SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Subsequent Environmental Assessment for Proposed Amended Rules 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; 1146.2 - Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters; and Proposed Rule 1100 – Implementation Schedule for NOx Facilities

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PREFACE

This document constitutes the Final Subsequent Environmental Assessment (SEA) for Proposed Amended Rules 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters (referred to herein as PARs 1146 series); and Proposed Rule 1100 – Implementation Schedule for NOx Facilities (PR 1100). A Draft SEA was circulated for a 45-day public review and comment period from April 3, 2018 to May 18, 2018 (referred to herein as the original Draft SEA) and four comment letters were received. Changes were made to the project description after the comment period for the original Draft SEA ended, SCAQMD staff revised the original Draft SEA and prepared a Revised Draft SEA which included a revised project description, a revised environmental analysis, the four comment letters received relative to the original Draft SEA and responses to the comments. The Revised Draft SEA, which superseded the original Draft SEA, was circulated for a 45-day public review and comment period from September 27, 2018 to November 13, 2018; no comment letters were received relative to the Revised Draft SEA. The comment letters and responses relative to the original Draft SEA have been included in Appendix G of this Final SEA.

Analysis of PARs 1146 series and PR 1100 in the original Draft SEA and the Revised Draft SEA indicated that while reducing NOx emissions is an environmental benefit, secondary significant adverse environmental impacts were also expected for the topic area of hazards and hazardous materials. Since significant adverse impacts were identified, an alternatives analysis and mitigation measures are required and are included in the Final SEA. [CEQA Guidelines Section 15252].

To facilitate identification of the changes between the original Draft SEA and the Revised Draft SEA, 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 Revised Draft SEA for public review and comment, minor modifications were made to PARs 1146 series and PR 1100 and some of the revisions were made in response to verbal and written comments received during the rule development process. The minor modifications include: 1) the addition, revision, and removal of definitions for clarification; 2) rewording and renumbering of rule language; 3) the addition of requirements to conduct either quarterly or annual source tests (after a facility demonstrates compliance with four consecutive quarterly source tests) to demonstrate compliance with the ammonia emissions limit for new or modified air pollution control devices using ammonia; and 4) allowing units at municipal sanitation service facilities to maintain existing NOx emission limits until a Regulation XI rule is adopted or amended. To facilitate identification of these additional changes, modifications made in this Final SEA are included as <u><u>double underlined text</u></u> and text removed from the document is indicated by ~~~~double strikethrough~~~~. To avoid confusion, minor formatting changes are not shown in underline or strikethrough mode.

Staff has reviewed the modifications to PARs 1146 series and PR 1100 and concluded that 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 Revised Draft SEA. 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 Revised Draft SEA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Revised Draft SEA has been revised to include the aforementioned modifications such that is now the Final SEA for PARs 1146 series and PR 1100.

TABLE OF CONTENTS

Page No.

CHAPTER 5 – ALTERNATIVES

APPENDICES

Page No.

LIST OF TABLES

Page No.

LIST OF FIGURES

CHAPTER 1

EXECUTIVE SUMMARY

INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (SCAQMD) in 1977[1] as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin. In 1977, amendments to the federal Clean Air Act (CAA) included requirements for submitting State Implementation Plans (SIPs) for nonattainment areas that fail to meet all federal ambient air quality standards (CAA Section 172), and similar requirements exist in state law (Health and Safety Code Section 40462). The federal CAA was amended in 1990 to specify attainment dates and SIP requirements for ozone, carbon monoxide (CO), nitrogen dioxide (NO2), and particulate matter with an aerodynamic diameter of less than 10 microns (PM10). In 1997, the United States Environmental Protection Agency (U.S. EPA) promulgated ambient air quality standards for particulate matter with an aerodynamic diameter less than 2.5 microns (PM2.5). The U.S. EPA is required to periodically update the national ambient air quality standards (NAAQS).

In addition, the California Clean Air Act (CCAA), adopted in 1988, requires the SCAQMD to achieve and maintain state ambient air quality standards for ozone, CO, sulfur dioxide (SO2), and NO2 by the earliest practicable date. (Health and Safety Code Section 40910.) The CCAA also requires a three-year plan review, and, if necessary, an update to the SIP. The CCAA requires air districts to achieve and maintain state standards by the earliest practicable date and for extreme non-attainment areas, to include all feasible measures pursuant to Health and Safety Code Sections 40913, 40914, and 40920.5. The term "feasible" is defined in the Title 14 of the California Code of Regulations, Section 15364, as a measure "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

By statute, the SCAQMD 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 SCAQMD[2]. Furthermore, the SCAQMD must adopt rules and regulations that carry out the AQMP[3]. The AQMP is a regional blueprint for how the SCAQMD will achieve air quality standards and healthful air and 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 states that both NOx and volatile organic compounds (VOC) emissions need to be addressed, with the emphasis that NOx emission reductions are more effective to reduce the formation of ozone and PM2.5. Ozone is a criteria pollutant shown to adversely affect human health and is formed when VOCs react with NOx in the atmosphere. NOx is a precursor to the formation of ozone and PM2.5, and NOx emission reductions are necessary to achieve the ozone standard attainment. NOx emission reductions also contribute to attainment of PM2.5 standards.

In October 1993, the SCAQMD Governing Board adopted Regulation XX – Regional Clean Air Incentives Market (RECLAIM) to reduce NOx and oxides of sulfur (SOx) emissions from

[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] SCAQMD, Final 2016 Air Quality Management Plan, March 2017. http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp

facilities. The RECLAIM program was designed to take a market-based approach to achieve emission reductions, as an aggregate. The RECLAIM program was created to be equivalent to achieving emissions reductions under a command-and-control approach, but by providing facilities with the flexibility to seek the most cost-effective solution to reduce their emissions. The market-based approach used in RECLAIM was based on using a supply-and-demand concept, where the cost to control emissions and reduce a facility's emissions would eventually become less than the diminishing supply of NOx RECLAIM trading credits (RTCs). However, analysis of the RECLAIM program over the long term has shown that the ability to achieve actual NOx emission reductions has diminished, due to a large amount of RTCs resulting from shutdowns being re-introduced into the market prior to amendments to Rule 2002 in October 2016 to address this issue.

In the 2016 AQMP, control measure CMB-05 - Further NOx Reductions from RECLAIM Assessment, committed NOx emission reductions of five tons per day to occur by 2025. The process of transitioning NOx RECLAIM facilities to a command-and-control regulatory structure will ensure that the affected equipment will meet Best Available Retrofit Control Technology (BARCT) level equivalency as soon as practicable.

The Governor approved Assembly Bill (AB) 617 on July 26, 2017, which addresses non-vehicular air pollution including criteria pollutants and TACs. AB 617 is a companion legislation to approved AB 398, which extends California's cap-and-trade program for reducing GHG emissions from stationary sources. AB 617 requires Air Districts to develop by January 1, 2019 an expedited schedule for the implementation of BARCT by December 31, 2023 for cap-and-trade facilities. A subset of RECLAIM facilities will be subject to the requirements of ABs 617 and 398. To address these requirements, SCAQMD staff completed an analysis of the RECLAIM equipment at each facility, giving a higher priority to older, higher polluting units that need to install retrofit controls. To have all units achieve BARCT level equivalency, it was concluded that command-and-control rules would need to be adopted and/or amended, along with an implementation schedule.

As a result of control measure CMB-05 from the 2016 AQMP and ABs 617 and 398, SCAQMD staff has been directed by the Governing Board to begin the process of transitioning equipment at NOx RECLAIM facilities from a facility permit structure to an equipment-based command-and-control regulatory structure per SCAQMD Regulation XI – Source Specific Standards. Thus, SCAQMD has begun this transition process by proposing amendments to Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; and Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters. Proposed Amended Rules (PAR) 1146, 1146.1, and 1146.2 (collectively referred to herein as the PARs 1146 series) ~~will be~~ is one of the first set of rules to be amended to ~~initiate the~~ transition of equipment from the NOx RECLAIM program to a command-and-control regulatory structure while achieving BARCT. As a result of the BARCT assessment conducted for PARs 1146 and 1146.1, some units at non-RECLAIM facilities will also be affected and will be required to meet BARCT NOx emissions equivalency according to the compliance schedule specified in PARs 1146 and 1146.1.

In addition, SCAQMD staff has developed Proposed Rule (PR 1100), an administrative rule which establishes the compliance schedule for the Rule 1146 and 1146.1 units at RECLAIM facilities~~PARs 1146 series facilities exiting the RECLAIM program~~. The compliance schedule for

PARs 1146 and 1146.1~~PARs 1146 series~~ will be a two ~~three~~five- to four~~six~~-year period depending on the equipment size~~, and~~ number of affected units at each facility, and based on how the facility will meet the compliance schedule and NOx emission limits (e.g., burner retrofit, SCR system installation, or equipment replacement). In addition, facilities with multiple units subject to multiple source-specific landing rules (e.g., SCAQMD rules other than the PARs 1146 series) will also be taken into consideration. Implementation of the proposed project is estimated to reduce NOx emissions by 0.20 ton per day by January 1, 2021 and ~~0.23~~ 0.27 ton per day by January 1, 2023 and it is expected to be achieved by the installation of selective catalytic reduction (SCR) technology/systems and ultra-low NOx burners.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (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 SCAQMD Governing Board, public agencies, and interested parties of potential adverse environmental impacts that could result from implementing 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 a negative declaration or environmental impact report once the secretary of the resources agency has certified the regulatory program. The SCAQMD's regulatory program was certified by the secretary of resources agency on March 1, 1989 and has been adopted as SCAQMD Rule 110 – Rule Adoption Procedures to Assure Protection and Enhancement of the Environment. Pursuant to Rule 110 (the rule which implements the SCAQMD's certified regulatory program), the SCAQMD typically prepares an Environmental Assessment (EA) to evaluate the environmental impacts for rule projects proposed for adoption or amendment.

PARs 1146 series and PR 1100 are considered a "project" as defined by CEQA. PARs 1146 series contains amendments that revise existing requirements included in Rules 1146 and 1146.1, as amended in September 2008 and November 2013, and Rule 1146.2 as amended in May 2006.

PARs 1146 series in combination with PR 1100 will transition affected units at NOx RECLAIM facilities to a command-and-control regulatory structure. NOx RECLAIM facilities with equipment subject to PARs 1146 and~~,~~ 1146.1~~, and 1146.2~~ will be required to meet the NOx emission limits in these rules in accordance with the implementation schedule outlined in PR 1100. In addition, a subset of units at non-RECLAIM facilities will be required to meet new NOx emission limits according to the compliance schedule specified in PARs 1146 and 1146.1. The decision to transition from NOx RECLAIM into a source-specific command-and-control regulatory structure was approved by the SCAQMD Governing Board as control measure CMB-05 in the 2016 AQMP and the potential environmental impacts associated with the 2016 AQMP, including CMB-05, were analyzed in the Final Program Environmental Impact Report (Program EIR) certified in March 2017[5].

[5] SCAQMD, Final Program Environmental Impact Report for the 2016 Air Quality Management Plan, March 2017. http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/scaqmd-projects---year-2017

Analysis of PARs 1146 and 1146.1 indicates that the estimated NOx emission reductions that were originally projected to be achieved as part of the September 2008 amendments to both Rules 1146 and 1146.1 will be greater than originally projected in the September 2008 Final Environmental Assessments (EAs)[6,7] because additional facilities that were originally subject to the NOx RECLAIM program will now be subject to the NOx emission limits contained in PARs 1146 and 1146.1.

Initial analysis of the baseline inventory for RECLAIM facilities with Rule 1146.2 units estimates NOx emissions to be minimal relative to the emission inventory from Rules 1146 and 1146.1 units, as indicated in Chapter 3, Table 3-1. However, it is important to note that Rule 1146.2 units are smaller units that are exempt from permitting requirements under Rule 219 - Equipment Not Requiring a Written Permit Pursuant to Regulation II. Non-RECLAIM facilities currently register Rule 1146.2 equipment from one up to and including two MMBtu per hour under Rule 222 - Filing Requirements For Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II. RECLAIM facilities are currently exempt from this provision. Additionally, the RECLAIM NOx emissions for combustion sources not requiring a written permit are reported on a quarterly basis as an aggregate sum for these devices. As a result, the permitted Rule 1146.2 universe may not fully represent the actual number of Rule 1146.2 units at RECLAIM facilities because the majority of the Rule 1146.2 units in RECLAIM are not currently registered or permitted with SCAQMD. Therefore, it is difficult to establish a precise inventory of the Rule 1146.2 units at RECLAIM facilities at this time. However, the additional Rule 1146.2 units (permitted and unpermitted) that will transition out of the NOx RECLAIM program and instead meet the NOx emissions limits in PAR 1146.2 were not projected in the May 2006 Final EA[8]. A RECLAIM facility with Rule 1146.2 units will be required to meet the applicable NOx concentration limit as specified in Rule 1146.2 by December 31, 2023. SCAQMD staff will conduct additional BARCT research along with obtaining updated emission inventory data if that is available. If the research shows that BARCT is more stringent so that significant additional NOx emissions reductions can be obtained, then staff will initiate a subsequent rule development process. Implementation of the proposed project is estimated to reduce NOx emissions by 0.20 ton per day by January 1, 2021 and ~~0.23~~ 0.27 ton per day by January 1, 2023.

SCAQMD staff has determined that PARs 1146 series and PR 1100 contain new information of substantial importance which was not known and could not have been known at the time: 1) the Final EAs were certified for the September 2008 amendments to Rules 1146 and 1146.1 (referred to herein as the September 2008 Final EAs for Rules 1146 and 1146.1); 2) the Final EA was certified for the May 2006 amendments to Rule 1146.2 (referred to herein as the May 2006 Final EA); and 3) the Final Program EIR was certified for the March 2017 adoption of the 2016 AQMP (referred to herein as the March 2017 Final Program EIR. However, PARs 1146 series is not expected to create new significant effects that were not discussed in the previous September 2008 Final EAs for Rules 1146 and 1146.1, the May 2006 Final EA for Rule 1146.2, and the March 2017 Final Program EIR for the 2016 AQMP.

[6] Final Environmental Assessment for Proposed Amended Rule 1146 - Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; SCH No. 2008011127; Certified September 5, 2008.

[7] Final Environmental Assessment for Proposed Amended Rule 1146.1 - Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; SCH No. 2008071014; Certified September 5, 2008.

The September 2008 Final EA for Rule 1146 identified significant adverse environmental impacts in the areas of air quality and hazards and hazardous materials. The analysis in the September 2008 Final EA determined the amendments to Rule 1146 had the potential to create significant adverse hazards and hazardous materials impacts associated with the use and storage of aqueous ammonia. Mitigation measures were identified to minimize the significant, adverse hazards and hazardous materials impacts, but would not reduce the potentially significant impacts to a level of insignificance. No other feasible mitigation measures were identified. As such, mitigation measures were made a condition of the approval of this project. Findings, a Statement of Overriding Considerations, and Mitigation Monitoring Plan were adopted for this project.

The September 2008 Final EA for Rule 1146.1 concluded that September 2008 amendments to Rule 1146.1 would not generate any significant adverse environmental impacts. Since no significant adverse environmental impacts were identified, no alternatives analysis and no mitigation measures were required by CEQA. Mitigation measures were not made a condition of the approval of this project and a Mitigation Monitoring Plan was not adopted for this project. Findings were not made and a Statement of Overriding Considerations was not adopted for this project.

As with the September 2008 amendments to Rule 1146.1, the May 2006 Final EA for Rule 1146.2 also concluded that May 2006 amendments to Rule 1146.2 would not generate any significant adverse environmental impacts. Since no significant adverse environmental impacts were identified, no alternatives analysis and no mitigation measures were required by CEQA. Mitigation measures were not made a condition of the approval of this project and a Mitigation Monitoring Plan was not adopted for this project. Findings were not made and a Statement of Overriding Considerations was not adopted for this project.

