI+ model as spending in the industry categories listed in Table 9. This could substantially mute negative regional effects on employment if the REMI PI+ model assumed all spending from any industry in the South Coast AQMD jurisdiction was spent within the South Coast AQMD jurisdiction. However, each industry is provided a set of "regional purchase coefficients" within the REMI PI+ model, which accounts for industries within

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[16] Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (160-sector model). Version 2.4.1, 2020.

[17] Within each county, producers are made up of 156 private non-farm industries and sectors, three government sectors, and a farm sector. Trade flows are captured between sectors as well as across the four counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration. (For details, please refer to REMI online documentation at http://www.remi.com/products/pi.)

[18] Improved public health due to reduced air pollution may improve worker productivity and other economic factors. However, public health benefit assessment requires modeling air quality improvements. Current air-quality modeling employed by South Coast AQMD performs poorly with changes in air pollution less than 10 tons per day of criteria pollutants since such changes are hard to distinguish from random variation in the model. Toxic air pollutants present additional analytical challenges to estimate monetized public health benefit due to the localized nature of their air quality impact.

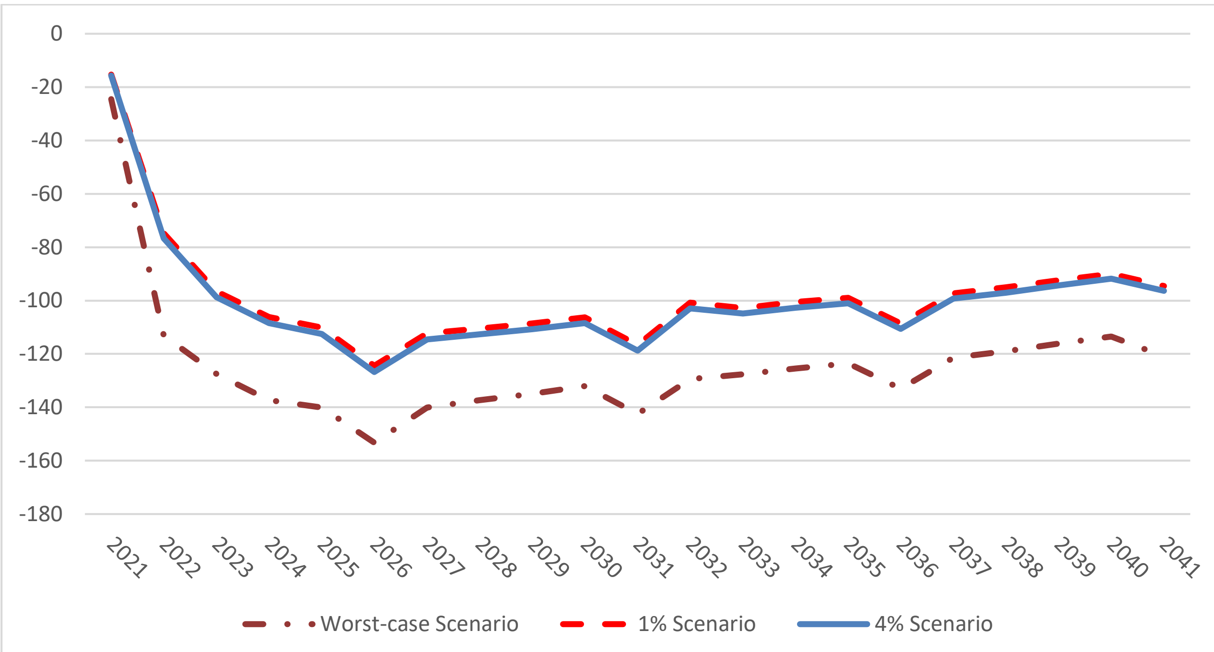
the South Coast AQMD jurisdiction spending often going to other facilities outside the South Coast AQMD jurisdiction.

Table 9: Industries Incurring Costs or Benefitting from PR 1407.1 Compliance

<table>
<tr><th>Compliance Cost Source</th><th>REMI Industries Incurring Compliance Costs (NAICS)</th><th>REMI Industries Benefitting from Compliance Spending (NAICS)</th></tr>
<tr><td>Baghouse</td><td rowspan="15">Iron and steel mills and ferroalloy manufacturing (NAICS 3311); Foundries (NAICS 3315); Other fabricated metal product manufacturing (NAICS 3329)</td><td rowspan="4">One-time-Capital: Construction (NAICS 23)</td></tr>
<tr><td>Bag leak detection system</td></tr>
<tr><td>Pressure gauge with DAS</td></tr>
<tr><td>HEPA system</td></tr>
<tr><td>ULPA System</td><td>One-time-Capital: Ventilation, Heating, Air-conditioning, and commercial refrigeration equipment manufacturing (NAICS 3334)</td></tr>
<tr><td>Anemometer</td><td rowspan="2">One-time-Capital: Navigational, Measuring, Electromedical, and Control Instruments (NAICS 3345)</td></tr>
<tr><td>Building enclosure</td></tr>
<tr><td>Plastic curtains</td><td>One-time-Capital: Electrical Equipment Manufacturing (NAICS 3353)</td></tr>
<tr><td>Baghouse annual maintenance</td><td>Recurring Cost: Architectural, Engineering, and Related Services (NAICS 5413)</td></tr>
<tr><td>Smoke test</td><td>Recurring Cost: Ventilation, heating, air-conditioning and commercial refrigeration (NAICS 3334)</td></tr>
<tr><td>Source test</td><td>Recurring Cost: Wholesale Trade (NAICS 42)</td></tr>
<tr><td>Slot velocity test</td><td rowspan="2">Recurring Cost: Management, scientific, and technical consulting services (NAICS 5416)</td></tr>
<tr><td>Rider HEPA vacuum</td></tr>
<tr><td>Backpack HEPA vacuum</td><td rowspan="2">Recurring Cost: State & Local Government (NAICS 92)</td></tr>
<tr><td>HEPA shop vacuum</td></tr>
</table>