The March 2017 Final Program EIR for the 2016 AQMP determined that the overall implementation of CMB-05 has the potential to generate adverse environmental impacts to seven topic areas – air quality, energy, hazards and hazardous materials, hydrology and water quality, noise, solid and hazardous waste and transportation. More specifically, the March 2017 Final Program EIR evaluated the impacts from installation and operation of additional control equipment and SCR or SNCR equipment potentially resulting in construction emissions increased electricity demand, hazards from additional ammonia transport and use, increase in water use and wastewater discharge, changes in noise volume, generation of solid waste from construction and disposal of old equipment and catalysts replacements, as well as changes in traffic patterns and volume. For the entire 2016 AQMP, the analysis concluded that significant and unavoidable adverse environmental impacts from the project are expected to occur after implementing mitigation measure for the following environmental topic areas: 1) aesthetics from increased glare and from the construction and operation of catenary lines and use of bonnet technology for ships; 2) construction air quality and GHGs; 3) energy (due to increased electricity demand); 4) hazards and hazardous materials due to (a) increased flammability of solvents; (b) storage, accidental release and transportation of ammonia, (c) storage and transportation of liquefied natural gas (LNG); and (d) proximity to schools; 5) hydrology (water demand); 6) construction noise and vibration; 7) solid construction waste and operational waste from vehicle and equipment scrapping; and, 8) transportation and traffic during construction and during operation on roadways with catenary lines and at the harbors. Since significant adverse environmental impacts were identified, mitigation measures were identified and applied. However, the March 2017 Final Program EIR concluded that the 2016 AQMP would have significant and unavoidable adverse environmental impacts even after mitigation measures were identified and applied. As such, mitigation measures were made a

condition of project approval and a Mitigation Monitoring and Reporting Plan was adopted. Findings were made and a Statement of Overriding Considerations was prepared and adopted for this project.

PAR 1146 is expected to have: 1) significant effects that were not discussed in the previous September 2008 Final EA for Rule 1146 and March 2017 Final Program EIR for the 2016 AQMP (CEQA Guidelines Section 15162(a)(3)(A)); and 2) significant effects that were previously examined that will be substantially more severe than what was discussed in the September 2008 Final EA for Rule 1146 and the March 2017 Final Program EIR for the 2016 AQMP (CEQA Guidelines Section 15162(a)(3)(B)).

Similarly, PAR 1146.1 is also expected to have significant effects that were not discussed in the previous September 2008 Final EA for Rule 1146.1 and March 2017 Final Program EIR for the 2016 AQMP (CEQA Guidelines Section 15162(a)(3)(A)). However, PAR 1146.2 is not expected to create new significant effects that were not discussed in the previous May 2006 Final EA for Rule 1146.2 and the March 2017 Final Program EIR for the 2016 AQMP.

Further, PARs 1146 series and PR 1100 contain new information of substantial importance as they relate to PARs 1146, 1146.1, and 1146.2, and control measure CMB-05. Thus, analysis of the proposed project indicates that the type of CEQA document appropriate for the proposed project is a Subsequent Environmental Assessment (SEA), in lieu of an EA. The SEA is a substitute CEQA document, prepared in lieu of a Subsequent Environmental Impact Report with significant impacts (CEQA Guidelines Section 15162(b)), pursuant to the SCAQMD's Certified Regulatory Program (CEQA Guidelines Section 15251(l); codified in SCAQMD Rule 110). The SEA 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.

Because the new potentially significant adverse effects to hazards and hazardous materials that may result from implementing PARs 1146 and 1146.1 were not analyzed at the project level in the September 2008 Final EAs for Rules 1146 and 1146.1or the March 2017 Final Program EIR for the 2016 AQMP, and because PAR 1146.2 and PR 1100 contain new information that was not previously considered, the SCAQMD, as lead agency for the proposed project has prepared this SEA with significant impacts pursuant to its Certified Regulatory Program. Because PARs 1146 series and PR 1100 may have statewide, regional or areawide significance, a CEQA scoping meeting is required pursuant to Public Resources Code Section 21083.9(a)(2) and was held at the SCAQMD's Headquarters in conjunction with the Public Workshop on February 14, 2018. One oral, CEQA-related comment was made at the Public Workshop/CEQA scoping meeting relative to PARs 1146 series and PR 1100. The comment and response are included in Appendix F of this ~~Revised Draft~~ Final SEA. Further, pursuant to CEQA Guidelines Section 15252, since significant adverse impacts have been identified, an alternatives analysis and mitigation measures are required.

~~The~~A Draft SEA was~~has been~~ released and circulated for a 45-day public review and comment period from ~~Tuesday,~~ April 3, 2018 to May 18, 2018 (referred to herein as the original Draft SEA) ~~at 5:00 p.m~~. However, changes were made to the project description after the comment period ended. SCAQMD staff revised the environmental analysis in the original Draft SEA and prepared ~~this~~ a Revised Draft SEA which was ~~is now being~~ circulated for an additional 45-day public review and comment period. The Revised Draft SEA included~~s~~ a revised project description and a revised

analysis of potential adverse environmental impacts that could be generated from the proposed project. ~~This~~ The Revised Draft SEA ~~supersedes~~ superseded the original Draft SEA. Four c~~C~~omment letters were received relative to the original Draft SEA during the public comment period from April 3, 2018 to May 18, 2018 and responses ~~have been~~ were prepared. The comment letters and responses relative to the original Draft SEA ~~have been~~ were included in Appendix G of ~~this~~ the Revised Draft SEA~~relative to the analysis presented in this Draft SEA will be included in an appendix and responded to in the~~. The Revised Draft SEA was ~~has been~~ released for a 45-day public review and comment period from September 27, 2018 to November 13, 2018~~ at 5:00 pm.~~ and n~~N~~o ~~C~~comment letters were received~~during the new public comment period of September 27, 2018 to November 13, 2018 relative to the analysis presented in the Revised Draft SEA.~~

The September 2008 Final EA for Rule 1146, the September 2008 Final EA for Rule 1146.1, the May 2006 Final EA for Rule 1146.2, and the March 2017 Final Program EIR for the 2016 AQMP upon which this SEA relies, are available from the SCAQMD's website at:

> September 2008 Final EA for Rule 1146: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2008/final-environmental-assessment-for-proposed-amended-rule-1146.pdf
>
> September 2008 Final EA for Rule 1146.1: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2008/final-environmental-assessment-for-proposed-amended-rule-1146-1.pdf
>
> May 2006 Final EA for Rule 1146.2: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2006/final-ea-for-proposed-amended-rule-1146-2.doc
>
> March 2017 Final Program EIR for the 2016 AQMP: http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/scaqmd-projects---year-2017

The above documents may also be obtained by visiting the Public Information Center at SCAQMD Headquarters located at 21865 Copley Drive, Diamond Bar, CA 91765; or by contacting Fabian Wesson, Public Advisor by phone at (909) 396-2039 or by email at PICrequests@aqmd.gov.

Subsequent to the release of the Revised Draft SEA for public review and comment, minor modifications were made to PARs 1146 series and PR 1100 and some of the revisions were made in response to verbal and written comments received ruing the rule development process. The minor modifications include: 1) the addition, revision, and removal of definitions for clarification; 2) rewording and renumbering of rule language; 3) quarterly source testing of the ammonia emissions limit for new or modified air pollution control devices using ammonia instead of annual source testing (if a facility demonstrates compliance with four consecutive quarterly source tests, the facility can source test annually); and 4) allowing units at municipal sanitation service facilities to maintain existing NOx emission limits until a Regulation XI rule is adopted or amended.

Staff has reviewed the modifications to PARs 1146 series and PR 1100 and concluded that 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 Revised Draft SEA. The Revised Draft SEA concluded significant adverse hazards and hazardous materials impacts for the storage and use of aqueous ammonia and the revisions to PARs 1146 series and PR 1100 in response to verbal or written comments from the rule

development process would not create new/additional or avoidable significant effects or make the aforementioned hazards and hazardous materials impacts worse. As a result, these minor revisions do not require recirculation of the Revised Draft SEA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Revised Draft SEA has been revised to include the aforementioned modifications such that is now the Final SEA for PARs 1146 series and PR 1100.

Prior to making a decision on the adoption of PARs 1146 series and PR 1100, the SCAQMD Governing Board must review, consider, and certify the Final SEA, including responses to comments, as providing adequate information on the potential adverse environmental impacts that may occur as a result of adopting PARs 1146 series and PR 1100.

PREVIOUS CEQA DOCUMENTATION

This Final ~~Revised Draft~~ SEA is a comprehensive environmental document that analyzes potential environmental impacts from PARs 1146 series and PR 1100. SCAQMD rules, as ongoing regulatory programs, have the potential to be revised over time due to a variety of factors (e.g., regulatory decisions by other agencies, new data, and lack of progress in advancing the effectiveness of control technologies to comply with requirements in technology forcing rules, etc.). Rule 1146 was adopted in September 1988 and amended in January 1989, May 1994, June 2000, November 2000, September 2008, and November 2013. Rule 1146.1 was adopted in October 1990 and was amended July 1992, May 1994, September 2008, and November 2013. Rule 1146.2 was adopted January 1998 and amended January 2005 and May 2006. Several previous environmental analyses have been prepared that analyzed the past amendments to Rule 1146, 1146.1, and 1146.2. Also, the 2016 AQMP was adopted in March 2017 and an environmental analysis for the entire 2016 AQMP, including control measure CMB-05, was addressed in the March 2017 Final Program EIR. However, because PR 1100 is a new rule, there is no previous CEQA documentation available; but PR 1100 is integrally related to the PARs 1146 series, since PR 1100 simply specifies an implementation schedule for the PARs 1146 and 1146.1 ~~series~~.

The following summarizes the contents of the CEQA documents prepared for previous versions of Rules 1146, 1146.1, and 1146.2 and for the 2016 AQMP in reverse chronological order and are included for informational purposes. For the CEQA documents that were prepared after January 1, 2000, a link for downloading files from the SCAQMD's website is provided immediately following the summaries. In addition, hardcopies of these CEQA documents can be obtained by submitting a Public Records Act request to the SCAQMD's Public Records Unit.

Final Program Environmental Impact Report for the 2016 Air Quality Management Plan; March 2017 (2016071006): The 2016 AQMP identified control measures and strategies to bring the region into attainment with the revoked 1997 8-hour NAAQS (standard) (80 ppb) for ozone by 2024; the 2008 8-hour ozone standard (75 ppb) by 2032; the 2012 annual PM2.5 standard (12 $\mu g/m^3$) by 2025; the 2006 24-hour PM2.5 standard (35 $\mu g/m^3$) by 2019; and the revoked 1979 1-hour ozone standard (120 ppb) by 2023. The 2016 AQMP consists of three components: 1) the SCAQMD's Stationary, Area, and Mobile Source Control Measures; 2) State and Federal Control Measures provided by the California Air Resources Board; and 3) Regional Transportation Strategy and Control Measures provided by the Southern California Association of Governments. The 2016 AQMP includes emission inventories and control measures for stationary, area and mobile sources, the most current air quality setting, updated growth projections, new modeling techniques, demonstrations of compliance with state and federal Clean Air Act requirements, and an implementation schedule for adoption of the proposed control strategy. A Final Program EIR

was prepared for the project which identified potential adverse impacts that may result from implementing the project for the following environmental topic areas: 1) aesthetics; 2) air quality and GHGs; 3) energy; 4) hazards and hazardous materials; 5) hydrology and water quality; 6) noise; 7) solid and hazardous waste; and 8) transportation and traffic. The analysis concluded that significant and unavoidable adverse environmental impacts from the project are expected to occur after implementing mitigation measures for the following environmental topic areas: 1) aesthetics from increased glare and from the construction and operation of catenary lines and use of bonnet technology for ships; 2) construction air quality and GHGs; 3) energy (due to increased electricity demand); 4) hazards and hazardous materials due to: (a) increased flammability of solvents; (b) storage, accidental release and transportation of ammonia; (c) storage and transportation of liquefied natural gas (LNG); and (d) proximity to schools; 5) hydrology (water demand); 6) construction noise and vibration; 7) solid construction waste and operational waste from vehicle and equipment scrapping; and 8) transportation and traffic during construction and during operation on roadways with catenary lines and at the harbors. Since significant adverse environmental impacts were identified, an alternatives analysis was required by CEQA and prepared. The March 2017 Final Program EIR concluded that the project would have significant and unavoidable adverse environmental impacts even after mitigation measures were identified and applied. As such, mitigation measures were made a condition of the approval of the project and a Mitigation Monitoring and Reporting Plan was adopted. Findings were made and a Statement of Overriding Considerations was prepared and adopted. The SCAQMD Governing Board certified the Final Program EIR and approved the project on March 3, 2017.

Notice of Exemption From CEQA for Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; and, Proposed Amended Rule 1146.1 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; November 2013: The November 2013 amendments to Rule 1146 and 1146.1 addressed a SIP approvability issue that was raised by the U.S. EPA regarding the use of source test data and portable analyzers test results to prove a violation of the emission standard. Also included in the November 2013 amendments were the following minor changes: 1) a clarification that Rules 1146 and 1146.1 do not apply to NOx sources subject to the SCAQMD's Regulation XX – RECLAIM; 2) the identification of certain equipment that are not included under boiler or steam generator category; 3) an enhanced description pertaining to the types of operations that would be subject to Rule 1146; 4) a clarification that low fuel usage equipment are only subject to periodic tune-up requirements; and 5) a prohibition from derating equipment to a level at or below two million British Thermal Units (MMBtu) per hour.

The project was reviewed pursuant to CEQA Guidelines Section 15002(k)(1) and SCAQMD staff concluded that it could be seen with certainty that there was no possibility that the project had the potential to create any significant adverse impacts on the environment. Therefore, the SCAQMD determined that the project was exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) - Review for Exemption. The project was approved on November 1, 2013 and a Notice of Exemption was filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties. This document can be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/notices/notices-of-exemption/2013/par1146noe.pdf.

Final Environmental Assessment for Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; September 2008 (SCH No. 200811127/SCAQMD No. 01308BAR): SCAQMD staff concluded the project would result in significant adverse environmental impacts in the areas of hazards and hazardous materials and air quality. The September 2008 amendments reduced the allowable NOx emission limits for boilers, steam generators and process heaters from 30 parts per million (ppm) to either 12 ppm, nine ppm or five ppm, depending on equipment size and operational characteristics. The September 2008 amendments also added NOx compliance limits for units burning landfill or digester gases at 25 ppm and 15 ppm, respectively. Other changes included: 1) establishing a weighted average formula for dual fueled co-fired units; 2) allowing existing units to be de-rated to no less than two MMBtu per hour per unit; 3) requiring compliance with a 30 ppm NOx limit for low fuel usage equipment by January 1, 2015 or burner replacement, whichever occurs later; 4) allowing a later compliance date for health facilities complying with seismic safety requirements; 5) establishing a staged compliance schedule over a multi-year period which varies by equipment size range and unit operation; 6) making the frequency of compliance testing compatible with sources subject to the RECLAIM program for the same equipment size range; and 7) allowing NOx emissions monitoring with a portable analyzer. The SCAQMD prepared a Draft EA, which identified significant adverse environmental impacts for air quality and hazards and hazardous materials. The Draft EA was released for a 45-day public review and comment period from June 13, 2008 to July 29, 2008 and one comment letter was received. The Final EA, including the comment letter and responses to comments, was certified by the SCAQMD Governing Board on September 5, 2008. Findings were made and a Statement of Overriding Considerations was also adopted for this project. This document can be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2008/final-environmental-assessment-for-proposed-amended-rule-1146.pdf.