As presented in Figure 3, PR 1407.1 is expected to result in an average of 98 to 100 jobs foregone annually from 2021 to 2041 for the low- and high-rate scenarios respectively. The projected job impacts represent about a 0.001 percent decrease of total employment in the four-county region for both low- and high-rate scenarios. A "worst-case" scenario, where all purchases made due to PR 1407.1 went to suppliers outside the four-county region, resulted in approximately 124 jobs on average expected to be foregone annually from 2021 to 2041.

Figure 3: PR 1407.1 Projected Regional Foregone Jobs, 2021 - 2041



Jobs foregone can come from currently existing jobs or future new jobs. Table 10 presents expected job impacts of PR 1407.1 for the top 12 industries with negative job impacts, one industry with expected positive job impacts, and the remaining industries grouped together. Jobs are expected to be forgone in the overall economy throughout the time period considered (2021 - 2041). The foundry industry (NAICS 3315) is expected to bear most of the estimated total compliance cost of PR 1407.1, with an expected total 14 jobs forgone annually between 2021 and 2041. The remainder of the projected reduction in employment due to PR 1407.1 implementation is spread across many other major sectors of the economy due to secondary and induced impacts of PR 1407.1, occurring mainly in retail trade (NAICS 44-45), construction (NAICS 23), and health care and social assistance (NAICS 62).[19]

Positive job impacts from adoption of PR 1407.1 in the management, scientific, and technical consulting services sector (NAICS 5416) are due to PR 1407.1 potentially

[19] Secondary impacts on jobs are changes in jobs to supplying industries of the affected industries, while induced impacts on jobs are changes in jobs due to overall disposable income changes in the South Coast AQMD economy.

affected facilities completing baghouse annual maintenance, smoke testing, source testing, and slot velocity testing.

Table 10: PR 1407.1 Job Impacts (High-Rate Scenario)

Industries (NAICS)	2021	2026	2031	2036	2041	Average Annual Job Changes (2021-2041)	Average Annual Baseline Jobs (2021-2041)	% Change from Baseline Jobs
Manufacturing (33-33)	-4	-32	-32	-30	-28	-27	606,000	-0.004%
Retail Trade (44-45)	-2	-13	-12	-11	-10	-10	939,000	-0.001%
Construction (23)	1	-18	-10	-7	-3	-9	507,000	-0.002%
Health care and social assistance (62)	-1	-10	-11	-11	-11	-9	1,549,000	-0.001%
State and Local Government (92)	0	-8	-9	-9	-8	-8	944,000	-0.001%
Transportation and warehousing (48, 492-493)	-1	-8	-8	-8	-7	-7	703,000	-0.001%
Accommodation and food services (72)	-1	-7	-8	-8	-7	-6	904,000	-0.001%
Other services (except public administration) (81)	-1	-7	-7	-6	-6	-6	759,000	-0.001%
Administrative, support, waste management, and remediation services (56)	-1	-6	-6	-5	-5	-5	812,000	-0.001%
Real estate and rental and leasing (53)	-1	-6	-5	-5	-4	-4	650,000	-0.001%
Wholesale trade (42)	1	-5	-5	-4	-4	-4	415,000	-0.001%
Finance and insurance (52)	-1	-4	-4	-4	-3	-3	513,000	-0.001%
Other Industries	**-1**	**-4**	**-3**	**-2**	**-0**	**-1**	**2,161,000**	**-0.001%**
All Industries Total	**-16**	**-127**	**-119**	**-111**	**-96**	**-100**	**11,462,000**	**-0.001%**
Select Sub-Industry Totals*								
Foundries (3315)	-3	-17	-16	-15	-14	-14	3,000	-0.467%
Local Government (92)	0	-7	-8	-8	-7	-7	788,000	-0.001%
Management, scientific, and technical consulting services (5416)	0	12	11	11	10	11	171,000	0.006%

* Sub-Industries fall within main industry values (i.e. Foundries – 3315 is a subset of manufacturing – 31-33, so the 14 jobs foregone in foundries is contained within the 25 jobs foregone in manufacturing).