Final Environmental Assessment for Proposed Amended Rule 1146.1– Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; September 2008 (SCH No. 2008071014/SCAQMD No. 070108BAR): The September 2008 amendments to Rule 1146.1 further reduced the NOx emission limits, included new NOx limits for atmospheric units to be 12 ppm or 0.015 pound per MMBtu, and units burning landfill or digester gases at 25 ppm and 15 ppm, respectively. The amendments also: 1) established a weighted average formula for dual fueled co-fired units; 2) allowed existing units to be de-rated to no less than two MMBtu per hour per unit; 3) made the frequency of compliance testing compatible with RECLAIM sources for the same equipment size range; 4) allowed for monitoring of NOx and CO emissions with a portable analyzer; 5) for low-fuel usage units, required compliance with a 30 ppm NOx limit by January 1, 2015 or burner replacement, whichever occurs later; 6) allowed thermal fluid heaters to continue compliance with the 30 ppm NOx limits; and 7) allowed a later compliance date for health facilities complying with seismic safety requirements. The SCAQMD prepared a Draft EA, which identified no significant adverse environmental impacts, to evaluate potential adverse impacts from the project. The Draft EA was released for a 30-day public review period from July 2, 2008 to July 31, 2008 and no comments were received. The Final EA was certified by the SCAQMD Governing Board on September 5, 2008. This document can be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2008/final-environmental-assessment-for-proposed-amended-rule-1146-1.pdf.

Final Environmental Assessment for Proposed Amended Rule 1146.2– Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters; May 2006 (SCAQMD No. 032206BAR): The May 2006 amendments to Rule 1146.2 were crafted to partially offset the NOx emission reductions foregone from the previous amendments to Rule 1146.2 that were adopted on January 7, 2005. The amendments required: 1) Type 2 units (equipment with heat input ratings greater than 400,000 Btu per hour) to meet a NOx emission limit of 20 ppm on or after January 1, 2010; and 2) Type 1 units (equipment with a heat input rating equivalent to or less than 400,000 Btu per hour) to meet a NOx emission limit of 20 ppm on or after January 1, 2012. Other changes included: 1) providing more detailed specifications for demonstrating compliance with an existing exemption from retrofit requirements for equipment operating less than 9,000 therms per year; 2) clarifying rule applicability; 3) a specific recordkeeping requirement for larger units; 4) enhancing compliance and enforceability; and 5) improving clarity. The SCAQMD prepared a Draft EA, which identified no significant adverse environmental impacts, to evaluate potential adverse impacts from the project. The Draft EA was released for a 30-day public review period from March 23, 2006 to April 21, 2006 and no comments were received. The Final EA was certified by the SCAQMD Governing Board on May 5, 2006. This document can be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2006/final-ea-for-proposed-amended-rule-1146-2.doc.

Final Environmental Assessment for Proposed Amended Rule 1146.2– Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters; January 2005 (SCAQMD No. 120104KCS): The January 2005 amendments to Rule 1146.2 extended the compliance date from January 1, 2005 to January 1, 2006 for existing units with a rated heat input greater than one MMBtu per hour but less than or equal to two MMBtu per hour manufactured on or after January 1, 1992. Specifically, on or after January 1, 2006, no person would be allowed to operate any existing unit with a rated heat input greater than one MMBtu per hour but less than or equal to two MMBtu per hour more than 15 years old based on the date of manufacture, unless the certified NOx emissions are less than or equal to 30 ppm. Further, on or after January 1, 2006, no person would be allowed operate in the District any unit more than 15 years old, based on the original date of manufacture with a rated heat input greater than 400,000 Btu per hour, but less than or equal to one MMBtu per hour manufactured prior to January 1, 2000 unless the certified NOx emissions are less than or equal to 30 ppm.

The SCAQMD prepared a Draft EA, which identified significant adverse environmental impacts for air quality, to evaluate potential adverse impacts from the project. The Draft EA was released for a 45-day public review period from October 8, 2004 to November 23, 2004 and one comment letter was received. The Final EA, including the comment letter and responses to comments, was certified by the SCAQMD Governing Board on January 7, 2005. Findings were made and a Statement of Overriding Considerations was also adopted for this project. This document can be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2005/fea-1146/fea_1146.pdf.

Notice of Exemption From CEQA for Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; November 2000: The November 2000 amendments to Rule 1146: 1) reduced the emission limit for gaseous fueled units to 30 ppm NOx; 2) reduced the emission limit for dual-fueled units to 30 ppm NOx or an average of 30 ppm to 40 ppm NOx weighted by fuel use; and 3) added annual emissions testing requirements and require totalizing fuel meters on all dual-fueled

units where operators elect to meet the fuel-weighted average. An air quality benefit of approximately 90 tons per year of NOx was estimated to result from implementation of the November 2000 amendments.

The project was reviewed pursuant to CEQA Guidelines Section 15002(k)(1). Because no substantial physical change to the existing setting was anticipated and no additional secondary control was required, the SCAQMD concluded that it could be seen with certainty that there was no possibility that the project had the potential to create any significant adverse impacts on the environment. Therefore, the SCAQMD determined that the project was exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) - Review for Exemption. The project was approved on November 17, 2000 and a Notice of Exemption was filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties. This document can also be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/notices/notices-of-exemption/2000/noe-rule-1146.doc.

Final Environmental Assessment for Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; June 2000 (SCAQMD No. 000502MK): The SCAQMD prepared a Draft EA, which identified no significant adverse environmental impacts, to evaluate potential adverse impacts from the proposed amendment to Rule 1146. The Draft EA was released for a 30-day public review period from May 1, 2000 to May 31, 2000 and no comments were received. The Final EA was certified by the SCAQMD Governing Board on June 16, 2000. This document can be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2000/final-ea-for-proposed-amended-rule-1146---emissions-of-oxides-of-nitrogen-from-industrial-institutional-and-commercial-boilers-steam-generators-and-process-heaters.doc.

Notice of Exemption From CEQA for Proposed Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters; January 1998: The adoption of Rule 1146.2 established NOx emission limits for water heaters and small boilers with a rated heat input between 75,000 and two MMBtu per hour. Rule 1146.2 was estimated to reduce NOx emissions by nine tons per day. Rule 1146.2 was reviewed pursuant to CEQA Guidelines Section 15061(b)(3) and SCAQMD staff determined that the project would not have any significant adverse impacts to the environment. The project was approved on January 9, 1998 and a Notice of Exemption was filed with the country clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

Notice of Exemption From CEQA for Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; May 1994: The May 1994 amendments to Rule 1146: 1) added a tune-up procedure for natural draft boilers; 2) added a provision to allow permit owners and operators to tune their equipment once per year, instead of twice per year, provided that the equipment is used for six continuous months or less per year; 3) added a provision to exempt units from tune-up requirements provided that they are not in use during the entire calendar year; 4) deleted the Alternate Emission Control Plan (AECP) provision since rule compliance dates have expired; and 5) extended the applicability of the rule to include solid fuels.

The project was reviewed pursuant to CEQA Guidelines Section 15061(b)(3) and SCAQMD staff determined that the project would not have any significant adverse impacts on the environment.

Further, SCAQMD staff also determined the project to be categorically exempt from CEQA pursuant to CEQA Guidelines Section 15308 – Actions by Regulatory Agencies for Protection of the Environment and CEQA Guidelines Section 15321 – Enforcement Actions by Regulatory Agencies. The project was approved on May 13, 1994 and a Notice of Exemption was filed with the country clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

Notice of Exemption From CEQA for Proposed Amended Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; May 1994: The May 1994 amendments to Rule 1146.1: 1) added a tune-up procedure for natural draft boilers; 2) added a provision to exempt units from tune-up requirements provided that they are not in use during the entire calendar year; and 3) extended the applicability of the rule to include solid fuels.

The project was reviewed pursuant to CEQA Guidelines Section 15061(b)(3) and SCAQMD staff determined that the project would not have any significant adverse impacts on the environment. Further, SCAQMD staff determined the project to be categorically exempt from CEQA pursuant to CEQA Guidelines Section 15308 – Actions by Regulatory Agencies for Protection of the Environment and CEQA Guidelines Section 15321 – Enforcement Actions by Regulatory Agencies. The project was approved on May 13, 1994 and a Notice of Exemption was filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

Notice of Exemption From CEQA for Proposed Amended Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; July 1992: The July 1992 amendments to Rule 1146.1: 1) specified test methods; 2) required written approval of alternative test methods by the California Air Resources Board (CARB) and U.S. EPA; 3) provided a method to convert NOx concentrations to pounds of NOx per MMBtus, 4) limited the exemption period during startups and shutdowns to a maximum of six hours; and 5) clarified rule requirements.

The project was reviewed pursuant to District CEQA Guidelines Section 15061(b)(3) and SCAQMD staff determined that the project would not have any significant adverse impacts on the environment. The project was approved on July 10, 1992 and a Notice of Exemption was filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

Notice of Exemption From CEQA for Proposed Amended Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; October 1990: The October 1990 amendments to Rule 1146.1 established limits on NOx emissions from small industrial, institutional, and commercial boilers, steam generators, and process heaters with greater than two, but less than five MMBtu per hour heat input capacity. A "Notice of Intent to File a Determination of No Significant Impacts" (Determination), including the "Initial Study", was prepared in accordance with state and District CEQA Guidelines. SCAQMD staff determined that no potentially significant impacts to the environment would occur as a result of implementing the project. The Determination was circulated for public review from August 22, 1990 through September 11, 1990 and no comments were received.

Final Supplemental Environmental Impact Report: Proposed Amended Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; January 1989 (SCH No. 87110404): Pursuant to CEQA, the SCAQMD prepared a Draft Supplemental Environmental Impact Report (SEIR) for the January 1989 amendments to Rule 1146. The Draft SEIR was a supplement to the March 1988 Final EIR prepared for Rule 1146 (SCH No. 87110404) and was circulated for a 45-day public review and comment period. Findings were made and a Statement of Overriding Considerations was adopted for the project. The Final SEIR was certified by the SCAQMD Governing Board on January 6, 1989.

Final Environmental Impact Report for Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; September 1988 (SCH No. 87110404): Pursuant to CEQA, the SCAQMD prepared a Draft Environmental Impact Report (EIR) for the September 1988 adoption of Rule 1146. The Draft EIR for Rule 1146 and was circulated for a 45-day public review. Findings were made and a Statement of Overriding Considerations was adopted for the project. The Final EIR was certified by the SCAQMD Governing Board on September 9, 1988.

INTENDED USES OF THIS DOCUMENT

In general, a CEQA document is an informational document that informs a public agency's decision-makers and the public generally of potentially significant adverse environmental effects of a project, identifies possible ways to avoid or minimize the significant effects, and describes reasonable alternatives to the project (CEQA Guidelines Section 15121). A public agency's decision-makers must consider the information in a CEQA document prior to making a decision on the project. Accordingly, this Final ~~Revised Draft~~ SEA is intended to: a) provide the SCAQMD Governing Board and the public with information on the environmental effects of the proposed project; and b) be used as a tool by the SCAQMD Governing Board to facilitate decision-making on the proposed project.

Additionally, CEQA Guidelines Section 15124(d)(1) requires a public agency to identify the following specific types of intended uses of a CEQA document:

1. A list of the agencies that are expected to use the SEA in their decision-making;

2. A list of permits and other approvals required to implement the project; and

3. A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

In addition to the SCAQMD's Governing Board which will consider the SEA for PARs 1146 series and PR 1100 in their decision-making, the CARB, a state agency, and the U.S. EPA, a federal agency, will be reviewing PARs 1146 series and PR 1100 and all supporting documents, including the SEA, as part of the process for considering the inclusion of PARs 1146 series and PR 1100 into the SIP. Moreover, PARs 1146 series and PR 1100 is not subject to any other related environmental review or consultation requirements.

To the extent that local public agencies, such as cities, county planning commissions, et cetera, are responsible for making land use and planning decisions related to projects that must comply with the requirements in PARs 1146 series and PR 1100, they could possibly rely on this SEA during

their decision-making process. Similarly, other single purpose public agencies approving projects that utilize compliant equipment subject to PARs 1146 series and PR 1100 may rely on this SEA.

AREAS OF CONTROVERSY

CEQA Guidelines Section 15123(b)(2) requires a public agency to identify the areas of controversy in the CEQA document, including issues raised by agencies and the public. Over the course of developing the proposed project, concerns regarding PARs 1146 series and PR 1100 were expressed by representatives of industry and environmental groups, either in public meetings or in written comments, which are highlighted in Table 1-1.

Table 1-1
Areas of Controversy

Areas of Controversy	Topics Raised by the Public	SCAQMD Evaluation
New Source Review (NSR)	NSR issues related to the transition of RECLAIM facilities before BARCT rules are adopted or amended	Some industry stakeholders have requested that rulemaking with BARCT rule amendments should be suspended until NSR issues have been resolved. Staff believes that rulemaking should proceed while NSR issues are being addressed. State law (AB 617) requires implementation of BARCT for facilities in the state greenhouse gas cap and trade program by December 31, 2023. In addition, RECLAIM facilities will be able to begin implementing BARCT requirements while still in the RECLAIM program. Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) was amended on October 5, 2018 to provide an option for RECLAIM facilities to remain in the RECLAIM program, until future provisions in Regulation XIII – New Source Review pertaining to RECLAIM are adopted. If an NSR event is triggered while the facilities elected to remain in RECLAIM, the facility will be subject to NSR provisions under Rule 2005 – New Source Review for RECLAIM.
Availability of Burner Retrofits	Availability of burner retrofits that can achieve a NOx limit of seven ppm	Some industry stakeholders have commented on the limited availability for ultra-low NOx burner retrofits that will be able to meet the proposed seven ppm NOx concentration limit. Staff has confirmed that three equipment vendors have burner retrofits that can achieve seven ppm. 708 units within the San Joaquin Valley Air Pollution Control District (SJVAPCD) are currently meeting a seven ppm NOx emission limit. Staff has also reviewed over 2,400 source test results from both SCAQMD and SJVAPCD to evaluate the feasibility of seven ppm BARCT.
Cost of Burner Retrofits	Cost associated with seven ppm burner retrofits (higher than staff estimates)	Some industry stakeholders have commented that the price quotations obtained from vendors for burner retrofits are higher than those of staff estimates. Staff's cost estimates are averages provided by five equipment vendors based on conventional equipment and standard installations. Facilities might experience higher than average costs if operators decide to stay with one specific vendor or retrofitting highly specialized units that would require specific engineering.

~~Compliance Dates~~	~~RECLAIM facility stakeholders raised concerns over the ability to comply with the proposed compliance dates in PARs 1146 series.~~	~~SCAQMD proposes a tiered approach to the compliance dates (75 percent compliance by January 1, 2021 and 100 percent compliance by January 1, 2022 or by January 1, 2023 for replacement units) to lessen the financial impact to businesses and consumers. In addition, units that are subject to Rules 1146 and 1146.1 have been grouped together in the compliance schedule to allow facilities to decide which units they can demonstrate compliance with by earlier (January 1, 2021). Thus, providing them more flexibility for demonstrating compliance. SCAQMD is proposing to extend the compliance date to submit a complete permit application by 12 months after the date of rule adoption. In addition, certain units will be allowed 15 years after the date of rule adoption or during burner replacement to meet the applicable NOx emissions limit.~~
~~New Source Review (NSR)~~	~~The availability of Emission Reduction Credits (ERCs) for NSR events~~	~~RECLAIM Facilities with a Potential to Emit (PTE) of less than four tons per year will have access to the SCAQMD's internal bank for any projects that require offsets under Regulation XIII – NSR. The NSR issues will be resolved for facilities with a PTE greater than or equal to four tons per year. For this reason, PARs 1146 series and PR 1100 will only allow facilities with a PTE of less than four tons per year to exit the RECLAIM program. Staff acknowledges that rulemaking regarding the transition has many complexities. However, staff has found it necessary to continue with the approach of amending command-and-control NOx rules concurrently with addressing NSR issues. The reason for this approach is to avoid delay in adopting implementation schedules for BARCT to give facilities adequate time to comply with command-and-control NOx emission limits. Resolving NSR is a significant issue as it requires involvement and approval from U.S. EPA. In the interim, facilities have two options. A facility that receives an initial determination notification can remain in RECLAIM and if there are emission increases that would trigger a New Source Review event, the facility would comply with RECLAIM NSR. Staff is committed to not exit facilities until the NSR issues are resolved. If however, a facility elects to exit before NSR issues are resolved if they had an emissions increase that would trigger a New Source Review event, the facility would need to purchase offsets in the open market.~~
~~Monitoring, Reporting and Recordkeeping (MRR) Requirements for Title V Facilities~~	~~The timeline for potentially eliminating some RECLAIM-specific MRR requirements~~	~~For Title V facilities, the U.S. EPA public review process is triggered by modifications on monitoring and recordkeeping requirements. The SCAQMD is committed to re-evaluate monitoring and recordkeeping requirements for Title V facilities. Staff is recommending that Title V facilities will maintain existing monitoring and recordkeeping requirements while the transition process proceeds.~~

Pursuant to CEQA Guidelines Section 15131(a), "[e]conomic or social effects of a project shall not be treated as significant effects on the environment." CEQA Guidelines Section 15131(b) states further, "[e]conomic or social effects of a project may be used to determine the significance of physical changes caused by the project." Physical changes that may be caused by PARs 1146

series and PR 1100 have been evaluated in Chapter 4 of this ~~Revised Draft~~ Final SEA. No direct or indirect physical changes resulting from economic or social effects have been identified as a result of implementing PARs 1146 series and PR 1100.

To date, no other controversial issues relevant to the CEQA analysis were raised as a part of developing the proposed project.

EXECUTIVE SUMMARY

CEQA Guidelines Section 15123 requires a CEQA document to include a brief summary of the proposed actions and their consequences. In addition, areas of controversy must also be included in the executive summary (see preceding discussion). This ~~Revised Draft~~Final SEA consists of the following chapters: Chapter 1 – Executive Summary; Chapter 2 – Project Description; Chapter 3 – Existing Setting, Chapter 4 – Potential Environmental Impacts and Mitigation Measures; Chapter 5 – Project Alternatives; and various appendices. The following subsections briefly summarize the contents of each chapter.

Summary of Chapter 1 – Executive Summary

Chapter 1 includes an introduction of the proposed project and a discussion of the legislative authority that allows the SCAQMD to amend and adopt air pollution control rules, identifies general CEQA requirements and the intended uses of this CEQA document, and summarizes the remaining four chapters that comprise this SEA.

Summary of Chapter 2 - Project Description

SCAQMD staff has been directed by the Governing Board to begin the process of transitioning equipment at facilities that are currently subject to facility permit requirements per SCAQMD Regulation XX – RECLAIM for NOx to instead be subject to an equipment-based command-and-control regulatory structure per SCAQMD Regulation XI. As such, SCAQMD staff has begun this process by proposing amendments to Rules 1146, 1146.1, and 1146.2 (e.g., PARs 1146 series) and to adopt PR 1100. PARs 1146 series and PR 1100 reflects the proposed project which is a culmination of recommendations made throughout the public engagement process including seven ~~six~~three working group meetings held at SCAQMD headquarters in Diamond Bar on November 30, 2017, January 16, 2018, ~~and~~ March 7, 2018, April 12, 2018, August 2, 2018, ~~and~~ August 29, 2018, and October 16, 2018. The working group is composed of representatives from the manufacturers, trade organizations, permit stakeholders, businesses, environmental groups, public agencies, consultants, and other interested parties. In addition, staff also discussed concepts for PARs 1146 series and PR 1100 at the RECLAIM working group meetings held on July 13, 2017, September 14, 2017, October 12, 2017, January 11, 2018, February 8, 2018, ~~and~~ March 8, 2018, April 12, 2018, June 14, 2018, July 12, 2018, and September 13, 2018. A Public Workshop and CEQA Scoping Meeting was held February 14, 2018. After changes were made to the proposed project evaluated in the original Draft SEA, another Public Workshop was held on September 20, 2018. PARs 1146 series and PR 1100 would require equipment at RECLAIM facilities that are not subject to a Regulation XI rule to meet current NOx emission limits and demonstrate BARCT NOx emissions equivalency, and transition from RECLAIM to an equipment-based command-and-control regulatory structure. PARs 1146 series would: 1) expand the applicability to include units at NOx RECLAIM facilities; 2) require RECLAIM facilities to submit a permit application for each unit that does not currently meet the NOx concentration limits in Rules 1146 and 1146.1; 3) extend the compliance date for RECLAIM facilities replacing Rule 1146 or 1146.1 units and

require a permit application submittal for unit(s) being replaced; 4) require RECLAIM facilities with Rule 1146.2 units to meet applicable NOx emission limits by December 31, 2023, unless a more stringent BARCT limit is subsequently adopted; 5) limit ammonia emissions on new or modified units with applicable air pollution control equipment and require quarterly ~~annual~~ ammonia source testing (if four consecutive quarterly source tests demonstrate compliance, an annual source test may be conducted); ~~and~~ 6) require certain units at non-RECLAIM facilities to meet new NOx emission limits according to the compliance schedules specified in Rules 1146 and 1146.1; and 7) allow units at municipal sanitation service facilities to maintain existing NOx emission limits until a Regulation XI rule is adopted or amended. PR 1100 is an administrative rule which establishes the compliance schedule for RECLAIM facilities with Rule 1146 and/or 1146.1 units. ~~1) expand the applicability to include units that were not previously required to comply with Rules 1146 and 1146.1 because they were in the NOx RECLAIM program; 2) require RECLAIM facilities to submit a permit application within 12 months of the date of rule adoption for each unit that does not currently meet the NOx concentration limits in Rules 1146 and/or 1146.1; 3) require the affected equipment to meet the applicable NOx concentration limit for all Rule 1146 and Rule 1146.1 units for a minimum of 75 percent of the total heat input by January 1, 2021 and 100 percent of the total heat input by January 1, 2022; 4) require RECLAIM facilities replacing Rule 1146 or Rule 1146.1 units to notify the Executive Officer which unit(s) will be replaced; and 5) require RECLAIM facilities with Rule 1146.2 units to meet NOx emission limits by December 31, 2023 if a more stringent BARCT limit is not applicable. PR 1100 is an administrative rule which establishes the compliance schedule for facilities exiting the RECLAIM program and allows facilities with Rule 1146/1146.1 units until January 1, 2022 to retrofit all existing units and until January 1, 2023 to replace any existing units, upon notification to the Executive Officer.~~ Implementation of the proposed project is estimated to reduce NOx emissions by 0.20 ton per day by January 1, 2021 and ~~0.23~~ 0.27 ton per day by January 1, 2023. Other minor changes are also proposed for clarity and consistency throughout the rules. The analysis of the proposed project in the Revised Draft SEA indicated that while reducing NOx emissions is an environmental benefit, potentially secondary significant adverse environmental impacts ~~are~~ were also expected for the topic areas of air quality and hazards and hazardous materials. However, after the analysis was completed, only the topic of hazards and hazardous materials for the storage and use of aqueous ammonia was concluded in the Final SEA to have potentially significant adverse impacts.

A copy of PARs 1146, 1146.1, and 1146.2, and PR 1100 can be found in Appendix A of this ~~Revised Draft~~Final SEA.

Summary of Chapter 3 - Existing Setting

Pursuant to the CEQA Guidelines Section 15125, Chapter 3 – Existing Setting includes a description of the environmental topics areas as being potentially adversely affected by the proposed project. As previously explained, the proposed project is a revision to the previously approved projects that were analyzed in the September 2008 Final EAs for Rules 1146 and 1146.1 and May 2006 Final EA for Rule 1146.2. The September 2008 Final EA for Rule 1146 concluded that significant adverse air quality and hazards and hazardous materials impacts would occur. However, all other environmental topic areas analyzed in the September 2008 Final EA for Rule 1146 were shown to have less than significant or no significant impacts. Both the September 2008 Final EA for Rule 1146.1 and the May 2006 Final EA for Rule 1146.2 concluded that no significant adverse environmental impacts would occur not from the respective projects. Since the analysis of the proposed project in the Revised Draft SEA initially indicated~~s~~ that additional potentially

significant adverse air quality and hazards and hazardous materials impacts will occur, the focus of the analysis in ~~this~~ the Revised Draft SEA ~~is~~ was limited to the environmental topics of air quality and hazards and hazardous materials. The following discussion briefly highlights the existing setting for the topics of air quality and hazards and hazardous materials.

Air Quality

Air quality in the area of the SCAQMD's jurisdiction has shown substantial improvement over the last two decades. Nevertheless, some federal and state air quality standards are still exceeded frequently and by a wide margin. Of the NAAQS established for seven criteria pollutants (ozone, lead, sulfur dioxide, nitrogen dioxide, carbon monoxide, PM10 and PM2.5), the area within the SCAQMD's jurisdiction is only in attainment with the NAAQS for carbon monoxide, sulfur dioxide, and nitrogen dioxide. Chapter 3 provides a brief description of the existing air quality setting for each criteria pollutant, as well as the human health effects resulting from exposure to each criteria pollutant.

Hazards and Hazardous Materials

The 2016 AQMP contains control measures intended to improve overall air quality; however, the implementation of some control measures, such as CMB-05, may result in adverse hazards and hazardous materials impacts, either directly or indirectly. Hazard concerns are related to the potential for fires, explosions or the release of hazardous materials/substances in the event of an accident or upset conditions. The potential for hazards exist in the production, use, storage, and transportation of hazardous materials. Hazardous materials may be found at industrial production and processing facilities. Some facilities produce hazardous materials as their end product, while others use such materials as an input to their production process. Examples of hazardous materials used as consumer products include gasoline, solvents, and coatings/paints. Hazardous materials are stored at facilities that produce such materials and at facilities where hazardous materials are a part of the production process. Specifically, storage refers to the bulk handling of hazardous materials before and after they are transported to the general geographical area of use. Currently, hazardous materials are transported throughout the Basin in large quantities via all modes of transportation including rail, highway, water, air, and pipeline. Incidents of harm to human health and the environment associated with hazardous materials have created a public awareness of the potential for adverse effects from careless handling and/or use of these substances. As a result, a number of federal, state, and local laws have been enacted to regulate the use, storage, transportation, and management of hazardous materials and wastes. Chapter 3 discusses the existing hazards and hazardous materials setting.

Summary of Chapter 4 - Environmental Impacts

CEQA Guidelines Section 15126(a) requires a CEQA document to identify and focus on the "significant environmental effects of the proposed project." Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. In addition, CEQA Guidelines Section 15126(b) requires a CEQA document to identify the significant environmental effects that cannot be avoided if the proposed project is implemented. CEQA Guidelines Section 15126(c) also requires a CEQA document to consider and discuss the significant irreversible environmental changes that would be involved if the proposed project is implemented. Further, CEQA Guidelines Section 15126(e) requires a CEQA document to consider and discuss mitigation measures proposed to minimize the significant effects. Finally, CEQA Guidelines Section 15130 requires a CEQA document to discuss whether the proposed project has cumulative impacts. Chapter 4

considers and discusses each of these requirements.

Potential Environmental Impacts Found To Be Significant

Air quality from construction activities and hazards and hazardous materials ~~are~~ were the only environmental topic areas that have been identified in ~~this~~ the Revised Draft SEA as having potentially significant adverse impacts if the proposed project is implemented. However, after the analysis was completed, only the topic of hazards and hazardous materials for the storage and use of aqueous ammonia was concluded in the Final SEA to have potentially significant adverse impacts. These environmental topic areas are analyzed in Chapter 4.

Potential Environmental Impacts Found Not To Be Significant

Because this SEA is a subsequent CEQA document to the September 2008 Final EAs for Rules 1146 and 1146.1, the May 2006 Final EA for Rule 1146.2, and the March 2017 Final Program EIR for the 2016 AQMP, this SEA relies on the conclusions reached in these documents as evidence for environmental areas where impacts were found not to be significant. All of these previous CEQA documents reviewed approximately 17 environmental topic areas and analyzed whether the respective projects would create potentially significant adverse impacts. While the analyses in the September 2008 Final EA for 1146.1 and May 2006 Final EA for Rule 1146.2 identified no significant adverse environmental impacts for any environmental topic area, the analysis in the September 2008 Final EA for Rule 1146 identified two environmental topic areas as having significant adverse environmental impacts: 1) air quality; and 2) hazards and hazardous materials.

Also, the analysis in the March 2017 Final Program EIR for the 2016 AQMP concluded that significant and unavoidable adverse environmental impacts from the project are expected to occur after implementing mitigation measures for the following environmental topic areas: 1) aesthetics from increased glare and from the construction and operation of catenary lines and use of bonnet technology for ships; 2) construction air quality and GHGs; 3) energy (due to increased electricity demand); 4) hazards and hazardous materials due to: (a) increased flammability of solvents; (b) storage, accidental release and transportation of ammonia; (c) storage and transportation of liquefied natural gas (LNG); and (d) proximity to schools; 5) hydrology (water demand); 6) construction noise and vibration; 7) solid construction waste and operational waste from vehicle and equipment scrapping; and, 8) transportation and traffic during construction and during operation on roadways with catenary lines and at the harbors. It is important to note, however, that for these environmental topic areas, not all of the conclusions of significance are applicable to this currently proposed project, PARs 1146 series and PR 1100. Please see Chapter 4, Table 4-14, for a summary of the significant and unavoidable adverse environmental impacts identified in the March 2017 Final Program EIR and which ones apply to the proposed project.

PAR 1146 is expected to have: 1) significant effects that were not discussed in the previous September 2008 Final EA for Rule 1146 and March 2017 Final Program EIR for the 2016 AQMP (CEQA Guidelines Section 15162(a)(3)(A)); and 2) significant effects that were previously examined that will be substantially more severe than what was discussed in the September 2008 Final EA for Rule 1146 and the March 2017 Final Program EIR for the 2016 AQMP (CEQA Guidelines Section 15162(a)(3)(B)). Similarly, PAR 1146.1 is also expected to have significant effects that were not discussed in the previous September 2008 Final EA for Rule 1146.1 and March 2017 Final Program EIR for the 2016 AQMP (CEQA Guidelines Section 15162(a)(3)(A)). However, PAR 1146.2 is not expected to create new significant effects that were not discussed in

the previous May 2006 Final EA for Rule 1146.2 and the March 2017 Final Program EIR for the 2016 AQMP.

By preparing a SEA for the proposed project, since the topics of air quality and hazards and hazardous materials are the only environmental topic areas that would be affected by PARs 1146 series and PR 1100, no other environmental topic areas have been evaluated in this SEA.

Thus, the conclusions reached in this ~~Revised Draft~~ Final SEA are consistent with the conclusions reached in the previously certified CEQA documents (e.g., the September 2008 Final EAs for Rules 1146 and 1146.1, the May 2006 Final EA for Rule 1146.2, and the March 2017 Final Program EIR for the 2016 AQMP) that aside from the topic~~s~~ of ~~air quality during construction and~~ hazards and hazardous materials, there would be no other significant adverse effects from the implementation of the proposed project. Thus, the proposed project would have no significant or less than significant direct or indirect adverse effects on the following environmental topic areas:

- aesthetics
- air quality and greenhouse gases ~~during operation~~
- agriculture and forestry resources
- biological resources
- cultural resources
- energy
- geology and soils
- hydrology and water quality
- land use and planning
- mineral resources
- noise
- population and housing
- public services
- recreation
- solid and hazardous waste
- transportation and traffic

The September 2008 Final EAs for Rules 1146 and 1146.1, the May 2006 Final EA for Rule 1146.2, and the March 2017 Final Program EIR for the 2016 AQMP can be found using the links referenced in Chapter 2.

Other CEQA Topics

CEQA documents are also required to consider and discuss the potential for growth-inducing impacts (CEQA Guidelines Section 15126(d)) and to explain and make findings about the project's relationship between short-term and long-term environmental goals. (CEQA Guidelines Section 15065(a)(2).) Additional analysis confirms that the proposed project would not result in irreversible environmental changes or the irretrievable commitment of resources, foster economic

or population growth or the construction of additional housing. Further, implementation of the proposed project is not expected to achieve short-term goals to the disadvantage of long-term environmental goals.