Competitiveness

Although there is no legal requirement by California Health & Safety Code to provide analysis about competitiveness of industries possibly affected by any rule, it may still be useful to consider. An in-depth competitiveness analysis of the industries affected by any rule is time and data prohibitive, requiring discussion of the competitiveness of facilities in the South Coast AQMD region compared to facilities outside the region. Nonetheless, two results of the modeling exercise performed to estimate job impacts could be useful when considering regional competitiveness: estimated changes in regional costs of production and delivered prices relative to the rest of the U.S.

Due to PR 1407.1, the relative cost of production is expected to increase in the foundry industry (NAICS 3315) by less than 0.9% for any given year between 2021 and 2041, while iron and steel mills and ferroalloy manufacturing (NAICS 3311) and other fabricated metal product manufacturing (NAICS 3329) industries are expected to see increases of less than 0.04%. Relative delivered prices are expected to increase for the foundry industry by less than 0.3% for any given year between 2021 and 2041, while iron and steel mills and ferroalloy manufacturing and other fabricated metal product manufacturing industries are expected to see increases of less than 0.02%.

REFERENCES

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Attachment J

Proposed Rule 1407.1

Control of Toxic Air Contaminant Emissions from Chromium Alloy Melting Operations

Board Meeting

January 8, 2021

Background for Chromium Alloy Melting Operations

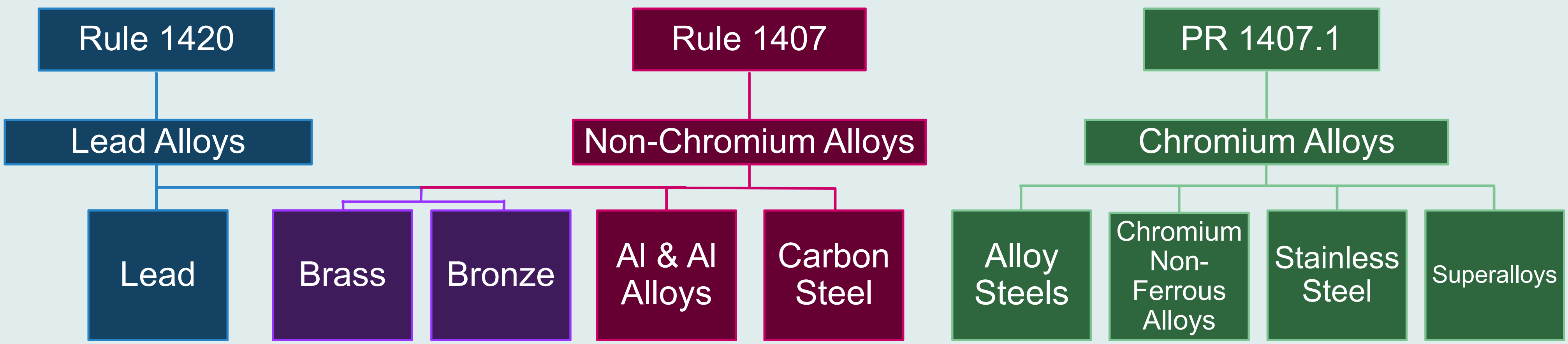
- In 2018, Proposed Rule 1407.1 (PR 1407.1) was presented to the Board as an information-gathering rule
- Board directed staff to work with the California Metals Coalition to collect necessary emissions data
- Source testing confirmed:
  - Formation of hexavalent chromium emissions from melting chromium alloys
  - Efficacy of control equipment
- PR 1407.1 is designed to reduce toxic air contaminant emissions from chromium alloy melting operations[1]

[1] Chromium alloy defined as any metal that contains 0.5% chromium or greater

General Approach

- PR 1407.1 is designed to fill a regulatory gap
- PR 1407.1 will control point source and fugitive toxic air contaminant emissions and ensure health protection

Regulatory Framework for Metal Melting



Emission Control Requirements

- Aggregate Hexavalent Chromium Emission Limit
- Source Testing
  - Initial source testing
  - Periodic source testing every 5 years
  - Source testing within 6 months of parameter monitoring failure
- Parameter Monitoring
  - Continuously demonstrate control equipment is working properly

	Emission Limits		
Distance to Closest Sensitive Receptor	< 50 meters	50 to 100 meters	> 100 meters
Hexavalent Chromium (Facility-Wide)	0.40 mg/hour	1.5 mg/hour	1.8 mg/hour

Fugitive Emission Requirements

Enhanced Housekeeping

- Routine cleaning of areas near melting operations
  - Prohibit dry sweeping and use of compressed air
- Additional periodic cleaning of areas where dust may accumulate
- Requirements for material storage and transport

Buildings

- Addresses cross-drafts in areas where chromium alloy melting operations occur
- Close roof openings above chromium alloy melting furnaces and where molten metal is poured and cooled

Summary and Recommended Actions

- Currently no regulatory requirements to control hexavalent chromium emissions from chromium metal melting
- PR 1407.1 needed to fill regulatory gap
- Total annual average cost is $2.8 million over a 20-year period
- Not aware of any key remaining issues
- Recommendation is to adopt the Resolution:
  - Certifying the Final Environmental Assessment
  - Adopting Proposed Rule 1407.1