Summary Chapter 5 - Alternatives

CEQA Guidelines Section 15126(e) requires a CEQA document to consider and discuss alternatives to the proposed project. Five alternatives to the proposed project are summarized in Table 1-2: 1) Alternative A - No Project; 2) Alternative B - Compliance Deadline Extension; 3) Alternative C - 100% of Units by January 1, 2021; 4) Alternative D - All Ultra-Low NOx Burners; and 5) Alternative E ~~–~~ NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits ~~Lowering Limit for ≥ 40 and < 75 MMBtu/hr~~. Table 1-3 shows the emission factors relevant to Rules 1146 and 1146.1, which have been extracted from Rule 2002 - Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) Emission Factor Table 1 and 3. Air quality from construction activities and hazards and hazardous materials were the only environmental topic areas that were identified in the Revised Draft SEA as having potentially significant adverse impacts if the proposed project is implemented. Pursuant to the requirements in CEQA Guidelines Section 15126.6(b) to mitigate or avoid the significant effects that a project may have on the environment, a comparison of the potentially significant adverse impacts from air quality and hazards and hazardous materials from each of the project alternatives for the individual rule components that comprise the proposed project is provided in Table 1-4. Aside from potentially significant adverse impacts to air quality during construction and hazards and hazardous materials from the catastrophic failure of an aqueous ammonia tank, no other potentially significant adverse impacts were identified for the proposed project or any of the project alternatives. However, after the analysis was completed, within the proximity of sensitive receptors only the topic of hazards and hazardous materials for the storage and use of aqueous ammonia was concluded in the Final SEA to have potentially significant adverse impacts.

The proposed project is considered to provide the best balance between achieving NOx emission reductions and the secondary adverse environmental impacts that may occur due to activities associated with construction and the storage of hazardous materials associated with operating air pollution control equipment (e.g., SCR systems) while meeting the overall objectives of the project. Therefore, the proposed project is preferred over the project alternatives.

Table 1-2
Summary of the Proposed Project and Alternatives

Rule No.	Group No.	Heat Input or Equipment Type	Fuel Type	Proposed Project (for NOx RECLAIM facilities transitioning to command-and-control regulatory structure)		Alternative A: No Project	Alternative B: Compliance Deadline Extension	Alternative C: 100% of units by January 1, 2021
1146	-	≥ 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.036 lb/MMBtu	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2021 and 100% by January 1, 2022, unless unit replacement by January 1, 2023 **(If the unit is located at a non-RECLAIM facility compliance can be deferred until burner replacement or within 15 years of the date of rule adoption, whichever is earlier, unless the unit is a thermal fluid heater currently permitted at >20 ppm (these units must meet 12 ppm by January 1, 2022))*	See Rule 2002 Emission Factor, Table 1 and 3** *(Only emission factors relevant to Rules 1146 and 1146.1 have been extracted from Rule 2002 Emission Factors Tables 1 and 3 and are shown in Table 1-3)*	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2022 and 100% by January 1, 2023	100% of units by January 1, 2021
1146	-	≥ 5 MMBtu/hr	Non-Gaseous Fuels	40 ppm				
1146	-	≥ 5 MMBtu/hr	Landfill Gas	25 ppm				
1146	-	≥ 5 MMBtu/hr	Digester Gas	15 ppm				
1146	I	≥ 75 MMBtu/hr (excluding Thermal Fluid Heaters)	Natural Gas	5 ppm or 0.0062 lb/MMBtu				
1146	II	≥ 20 and < 75 MMBtu/hr (All others) with an existing NOx limit >12 ppm (excluding Thermal Fluid Heaters)	Gaseous Fuel (excluding Landfill or Digester Gas)	5 9 ppm or 0.0062 11 lb/MMBtu				
1146	II	≥ 20 and < 75 MMBtu/hr (Fire-tube boilers with an existing NOx limit ≤ 9 12 ppm and >5 ppm)	Gaseous Fuel (excluding Landfill or Digester Gas)	7 ppm or 0.0085 lb/MMBtu				
1146	II	≥ 20 and < 75 MMBtu/hr (All others with a previous NOx limit ≤12 ppm and >5 ppm)	Gaseous Fuel (excluding Landfill or Digester Gas)	9 ppm or 0.011 lb/MMBtu				
1146	III	≥ 5 and < 20 MMBtu/hr (Fire-tube boilers, only excluding units with a previous NOx limit >9 and ≤ 12 ppm) (excluding Thermal Fluid Heaters, but including Units at Schools and Universities rated ≥ 5 MMBtu/hr)	Gaseous Fuel (excluding Landfill or Digester Gas)	7 ppm or 0.0085 lb/MMBtu				
1146	III	≥ 5 and < 20 MMBtu/hr (excluding Fire-tube boilers)	Gaseous Fuel (excluding Landfill or Digester Gas)	9 ppm or 0.011 lb/MMBtu				
1146	III	Atmospheric Unit (≤ 10 MMBtu/hr)	Natural Gas	12 ppm or 0.015 lb/MMBtu				
1146	-	Low Fuel Usage (≤ 90,000 therms/year)	Any Fuel	12 30 ppm, 15 years after the date of rule adoption by January 1, 2022 or when 50 percent or more of the unit's burners are replaced ment, whichever is earlier occurs later				
1146	-	≥ 5 MMBtu/hr Thermal Fluid Heaters	Natural Gas	12 ppm or 0.015 lb/MMBtu				

Table 1-2: Summary of the Proposed Project and Alternatives (continued)

Rule No.	Group No.	Heat Input or Equipment Type	Fuel Type	Proposed Project		Alternative A: No Project	Alternative B: Compliance Deadline Extension	Alternative C: 100% of units by January 1, 2021
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.037 lb/MMBtu	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2021 and 100% by January 1, 2022, unless unit replacement by January 1, 2023 *(If the unit is located at a non-RECLAIM facility compliance can be deferred until burner replacement or within 15 years of the date of rule adoption, whichever is earlier, unless the unit is a thermal fluid heater currently permitted at >20 ppm (these units must meet 12 ppm by January 1, 2022))*	See Rule 2002 Emission Factor, Table 1 and 3** *(Only emission factors relevant to Rules 1146 and 1146.1 have been extracted from Rule 2002 Emission Factors Tables 1 and 3 and are shown in Table 1-3)*	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2022 and 100% by January 1, 2023	100% of units by January 1, 2021
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Landfill Gas	25 ppm				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Digester Gas	15 ppm				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Atmospheric Units)	Natural Gas	12 ppm or 0.015 lb/MMBtu				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (excluding Fire-tube boilers, Atmospheric Units and Thermal Fluid Heaters)	Natural Gas	9 ppm or 0.011 lb/MMBtu				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Any Fire-Tube Boilers, excluding units with a previous NOx limit >9 and < 12 ppm)	Natural Gas	7 ppm or 0.0085 lb/MMBtu				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Thermal Fluid Heaters)	Natural Gas	12 ppm or 0.015 lb/MMBtu				
1146.1	-	Low Fuel Usage (≤ 18,000 therms/year)	Any Fuel	12 ppm, 15 years after the date of rule adoption or when 50 percent or more of the unit's burners are replaced, whichever is earlier				
1146.2	-	≤ 2 MMBtu/hr	Natural Gas	30 ppm, unless a more stringent limit is applicable, by December 31, 2023		-	No Change	No Change
1100	-	Rule 1146 and 1146.1 Units only	-	Permit application submittal by 12 months within date of rule adoption and compliance with implementation schedule		-	Compliance deadline would be extended by one year	Compliance deadline would be shortened by one year for 25% of units

Table 1-2: Summary of the Proposed Project and Alternatives (continued~~Concluded~~)

Rule No.	Group No.	Heat Input or Equipment Type	Fuel Type	**Proposed Project** ~~(for NOx RECLAIM facilities transitioning to command-and-control regulatory structure)~~		**Alternative D:** All Ultra-Low NOx Burners	**Alternative E:** ~~Lowering Limit for~~ NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits~~≥ 40 and < 75 MMBtu/hr~~
1146	-	≥ 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.036 lb/MMBtu	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2021 and 100% by January 1, 2022, unless unit replacement by January 1, 2023 ~~*~~*(If the unit is located at a non-RECLAIM facility compliance can be deferred until burner replacement or within 15 years of the date of rule adoption, whichever is earlier, unless the unit is a thermal fluid heater currently permitted at >20 ppm (these units must meet 12 ppm by January 1, 2022))*	No Change	No Change
1146	-	≥ 5 MMBtu/hr	Non-Gaseous Fuels	40 ppm		No Change	No Change
1146	-	≥ 5 MMBtu/hr	Landfill Gas	25 ppm		No Change	No Change
1146	-	≥ 5 MMBtu/hr	Digester Gas	15 ppm		No Change	No Change
1146	I	≥ 75 MMBtu/hr ~~(excluding Thermal Fluid Heaters)~~	Natural Gas	5 ppm or 0.0062 lb/MMBtu		9 ppm or 0.011 lb/MMBtu~~; 75% of units by January 1, 2021 and 100% by January 1, 2022~~	No Change
1146	II	≥ 20 and < 75 MMBtu/hr (All others)~~with an existing NOx limit ≥12 ppm (excluding Thermal Fluid Heaters)~~	Gaseous Fuel (excluding Landfill or Digester Gas)	5~~9~~ ppm or 0.0062~~11~~ lb/MMBtu		9 ppm or 0.011 lb/MMBtu~~No Change No Change~~	9 ppm or 0.011 lb/MMBtu~~5 ppm for units > 40 MMBtu/hr No Change~~
1146	II	≥ 20 and < 75 MMBtu/hr with an existing NOx limit ~~<~~≤9 ~~12~~ ppm and >5 ppm)	Gaseous Fuel (excluding Landfill or Digester Gas)	7 ppm or 0.0085 lb/MMBtu			
1146	II	≥ 20 and < 75 MMBtu/hr (All others with a previous NOx limit ≤12 ppm and >5 ppm)	Gaseous Fuel (excluding Landfill or Digester Gas)	9 ppm or 0.011 lb/MMBtu			
1146	III	≥ 5 and < 20 MMBtu/hr (Fire-tube boilers only, excluding units with a previous NOx limit >9 and ≤ 12 ppm) ~~(excluding Thermal Fluid Heaters, but including Units at Schools and Universities rated ≥ 5 MMBtu/hr)~~	Gaseous Fuel (excluding Landfill or Digester Gas)	7 ppm or 0.0085 lb/MMBtu			
1146	III	Atmospheric Unit (≤ 10 MMBtu/hr)	Natural Gas	12 ppm or 0.015 lb/MMBtu		No Change	No Change
1146	-	Low Fuel Usage (≤ 90,000 therms/year)	Any Fuel	12~~30~~ ppm, 15 years after the date of rule adoption ~~by January 1, 2022~~ or when 50 percent or more of the unit's burners are replaced~~ment~~, whichever is earlier~~occurs later~~		No Change	No Change
1146	-	≥ 5 MMBtu/hr Thermal Fluid Heaters	Natural Gas	12 ppm or 0.015 lb/MMBtu		30 ppm or 0.037 lb/MMBtu	30 ppm or 0.037 lb/MMBtu
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.037 lb/MMBtu		No Change	No Change

Table 1-2: Summary of the Proposed Project and Alternatives (concluded)

Rule No.	Group No.	Heat Input or Equipment Type	Fuel Type	Proposed Project		Alternative D: All Ultra-Low NOx Burners	Alternative E: NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Landfill Gas	25 ppm	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2021 and 100% by January 1, 2022, unless unit replacement by January 1, 2023 ~~*~~*(If the unit is located at a non-RECLAIM facility compliance can be deferred until burner replacement or within 15 years of the date of rule adoption, whichever is earlier, unless the unit is a thermal fluid heater currently permitted at >20 ppm (these units must meet 12 ppm by January 1, 2022))*	No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Digester Gas	15 ppm		No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Atmospheric Units)	Natural Gas	12 ppm or 0.015 lb/MMBtu		No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (excluding Fire-tube boilers, Atmospheric Units and Thermal Fluid Heaters~~, but including at Schools/Universities~~)	Natural Gas	9 ppm or 0.011 lb/MMBtu		No Change	9 ppm or 0.011 lb/MMBtu~~No Change~~
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Any Fire-Tube Boilers, excluding units with a previous NOx limit >9 and ≤ 12 ppm)	Natural Gas	7 ppm or 0.0085 lb/MMBtu		9 ppm or 0.011 lb/MMBtu	
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Thermal Fluid Heaters)	Natural Gas	12 ppm or 0.015 lb/MMBtu		30 ppm or 0.037 lb/MMBtu	30 ppm or 0.037 lb/MMBtu
1146.1	-	Low Fuel Usage (≤ 18,000 therms/year)	Any Fuel	12 ppm, 15 years after the date of rule adoption or when 50 percent or more of the unit's burners are replaced, whichever is earlier~~30 ppm by January 1, 2022 or burner replacement, whichever occurs later~~		No Change	No Change
1146.2	-	≤ 2 MMBtu/hr	Natural Gas	30 ppm, unless a more stringent limit is applicable, by December 31, 2023		No Change	No Change
1100	-	Rule 1146 and 1146.1 Units only	-	Permit application submittal by 12 months within date of rule adoption and compliance with implementation schedule		No Change	No Change

~~***Note: Only emission factors relevant to Rules 1146 and 1146.1 have been extracted from Rule 2002 Emission Factor Tables 1 and 3 and are shown in Table 1-3.~~

~~1146.1~~	~~-~~	~~> 2 MMBtu/hr and < 5 MMBtu/hr (excluding Atmospheric Units and Thermal Fluid Heaters, but including at Schools/Universities)~~	~~Natural Gas~~	~~9 ppm or 0.011 lb/MMBtu~~				
~~1146.1~~	~~-~~	~~Low Fuel Usage (≤ 18,000 therms/year)~~	~~Any Fuel~~	~~30 ppm by January 1, 2022 or burner replacement, whichever occurs later~~				
~~1146.2~~	~~-~~	~~≤ 2 MMBtu/hr~~	~~Natural Gas~~	~~30 ppm, unless a more stringent limit is applicable, by December 31, 2023~~		~~-~~	~~No Change~~	~~No Change~~
~~1100~~	~~-~~	~~Rule 1146 and 1146.1 Units only~~	~~-~~	~~Permit application submittal by 12 months within date of rule adoption and compliance with implementation schedule~~		~~-~~	~~Compliance deadline would be extended by one year~~	~~Compliance deadline would be shortened by one year for 25% of units~~

Table 1-3
RECLAIM NOx Emission Factors[1,2]

Rule No.:	Heat Input	Fuel Type	Year 2000 (Tier 1) Ending NOx Emission Factor (lbs)	Fuel Throughput Units
1146/1146.1	> 2 MMBtu/hr	Natural Gas	47.57	Mmcf
1146/1146.1	> 2 MMBtu/hr	LPG, Propane, Butane	4.26	1,000 gallons
1146/1146.1	> 2 MMBtu/hr	Diesel Light Dist. (0.05% Sulfur)	6.21	1,000 gallons
1146/1146.1	> 2 MMBtu/hr	Refinery Gas	49.84	Mmcf
1146.1	> 2 MMBtu/hr and < 5 MMBtu/hr	Natural Gas	39.46	Mmcf
1146.1	> 2 MMBtu/hr and < 5 MMBtu/hr	Refinery Gas	41.34	Mmcf
1146.1	> 2 MMBtu/hr and < 5 MMBtu/hr	LPG, Propane, Butane	3.53	1,000 gallons
1146.1	> 2 MMBtu/hr and < 5 MMBtu/hr	Diesel Light Dist. (0.05% Sulfur)	5.15	1,000 gallons
1146	≥ 5 MMBtu/hr	Natural Gas	47.75	Mmcf
1146	≥ 5 MMBtu/hr	Refinery Gas	50.03	Mmcf
1146	≥ 5 MMBtu/hr	LPG, Propane, Butane	4.28	1,000 gallons
1146	≥ 5 MMBtu/hr	Diesel Light Dist. (0.05% Sulfur)	6.23	1,000 gallons
1146	< 90,000 Therms	Natural Gas	47.75	Mmcf
1146	< 90,000 Therms	Refinery Gas	50.03	Mmcf
1146	< 90,000 Therms	LPG, Propane, Butane	4.28	1,000 gallons
1146	< 90,000 Therms	Diesel Light Dist. (0.05% Sulfur)	6.23	1,000 gallons
1146.1	< 18,000 Therms	Natural Gas	39.46	Mmcf
1146.1	< 18,000 Therms	Refinery Gas	41.34	Mmcf
1146.1	< 18,000 Therms	LPG, Propane, Butane	3.53	1,000 gallons
1146.1	< 18,000 Therms	Diesel Light Dist. (0.05% Sulfur)	5.15	1,000 gallons
1146/1146.1	2 to 20 MMBtu/hr	Any	12 ppm or 0.015 lb/MMBtu	
1146	>20 MMBtu/hr	Any	9 ppm or 0.010 lb/MMBtu	

Note:
1. Some units that began allocations pursuant to Rule 2002(c)(1) may have higher emission factors; however the units met BACT limits effective at the time of installation.
2. Facilities were required to have either met the emission factors for their units or purchased RECLAIM trading credits (RTCs) for compliance.
3. Mmcf = million cubic feet

Table 1-4
Comparison of Adverse Environmental Impacts of the Proposed Project and Alternatives

Category	Proposed Project	Alternative A: No Project	Alternative B: Compliance Deadline Extension	Alternative C: 100% of Units by January 1, 2021	Alternative D: All Ultra-Low NOx Burners	Alternative E: ~~Lowering Limit for ≥ 40 and < 75 MMBtu/hr~~NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits
Air Quality	Expected to result in NOx emission reductions of 0.20 ton per day by January 1, 2021 and 0.27 ton per day by January 1, 2023. Affected RECLAIM facilities will transition to a command-and-control regulatory structure. Certain non-RECLAIM facilities will meet NOx emission limits during replacement or within 15 years of the date of rule adoption, whichever is earlier. Thermal fluid heaters currently permitted at >20 ppm must meet 12 ppm by January 1, 2022. All units will meet BARCT NOx emissions equivalency from the implementation of command-and control regulatory structure.	No new NOx emission reductions will be achieved. RECLAIM facilities would not transition to a command-and control regulatory structure and all (including some non-RECLAIM) units would not meet BARCT level equivalency.	Expected to result in equivalent NOx emissions reductions as the proposed project except the reductions would be delayed by one year. Affected RECLAIM facilities will transition to a command-and-control regulatory structure and all (including some non-RECLAIM) units will meet BARCT level equivalency.	Expected to result in equivalent NOx emissions reductions as the proposed project, but emissions would be achieved sooner (by January 1, 2021). Affected RECLAIM facilities will transition to a command-and-control regulatory structure and all units (including some non-RECLAIM) will meet BARCT level equivalency.	Expected to result in lesser NOx emission reductions than the proposed project. Affected RECLAIM facilities would transition to a command-and-control regulatory structure. Some facilities would not meet BARCT level equivalency.	Expected to result in less ~~more~~ NOx emissions reductions than the proposed project. Affected RECLAIM facilities would transition to a command-and control regulatory structure, but ~~and~~ units ~~will be equal to or more stringent than~~ would not reach BARCT level equivalency.
Signifi-cance of Air Quality Impacts	Less than Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx during construction due to overlapping construction of SCR systems and ultra-low NOx burners, but these significant impacts will be reduced to less than significant levels because a concurrent operational air quality benefit would result due to the project's overall NOx emission reductions.	Not Significant: This would not result in an exceedance of SCAQMD's regional air quality CEQA significance threshold for NOx. The SCAQMD will not achieve any emissions reductions; thus, attainment for the SCAQMD for ozone is unlikely to occur.	Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx during construction due to overlapping construction of SCR systems and ultra-low NOx burners. While a concurrent operational air quality benefit would result due to the project's overall NOx emission reductions, ~~and these significantce is equivalent to the amount in the proposed project but with a~~ the delay in the operational benefit is may not fully reduce the overlapping construction emissions to less than significant levels.	Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx during construction due to the overlapping construction of SCR systems and ultra-low NOx burners, but these significant~~ce~~ impacts will be reduced to less than significant levels because a concurrent operational air quality benefit would result due to the project's overall NOx emission reductions This alternative is equivalent in benefit to the amount in the proposed project but achieves the operational benefits sooner which may cause peak daily construction emissions to be greater than the proposed project.	Less than ~~Not~~ Significant: This would result in an amount that is less significant than the proposed project and would not exceed SCAQMD's regional air quality CEQA significance threshold for NOx.	Less than Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx during construction~~. D~~ due to the overlapping construction of ~~additional~~ SCR systems and ultra-low NOx burners, but these significant impacts will be reduced to less than significant levels because a concurrent operational air quality benefit would result. However, to meet the current NOx emission limits, the impacts are at an amount that is less ~~more~~ significant than the proposed project and NOx emissions reductions would be less than the proposed project.~~but with more operational benefits.~~

Table 1-4
Comparison of Adverse Environmental Impacts of the Proposed Project and Alternatives (concluded)

Category	Proposed Project	Alternative A: No Project	Alternative B: Compliance Deadline Extension	Alternative C: 100% of Units by January 1, 2021	Alternative D: All Ultra-Low NOx Burners	Alternative E: NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits
Significance of Hazards and Hazardous Materials Impacts	Significant: To operate, SCR systems require ammonia. Ammonia is considered a hazardous material. At ~~two~~32 facilities, the estimated distance of the toxic endpoint from the catastrophic failure of an aqueous ammonia storage tank to sensitive receptors would result in significant impacts.	Not Significant: The construction of SCR systems would not be necessary; thus, the storage of aqueous ammonia would be eliminated. No hazards or hazardous materials impacts would occur.	Significant: The operation of an SCR system requires the use of ammonia; thus, facilities would need to store ammonia on-site. Depending on the vicinity of the ammonia storage tank(s) to sensitive receptors, during catastrophic failure sensitive receptors could be within the toxic endpoint distance. The number of affected facilities would be the same as the proposed project. The level of significance in this alternative is equivalent to the amount in the proposed project.	Significant: The operation of an SCR system requires the use of ammonia; thus, facilities would need to store ammonia on-site. Depending on the vicinity of the ammonia storage tank(s) to sensitive receptors, during catastrophic failure sensitive receptors could be within the toxic endpoint distance. The number of affected facilities would be the same as the proposed project. The level of significance in this alternative is equivalent to the amount in the proposed project.	Less than ~~Not~~ Significant: The construction of SCR systems would not be necessary; thus, the storage of aqueous ammonia would be eliminated. All facilities with affected units would need to retrofit with ultra-low NOx burners; thus, n~~N~~o hazards or hazardous materials impacts would occur.	Significant: The operation of an SCR system requires the use of ammonia; thus, facilities would need to store ammonia on-site. Less stringent NOx emission limits would result in fewer affected facilities constructing SCR systems; thus, a fewer number of ammonia storage tanks would be needed. However, d~~D~~epending on the vicinity of the ammonia storage tank(s) to sensitive receptors, during catastrophic failure sensitive receptors could be within the toxic endpoint distance and- thus still result in significant impacts, but at an equivalent amount of the proposed project. It is estimated four facilities would be affected from this alternative. ~~Additional facilities would be subject to the lower NOx emission limit. As a result, the construction of more SCR systems and ammonia storage tanks would occur. The significance is greater than the amount in the proposed project.~~

CHAPTER 2

PROJECT DESCRIPTION

Project Location

Project Background

Project Objectives

Project Description

Summary of Affected Equipment

PROJECT LOCATION

PARs 1146 series and PR 1100 applies to a RECLAIM facility with any unit subject to Rules 1146, 1146.1, and 1146.2. The proposed project will begin the process of transitioning equipment under RECLAIM to an equipment-based command-and-control regulatory structure per SCAQMD Regulation XI – Source Specific Standards. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the four-county South Coast Air Basin (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB). The Basin, which is a subarea of SCAQMD'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. It 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 nonattainment 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 2-1).

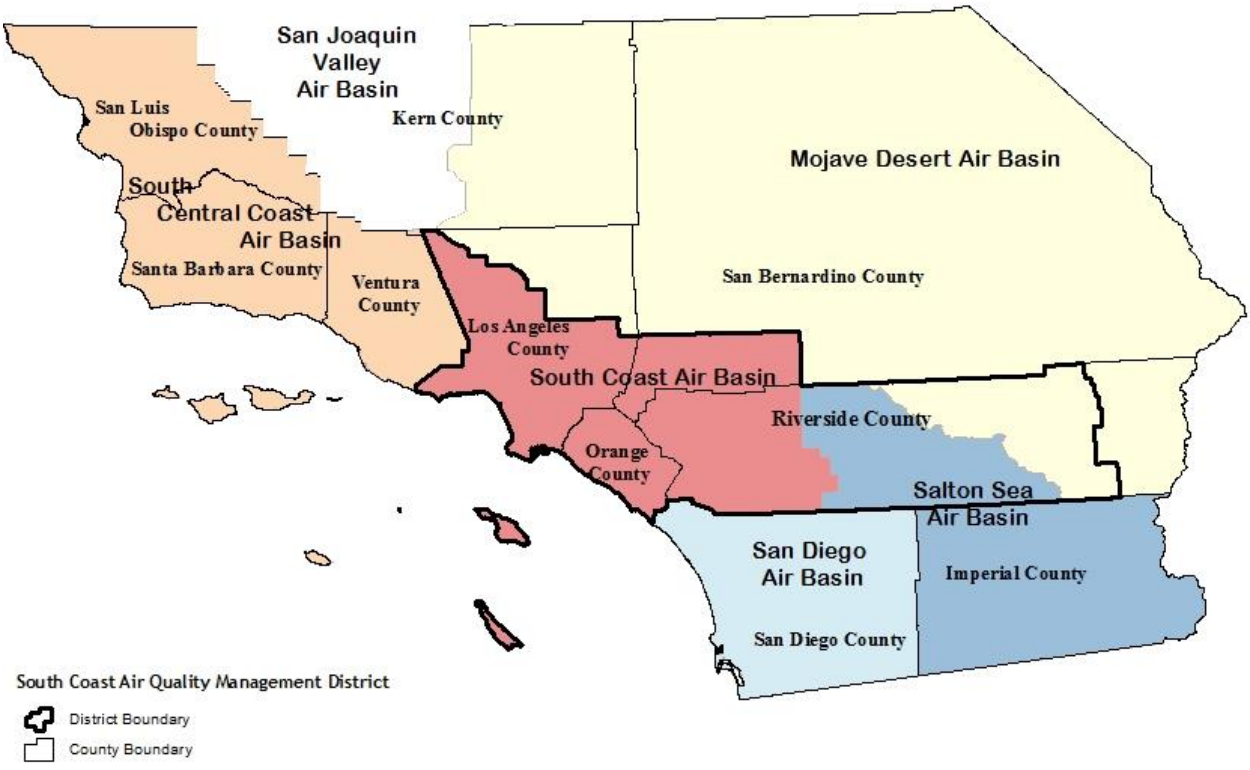

Figure 2-1
Southern California Air Basins

PROJECT BACKGROUND

Rules 1146, 1146.1, and 1146.2 impose NOx emission limits on various sizes of boilers, steam generators, and process heaters. Rule 1146 applies to boilers, steam generators, and process heaters used in industrial, institutional, and commercial operations, with a rated heat input capacity greater than or equal to five MMBtu per hour. However, Rule 1146 currently does not regulate NOx emissions from: 1) boilers operated at electric utilities to generate electricity; 2) boilers and process heaters with a rated heat input capacity greater than 40 MMBtu per hour that are used in petroleum refineries; ~~and; and~~ 3) sulfur plant reaction boilers; and 4) RECLAIM facilities (NOx only). Rule 1146 defines three groups (Group I, Group II, and Group III) of units burning natural gas or gaseous fuels. The current NOx emission limits in Rule 1146 vary by the rated heat input (Group number) ~~and the number of units at a facility~~. For example, a Group I unit includes any unit burning natural gas with a rated heat input greater than or equal to 75 MMBtu per hour, excluding thermal fluid heaters, and is required to meet a NOx emission limit of five ppm or 0.0062 pound per MMBtu by January 1, 2013. A Group II unit includes any unit burning gaseous fuels, excluding digester and landfill gases, and thermal heaters, with a rated heat input less than 75 MMBtu per hour and greater than or equal 20 MMBtu per hour, and is required to meet a NOx emission limit of nine ppm or 0.011 pound per MMBtu. A minimum of 75 percent of Group II units (by heat input) were required to meet the NOx emission limit by January 1, 2012 and 100 percent were required to meet the NOx emission limit by January 1, 2014. Group III units include any unit burning gaseous fuels, excluding digester and landfill gases, and thermal fluid heaters with a rated heat input less than 20 MMBtu per hour and greater than or equal to five MMBtu per hour and all units operated at schools and universities greater than or equal to five MMBtu per hour. Group III units are also required to meet a NOx emission limit of nine ppm or 0.011 pound per MMBtu with 75 percent or more units (by heat input) meeting the limit by January 1, 2013 and 100 percent meeting the limit by January 1, 2015. Rule 1146 also requires any units fired on non-gaseous fuels, landfill gas, or digester gas to meet a NOx emission limits of 40 ppm, 25 ppm, or 15 ppm, respectively. Finally, atmospheric units are required to meet a 12 ppm or 0.015 pound per MMBtu NOx emission limit.

Rule 1146.1 was adopted in October 1990 and established NOx emission limits for smaller units with a rated heat input capacity greater than two MMBtu per hour and less five MMBtu per hour. Similar to Rule 1146, units using landfill gas or digester gas are also required to meet a NOx emission limit of 25 ppm or 15 ppm, respectively. Under Rule 1146.1, atmospheric units are also required to meet a 12 ppm NOx emission limit and all other units fired on natural gas would need to meet a nine ppm or 0.011 pound per MMBtu NOx emission limit.

In September 2008, Rules 1146 and 1146.1 were amended to obtain NOx emission reductions by lowering the applicable NOx emission limits for various equipment, fuel and burner types. In November 2013, Rules 1146 and 1146.1 were amended to clarify that source test results showing emissions in excess of rule limits are considered a rule violation and allow diagnostic emissions checks for boiler maintenance purposes.

In January 1998, Rule 1146.2 was adopted to reduce NOx emissions from small boilers and large water heaters with a rated heat input capacity of less than or equal two MMBtu per hour. Rule 1146.2 included an exemption for units used in recreational vehicles and units subject to SCAQMD Rule 1121 - Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters. Initially, the Rule 1146.2 required new water heaters, boilers, or process heaters with a rated heat input capacity less than or equal to 400,000 Btu per hour (also known as Type 1 units) to meet a

NOx emission limit of 55 ppm (at three percent oxygen (O2), dry) or 40 nanograms (ng) per Joule (J) of heat output. New water heaters, boilers, or process heaters with a rated heat input capacity greater than 400,000 Btu per hour and less than or equal to two MMBtu per hour (or Type 2 units) were required to meet a NOx emission limit of 30 ppm (at three percent O2, dry) and a CO emission limit of 400 ppm. However, Rule 1146.2 was amdned in January 2005 to address technical and cost issues associated with retrofitting existing units and to delay compliance dates for existing in-use equipment until an affected unit was 15 years old as of the equipment manufacture date. Rule 1146.2 was amended again in May 2006 to lower the NOx emission limit for new units to 20 ppm and set a compliance date of January 1, 2012 for new Type 1 units and January 1, 2010 for new Type 2 units. For pool heaters rated at less than or equal to 400,000 Btu per hour, the existing NOx emission limit of 55 ppm (or 40 ng per J heat output) remained unchanged.

In October 1993, the SCAQMD Governing Board adopted Regulation XX –RECLAIM to reduce NOx and SOx emissions from facilities. The RECLAIM program was designed to take a market-based approach to achieve emission reductions, as an aggregate. The RECLAIM program was created to be equivalent to achieving emissions reductions under a command-and-control approach, but by providing facilities with the flexibility to seek the most cost-effective solution to reduce their emissions. The market-based approach used in RECLAIM was based on using a supply-and-demand concept, where the cost to control emissions and reduce a facility's emissions would eventually become less than the diminishing supply of NOx RTCs. However, analysis of the RECLAIM program over the long term has shown that the ability to achieve actual NOx emission reductions has diminished.

In the 2016 AQMP, control measure CMB-05 - Further NOx Reductions from RECLAIM Assessment, committed to achieving NOx emission reductions of five tons per day by 2025, along with achieving BARCT level equivalency for all facilities through a command-and-control regulatory structure, while alleviating facilities from installing technology that would quickly become obsolete or serve as an intermediate technology. The process of transitioning NOx RECLAIM facilities to a command-and-control regulatory structure will ensure that the affected equipment will meet BARCT level equivalency as soon as practicable. As a result of control measure CMB-05 from the 2016 AQMP and ABs 617 and 398, SCAQMD staff has been directed by the Governing Board to begin the process of transitioning equipment at NOx RECLAIM facilities from a facility permit structure to an equipment-based command-and-control regulatory structure per SCAQMD Regulation XI – Source Specific Standards. SCAQMD staff has begun this transition process by proposing amendments to Rules 1146, 1146.1, and 1146.2 (e.g., the PARs 1146 series) and this is one of the first sets of rules to be amended to initiate the transition ~~of~~ equipment from the NOx RECLAIM program to a command-and-control regulatory structure, while achieving BARCT. ~~PARs 1146 series will transition 27 facilities out of the RECLAIM program.~~

In addition, SCAQMD staff has developed PR 1100 to establish the compliance schedule for Rules 1146 and 1146.1 units~~the PARs 1146 series~~ at RECLAIM facilities ~~exiting the RECLAIM program~~. It is important to note that the procedures for transitioning out of RECLAIM and addressing a facility's RTCs holdings are in Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx).

As part of the rule development process, a BARCT assessment was conducted for Rules 1146 and~~,~~ 1146.1~~, and 1146.2~~, which concluded that the current NOx emissions limits in Rules 1146 and 1146.1 represent BARCT for only some categories of equipment. However, SCAQMD staff's

analysis concluded that the NOx emission limits for other equipment categories subject to either Rules 1146 or 1146.1 would need to be lowered to meet BARCT level equivalency. In the 2006 amendments to Rule 1146.2, a technology assessment was conducted and SCAQMD staff determined that there is a potential that the NOx limits could be lowered pending further evaluation. In order to achieve NOx emission reductions at the earliest possible date, SCAQMD staff has focused their rule development efforts on the larger pieces of equipment which are subject to Rules 1146 and 1146.1. As such, PARs 1146 series and PR 1100 will require applicable equipment at RECLAIM facilities to meet proposed~~existing~~ NOx emission limits. SCR ~~technology/~~systems and ultra low-NOx burners are expected to be the main technologies employed to achieve the ~~current~~ NOx emission limits for equipment that will become subject to Rules 1146, 1146.1, and 1146.2. PR 1100 also includes a provision for allowing extra time (January 1, 2023) to comply with the existing NOx emission limits in Rules 1146 and 1146.1 for any operator that commits to fully replacing the affected equipment, in lieu of retrofitting existing equipment by installing ultra-low NOx burners or SCR systems.

If RECLAIM facilities elect to install equipment or air pollution control equipment in order to meet the current Rule 1146.2 NOx emission limits prior to amending Rule 1146.2 to incorporate lower NOx emission limits, the units might not comply with the final NOx limit that is incorporated into the rule. As such, facilities electing to install these units would run the risk of installing equipment that would likely need to be further modified in order to comply with the anticipated future amendments to Rule 1146.2. In order to consider the viability of lowering the NOx emission limits in Rule 1146.2, SCAQMD staff will conduct additional BARCT research along with obtaining updated emission inventory data if that is available. If the research shows BARCT is more stringent so that significant additional emissions reductions can be obtained, then staff will initiate a subsequent rule development process. ~~PAR 1146.2 will require affected facilities to exit RECLAIM. To assist in future rulemaking efforts, PAR 1146.2 will require RECLAIM facilities with units subject to Rule 1146.2 to provide equipment data to the Executive Officer by September 1, 2018.~~

In addition, PARs 1146 series and PR 1100 will exempt any unit at a RECLAIM facility subject to a NOx emission limit in a different rule for an industry-specific category, since BARCT requirements would be established in the industry-specific landing rule. ~~In addition, PARs 1146 series and PR 1100 are not expected to create additional monitoring, reporting, and recordkeeping requirements that differ from existing requirements at current RECLAIM facilities.~~

PROJECT OBJECTIVES

The main objectives of the PARs 1146 series are to transition various sizes of boilers, steam generators, process heaters, and large water heaters operating at RECLAIM facilities from a facility permit structure to an equipment-based command-and-control regulatory structure by requiring compliance with the applicable NOx emission limits in SCAQMD Rules 1146, 1146.1, 1146.2 to achieve BARCT NOx emissions equivalency for these units. Another objective of the proposed project is to implement control measure CMB-05 from the 2016 AQMP to achieve NOx emission reductions of five tons per day by 2025.

PROJECT DESCRIPTION

If adopted, PARs 1146 series would: 1) expand the applicability to include units at NOx RECLAIM facilities; 2) require RECLAIM facilities to submit a permit application for each unit that does not currently meet the NOx concentration limits in Rules 1146 and 1146.1; 3) extend the

compliance date for RECLAIM facilities replacing Rule 1146 or 1146.1 units and require a permit application submittal for unit(s) being replaced; 4) require RECLAIM facilities with Rule 1146.2 units to meet applicable NOx emission limits by December 31, 2023, unless a more stringent BARCT limit is subsequently adopted; 5) limit ammonia emissions on new or modified units with applicable air pollution control equipment and require quarterly ~~annual~~ ammonia source testing (if four consecutive quarterly source tests demonstrate compliance, an annual source test may be conducted); ~~and~~ 6) require certain units at non-RECLAIM facilities to meet new NOx emission limits according to the compliance schedules specified in Rules 1146 and 1146.1; and 7) allow units at municipal sanitation service facilities to maintain existing NOx emission limits until a Regulation XI rule is adopted or amended. PR 1100 is an administrative rule which establishes the compliance schedule for RECLAIM facilities with Rule 1146 and/or 1146.1 units. Implementation of the proposed project is estimated to reduce NOx emissions by 0.20 ton per day by January 1, 2021 and 0.27 ton per day by January 1, 2023. ~~1) expand the applicability to include units that were not previously required to comply with Rules 1146 and 1146.1 because they were in the NOx RECLAIM program; 2) require RECLAIM facilities to submit a permit application within 12 months of the date of rule adoption for each unit that does not currently meet the NOx concentration limits in Rules 1146 and/or 1146.1; 3) require the affected equipment to meet the applicable NOx concentration limit for all Rule 1146 and Rule 1146.1 units for a minimum of 75 percent of the total heat input by January 1, 2021 and 100 percent of the total heat input by January 1, 2022; 4) require RECLAIM facilities replacing Rule 1146 or Rule 1146.1 units to notify the Executive Officer which unit(s) will be replaced; and 5) require RECLAIM facilities with Rule 1146.2 units to meet NOx emission limits by December 31, 2023 if a more stringent BARCT limit is not applicable. PR 1100 is an administrative rule which establishes the compliance schedule for facilities exiting the RECLAIM program and allows facilities with Rule 1146/1146.1 units until January 1, 2022 to retrofit all existing units and until January 1, 2023 to replace any existing units, upon notification to the Executive Officer. Implementation of the proposed project is estimated to reduce NOx emissions by 0.23 ton per day by January 1, 2023.~~

The following is a detailed summary of key elements contained in PARs 1146 series and PR 1100. A copy of PARs 1146, 1146.1, and 1146.2, and PR 1100 can be found in Appendix A.

PAR 1146

Applicability - Subdivision (a)

The exemptions contained in subdivision (a) are proposed to be moved to new subdivision (f) – Exemptions. ~~Upon the date of adoption, PAR 1146 will clarify that the exemption of RECLAIM (NOx emissions only) facilities applies only to any RECLAIM or former RECLAIM facility that is in an industry-specific category specified in Rule 1100 – Implementation Schedule for NOx Facilities.~~

Definitions - Subdivision (b)

New~~The~~ definitions of Fire-tube Boiler; Former RECLAIM Facility; Modification; Municipal Sanitation Services; Non-RECLAIM Facility; and RECLAIM Facility are proposed be added. The following definitions are proposed to be revised including: Annual Heat Input; Group I Unit; Group II Unit; Group III Unit; Heat Input; NOx Emissions; Rated Heat Input Capacity; and Thermal Fluid Heater. The definitions of Annual Capacity Factor and Standby Boiler are proposed to be removed.

Requirements - Subdivision (c)

Subdivision (c) proposes to require the owner or operator of any unit(s) subject to Rule 1146 to meet applicable emission limits specified in paragraphs (c)(1), (c)(2), (c)(3), and (c)(4); notwithstanding the exemptions contained in Rule 2001 – Applicability, Table 1 – ~~Existing~~ Rules Not Applicable to RECLAIM Facilities for Requirements Pertaining to NOx Emissions If Rule Was Adopted or Amended Prior to October 5, 2018~~, of subdivision (j) of Rule 2001~~. ~~A change to paragraph (c)(1) proposes to require the owner or operator of a RECLAIM or former RECLAIM facility to comply with the applicable NOx emission limits specified in Table 1146-1 in accordance with the schedule specified in Rule 1100.~~

Table 1146-1 – ~~Standard~~ NOx Emission Limits and Compliance Schedule ~~Limits~~ is proposed to be modified to include new NOx emission limits and compliance schedules for certain Group II or Group III units and thermal fluid heaters. As such, the following subparagraphs have been changed as follows:

Rule Reference	**Category**	**Limit[1]**	**Compliance Schedule~~2~~ for NON-RECAIM Facilities**	**Compliance Schedule for RECLAIM and FORMER RECLAIM Facilities**
(c)(1)(G)	Group II Units (Fire-tube boilers with a previous NOx limit ≤ ~~12~~ 9 ppm and > 5 ppm prior to [date of amendment])~~with an existing NOx limit ≥12 ppm~~	7 ppm or 0.0085 lbs/ 10^6 Btu~~ppm or 0.0062 lb/10^6 Btu~~	See (c)(7)(A)~~January 1, 2016~~	See PR 1100 – Implementation Schedule for NOx Facilities
(c)(1)(H)	Group II Units (All others with a previous NOx limit ≤ 12 ppm and > 5 ppm prior to [date of amendment]) ~~with an existing NOx limit < 12 ppm~~	~~7 ppm or 0.0085 lb/10^6 Btu for fire-tube boilers only;~~ 9 ppm or 0.011 lb/10^6 Btu for all others	January 1, 2014 ~~or See subparagraph (c)(7)(A)~~	
(c)(1)(I)	Group II Units (All Others)	5 ppm or 0.0062 lbs/10^6 Btu	Date of amendment	
(c)(1)(J)~~(I)~~	Group III Units (Fire-tube Boilers Only, excluding units with a previous NOx limit < 12 ppm and > 9 ppm prior to *[date of amendment]*)	7 ppm or 0.0085 lb/10^6 Btu	Date of amendment or See ~~subparagraph~~ (c)(7)(B) for units with a previous NOx limit < 9 ppm prior to *[date of amendment]*	
(c)(1)(K)~~(J)~~	Group III Units (All Others)~~(Excluding Fire-tube Boilers)~~	9 ppm or 0.001 lb/10^6 Btu	January 1, 2015 or See (c)(8) for units with a previous NOx limit ≤ 12 ppm prior to September 5, 2008	

Rule Reference	**Category**	**Limit[1]**	**Compliance Schedule~~[2]~~ for NON-RECAIM Facilities**	**Compliance Schedule for RECLAIM and FORMER RECLAIM Facilities**
(c)(1)(L)~~(K)~~	Thermal Fluid Heaters	12 ppm or 0.015 lbs/10^6 Btu	Date of amendment or See ~~subparagraph~~ (c)(7)(C) for units with a previous ~~an existing~~ NOx limit ≤ 20 ppm prior to [*date of amendment*] or See ~~paragraph~~ (e)(2) for units with a previous ~~an existing~~ NOx limit >20 ppm prior to [*date of amendment*]~~≥ 20 ppm~~	
[1] All parts per million (ppm) emission limits are referenced at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes.				

~~(c)(1)(K), as shown below is proposed to be added to Table 1146-1 – Standard Compliance Limits and Schedule.~~

~~**Rule Reference**~~	~~**Category**~~	~~**Limit**~~
~~(c)(1)(K)~~	~~RECLAIM Units~~	~~As specified in this Table~~

Paragraph (c)(2) is proposed to be removed and replaced with requirements for units with air pollution control equipment resulting in ammonia emissions in the exhaust. The ammonia emissions would be limited to less than five ppm (referenced at three percent volume stack gas oxygen on a dry basis averaged over a period of ~~15~~ 60 consecutive minutes), except for units complying with paragraph (c)(9).~~proposes to exempt a RECLAIM or former RECLAIM facility subject to Rule 1100, from the requirements in Table 1146-2. Requirements in Table 1146.2, which specify an enhanced compliance schedule would not apply for a RECLAIM facility subject to Rule 1100.~~

Paragraph (c)(3) clarifies that a weighted average emission limit calculated by Equation 1146-1 may be used in lieu of the emission limits of Table 1146-1f or dual fuel co-fired combustion units provided a totalizing fuel flow meter is installed pursuant to paragraph (c)(10).

Paragraph (c)(4) clarifies that the carbon monoxide (CO) emission limit of 400 ppm is referenced at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes.

Paragraph (c)(5) proposes to allow a provision for low fuel usage units (a~~nnual~~ heat input less than or equal to 90,000 therms per year) that have been in operation prior to September 5, 2008 for non-RECLAIM facilities or in operation prior to 12 months from the date of rule adoption at a RECLAIM or former RECLAIM facility subject to Rule 1100, in lieu of complying with the applicable NOx emission limits specified in paragraphs (c)(1), (c)(2), (c)(3), ~~and~~ (c)(4), (e)(1), and (e)(2).

Subparagraph (c)(5)(B) proposes to require the owner of any unit(s) selecting the tune-up option, to maintain records for a rolling 24-month period in order to verify that the required tune-ups have been performed.

~~Paragraph (c)(7) proposes to allow a RECLAIM or former RECLAIM facility that installs or modifies a Group III natural gas fired unit prior to the date of rule adoption and complying with the applicable BACT emission limit of 12 ppm or less of NOx to defer compliance with the compliance dates specified in Rule 1100 until the unit's burner(s) replacement.~~

Paragraph (c)(6) proposes notwithstanding the exemptions contained in Rule 2001 – Applicability, Table 1- ~~Existing~~ Rules Not Applicable to RECLAIM Facilities for Requirements Pertaining to NOx Emissions~~, of subdivision (j) of Rule 2001~~ If Rule Was Adopted or Amended Prior to October 5, 2018, any unit with a rated heat input capacity greater than or equal to 40 million Btu per hour and with an annual heat input greater than 200 x 10^9 Btu per year to have a continuous in-stack nitrogen oxides monitor or equivalent verification system in compliance with to Rules 218 and 218.1, and 40 CFR Part 60 Appendix B Specification 2. Maintenance and emission records will be required to be maintained and made accessible for two years.

Paragraph (c)(7) proposes to allow an owner or operator ~~of a non-RECLAIM facility that~~ has ~~installed, or modified,~~ been issued a SCAQMD Permit to Construct or Permit to Operate for certain units prior to the date of rule adoption at a non-RECLAIM facility to defer compliance with the specified NOx emission limit until the replacement of at least 50 percent of the unit's burners or 15 years from the date of rule adoption, whichever is earlier. The units allowed to defer compliance include the following: Group II ~~units~~ fire-tube boilers subject to subparagraph (c)(1)(G) ~~(c)(2)(H)~~ complying with a previous NOx emission limit ~~of~~ less than or equal to nine ppm ~~or less as specified in a SCAQMD Permit to Operate~~; or Group III ~~units~~ fire-tube boilers subject to either subparagraph (c)(1)(J)~~(I)~~ or (c)(1)(K)~~(J)~~ complying with a previous NOx emission limit of less than or equal to 9 ~~12~~ ppm~~ or less as specified in a SCAQMD Permit to Operate~~; or thermal fluid heaters subject to subparagraph (c)(1)(L~~K~~) complying with a previous NOx emission limit of less than or equal to 20 ppm~~ or less as specified in a SCAQMD Permit to Operate~~.

Paragraph (c)(8) proposes to not allow an owner or operator that has been issued a SCAQMD Permit to Operate prior to September 5, 2008 for a Group III natural gas fired unit complying with a previous NOx emission limit of 12 ppm or less and greater than 9 ppm to operate in a manner that discharges NOx emissions (reference at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes) in excess of 9 ppm, by [*15 years after the date of amendment*] or when 50 percent or more of the unit's burners are replaced, whichever is earlier.

Paragraph (c)(9)~~(8)~~ proposes to allow an owner or operator ~~of a non-RECLAIM facility~~ that has ~~installed or modified,~~ been issued a SCAQMD Permit to Construct or Permit to Operate prior to the date of rule adoption, for any unit(s) operating with ~~an~~ air pollution control equipment that results in ammonia emissions in the exhaust complying~~, as specified in a SCAQMD Permit to Operate and~~ with an emission limit greater than ~~five~~ 5 ppm, to defer compliance with the ammonia emission limit (as specified in paragraph (c)(2)) until the air pollution control equipment is replaced or modified and during the first 12 months of operation, demonstrate compliance according to the schedule specified in paragraph (d)(3).

Paragraph (c)(10)~~(9)~~ proposes to remove the reference to paragraph (c)(2), since it is no longer applicable.

Paragraph (c)(11)~~(10)~~ proposes to require units using landfill or digester gas (biogas) co-fired with natural gas ~~at a RECLAIM or former RECLAIM facility~~ to comply with emission limits in subparagraphs (c)(1)(C) or (c)(1)(D)~~Table 1146-1~~, provided that the facility monthly average biogas usage by the biogas units is 90 percent or more, based on the higher heating value of the fuels used.~~, by the applicable compliance date specified in Rule 1100.~~

Paragraph (c)(12) proposes, until a Regulation XI rule referenced in paragraph (f)(5) is adopted or amended and notwithstanding the NOx emission limits specified in Table 1146-1 of paragraphs (c)(1) and (e)(3), to require units at a municipal sanitation service facility to be limited to nine ppm for Group II and Group III units; or nine ppm, upon burner replacement, for Group III units that were installed or modified prior to September 5, 2008 complying with a previous NOx emission limit of 12 ppm or less; or 30 ppm for thermal fluid heaters; or 30 ppm for a thermal fluid heater, upon burner replacement, for any low-fuel use unit complying with paragraph (c)(5).

Compliance Determination - Subdivision (d)

Paragraphs (d)(1), (d)(4), and (d)(5) and subparagraph (d)(8)(A) propose to remove references to previous paragraph (c)(2), since it is no longer applicable.

Paragraph (d)(2) proposes to limit the time needed for start-ups or shut downs, to not last longer than necessary to reach stable conditions.

Paragraph (d)(3) proposes to require the owner or operator of ~~the~~ new or modified air pollution control equipment subject to the ammonia emission limit to conduct quarterly source testing to demonstrate compliance with the ammonia emission limit, within 12 months of unit operation ~~after the date of rule adoption~~ and annually within 12 months thereafter when four consecutive quarterly source tests demonstrate compliance with the ammonia emission limit, according to the procedures in District Source Test Method 207.1 for Determination of Ammonia Emissions from Stationary Sources. If an annual test is failed, four consecutive quarterly source tests will be required to demonstrate compliance with the ammonia emission limits prior to resuming annual source testing or an ammonia CEMS certified under an approved SCAQMD protocol could be utilized to demonstrate compliance with the ammonia emission limit.

Paragraph (d)(5) proposes to allow the owner of a unit, to select the lb/MMBtu heat input compliance option, in order to calculate the NOx and CO emissions according to the specified procedure and protocol.

Paragraph (d)(8) proposes to include an~~clarify that~~ exception for units subject to paragraph (c)(6) from conducting periodic monitoring for NOx emissions. ~~, any owner or operator subject to this rule is required to perform diagnostic emission checks of NOx emissions with a portable NOx, CO, and oxygen analyzer according to the Protocol for the Periodic Monitoring of NOx, CO, and Oxygen from Units Subject to SCAQMD Rules 1146 and 1146.1 by the applicable schedule specified in subparagraphs (d)(8)(A) to (d)(8)(D).~~Subparagraph (d)(8)(A) proposes new requirements for owners and operations checking NOx emissions of units subject to paragraphs (c)(1), (c)(3), or (c)(4). Subparagraph (d)(8)(B) proposes ~~on or after 15 years after the date of rule adoption or when 50 percent or more of the unit's burners are replaced, whichever is earlier,~~ to require owner or operators complying with the requirements in paragraph (c)(5) to verify NOx emissions according to the tune-up schedule specified in subparagraph (c)(5)(B).

~~Subparagraph (d)(8)(A) proposes to allow six months after the applicable compliance date specified in Rule 1100 for a RECLAIM or former RECLAIM facility to conduct periodic monitoring for NOx emissions.~~

Paragraph (d)(9) proposes to use the phrase "million Btu per hour" instead of "mmbtu/hr" to describe the units to provide consistency within the rule.

~~Subparagraph (d)(8)(B) proposes to allow a RECLAIM or former RECLAIM facility until the applicable compliance date specified in Rule 1100 or during a burner replacement, whichever occurs later, to conduct NOx emission checks for low fuel usage units according to the existing tune-up schedule contained in subparagraph (c)(5)(B).~~

Compliance Schedule - Subdivision (e)

~~Sub~~Pparagraph (e)(1) proposes to require the owner or operator of~~exempt~~ any unit(s) subject to paragraph (c)(1) at a RECLAIM or former RECLAIM facility to meet the applicable NOx emission limit in Table 1146-1 according to the~~subject to Rule 1100 from the compliance~~ schedule specified in PR 1100 ~~Table 1146-1~~.

~~Sub~~Ppparagraph (e)(2) proposes to require owners or operators of any thermal fluid heater at a non-RECLAIM facility with a NOx emission limit greater than 20 ppm to submit a complete SCAQMD permit application for each unit within 12 months from the date of rule adoption and by January 1, 2022 to meet the applicable NOx emission limit in Table 1146-1.

~~exempt units at a RECLAIM or former RECLAIM facility subject to Rule 1100 from the compliance schedule specified in Table 1146-2.~~

~~Sub~~Paragraph (e)(3) proposes to prohibit units complying with paragraph (c)(5) to discharge greater than 12 ppm in NOx emissions ~~on or after~~ by 15 years after the date of rule amendment ~~adoption~~ or when 50 percent of more of the unit's burners are replaced, whichever is earlier. ~~proposes to allow low fuel usage unit(s) at a RECLAIM or former RECLAIM facility until the applicable compliance date specified in Rule 1100 or during burner replacement, whichever occurs later, to install a burner meeting the NOx emission limit of 30 ppm as specified in Table 1146-1 or subparagraph (c)(1)(A).~~

Paragraph (e)(4) proposes that any unit complying with the requirements specified in paragraph (c)(5) that exceeds 90,000 therms of annual heat input from all fuels used in any 12 month period would constitute a violation of this rule. In addition, subparagraph (e)(4)(A) requires that within four months after exceeding 90,000 therms of annual heat input, the facility would be required to submit applications for Permits to Construct and Operate, and subparagraph (e)(4)(B) requires that within 18 months after exceeding 90,000 therms of annual heat input, the facility would be required to demonstrate compliance with paragraph (c)(4) (CO emissions) for the life of the unit.

Exemptions - Subdivision (f)

New subdivision (f) is proposing to exempt the following units: boilers used by electric utilities to generate electricity; boilers and process heaters with a rated heat input capacity greater than 40 million Btu per hour that are used in petroleum refineries; sulfur plant reaction boilers; and any unit at a RECLAIM or former RECLAIM facility that is subject to a NOx emission limit in a different rule for an industry-specific category defined in PR 1100; or any unit at a municipal sanitation service facility that is subject to a NOx emission limit in a Regulation XI rule adopted or amended after [*date of amendment*].

PAR 1146.1

Applicability - Subdivision (a)

The exemptions contained in subdivision (a) are proposed to be moved to new subdivision (f) – Exemptions.

~~Effective upon the date of adoption, PAR 1146.1 will clarify that the exemption of RECLAIM (NOx emissions only) facilities applies only to any RECLAIM facility or former RECLAIM facility that is in an industry-specific category specified in Rule 1100 – Implementation Schedule for NOx Facilities.~~

Definitions - Subdivision (b)

New~~The~~ definitions of Fire-Tube Boiler; Former RECLAIM Facility; Heat Input; Modification; Municipal Sanitation Services; Non-RECLAIM Facility; and RECLAIM Facility are proposed be added.

The following definitions are proposed to be modified: Annual Heat Input; Boiler or Steam Generator; NOx Emissions; Rated Heat Input Capacity; and Thermal Fluid Heater.

The definition of School is proposed to be removed.

Because of the addition of new definitions, the definitions in subdivision (b) have been renumbered; thus, a reference to a paragraph in the one of the definitions has been modified.

Requirements - Subdivision (c)

Subdivision (c) requires units to meet emission limits specified in paragraphs (c)(1) through (c)(3), notwithstanding the exemptions contained in ~~subdivision (j) of~~ Rule 2001 – Applicability, Table 1 – Rules Not Applicable to RECLAIM Facilities for Requirements Pertaining to NOx Emissions If Rule Was Adopted or Amended Prior to October 5, 2018.

~~Paragraph (c)(1) proposes to exempt units at a RECLAIM or former RECLAIM facility subject to Rule 1100 from the NOx emission limit of 30 ppm. However,~~ Ppparagraph (c)(1~~2~~) is proposed to be removed and subsumed into Table 1146.1-1. Table 1146.1-1 is proposed to be changed as follows~~proposes to require the owner or operator of a RECLAIM or former RECLAIM facility subject to Rule 1100 to meet the applicable NOx emission limits specified in Table 1146.1-1 in accordance with the schedule specified in Rule 1100. As such the following is proposed to be added to Table 1146.1-1:~~.

Rule Reference	**Category**	**Limit[1]**	**Compliance Schedule for NON-RECLAIM Facilities**	**Compliance Schedule for RECLAIM and former RECLAIM Facilities**
(c)(1)(A)	All Other Units	30 ppm or for natural gas fired units 0.036 lb/10^6 Btu	September 5, 2008	See PR~~Rule~~ 1100 – Implementation Schedule for NOx Facilities
(c)(1)(B)	Any Units Fired on Landfill Gas	25 ppm	January 1, 2015	
(c)(1)(c)	Any Units Fired on Digester Gas	15 ppm	January 1, 2015	
(c)(1)(D)	Atmospheric Units	12 ppm or 0.015 lb/10^6 Btu	January 1, 2014	
(c)(1)(E~~e~~)	Any Units Fired on Natural Gas, excluding Fire-tube Boilers subject to (c)(1)(F), Atmospheric Units, and Thermal Fluid Heaters	9 ppm or 0.011 lb/10^6 Btu	January 1, 2014 or See ~~subparagraph~~ (c)(5)(A)	
(c)(2)(F)	Any Fire-tube Boilers Fired on Natural Gas, excluding units with a previous NOx limit >9 and ≤ 12 ppm prior to [*date of amendment*]	7 ppm or 0.0085 lb/10^6 Btu	Date of amendment or See (c)(6) for units with a previous NOx limit >9 and ≤ 12 ppm prior to September 5, 2008	
(c)(2)(G)	Thermal Fluid Heaters	12 ppm or 0.015 lb/10^6 Btu	Date of amendment or See ~~subparagraph~~ (c)(5)(B) for units with a previous ~~an existing~~ NOx limit ≤ 20 ppm prior to [date of amendment] or See ~~paragraph~~ (e)(2) for units with a previous ~~an existing~~ NOx limit >20 ppm prior to [*date of amendment*]~~≥ 20 ppm~~	
[1]All parts per million (ppm) emission limits are referenced at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes.				
~~RECLAIM Units~~	~~As specified in this Table~~			

Paragraph (c)(2) clarifies that a weighted average emission limit calculated by Equation 1146.1-1 may be used in lieu of the emission limits of Table 1146.1-1 provided a totalizing fuel flow meter is installed pursuant to paragraph (c)(6), for units burning a combination of bother fuels.

Paragraph (c)(3) proposes to specify that CO emissions will need to be referenced at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes.

Paragraph (c)(4~~5~~) proposes to relieve~~allow a provision for~~ low fuel usage unit(s) with an ~~(~~annual heat input of less than or equal to 18,000 therms per calendar year that have been~~)~~ in operation prior to September 5, 2008 for non-RECLAIM facilities or~~at a RECLAIM or former RECLAIM facility that has been~~ in operation 12 months prior to the date of rule amendment ~~adoption~~ for RECLAIM or former RECLAIM facilities, from having to otherwise~~in lieu of complying~~ comply with the applicable emission limits specified in paragraphs (c)(1), (c)(2), (c)(3), (e)(1), and (e~~c~~)(24).

Paragraph (c)(5~~6~~) proposes to allow an owner or operator of a non-RECLAIM facility that has ~~installed, or modified,~~ been issued a SCAQMD Permit to Construct or Permit to Operate prior to the date of rule adoption, fire-tube boilers fired on ~~a~~ natural gas~~-fired unit~~ subject to subparagraph ~~(c)(1)(E) or~~ (c)(1)(F) complying with a previous NOx emission limit of 9 ~~12~~ ppm or less, or a thermal fluid heater subject to subparagraph (c)(1)(G) complying with a previous NOx emission limit of 20 ppm or less to defer compliance with the applicable NOx emission limits until replacement of at least 50 percent of the unit's burners or 15 years from the date of rule adoption, whichever is earlier occurs.~~or former RECLAIM facility that installs or modifies a natural gas fired unit prior to the date of rule adoption and complying with the BACT emission limit of 12 ppm or less of NOx to defer compliance with paragraph (c)(2) or the compliance dates in Rule 1100 until the unit's burner(s) replacement.~~

Paragraph (c)(6) proposes to not allow an owner or operator that has been issued a SCAQMD Permit to Operate prior to September 5, 2008 for a natural gas fired unit complying with a previous NOx emission limit of 12 ppm or less and greater than 9 ppm to operate in a manner that discharges NOx emissions (reference at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes) in excess of 9 ppm, by [*15 years after the date of amendment*] or when 50 percent or more of the unit's burners are replaced, whichever is earlier.

Paragraph (c)(8)~~(7)~~ proposes to remove the reference to the compliance date January 1, 2015 since the date has already passed. ~~proposes to require units using landfill or digester gas (biogas) co-fired with natural gas at a RECLAIM or former RECLAIM facility to comply with the emission limits in Table 1146.1-1, provided that the facility monthly average biogas usage by the biogas units is 90 percent or more, based on the higher heating value of the fuels used, by the applicable compliance date specified in Rule 1100.~~

Paragraph (c)(9) proposes until a Regulation XI rule referenced in paragraph (f)(2) is adopted or amended and, notwithstanding the NOx emission limits specified in Table 1146.1-1 of paragraphs (c)(1) and (e)(3), to require units at a municipal sanitation service facility to meet NOx emission limits of nine ppm for natural gas fired units; or nine ppm, upon burner replacement; for natural gas fired units that were installed or modified prior to September 5, 2008 complying with a previous NOx emission limit of 12 ppm or less; or 30 ppm for thermal fluid heaters; or 30 ppm, upon burner replacement, for any low-fuel use unit complying with paragraph (c)(4).

Compliance Determination - Subdivision (d)

Paragraph (d)(2) proposes to remove allowing start-up or shutdown intervals to last as long as necessary to reach stable temperatures.

Paragraph (d)(3) is proposed to be removed since Table 1146.1-1 is proposed to incorporate the requirement that the emission limits as ppm will be referenced at three percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes.

Subparagraph (d)(6)(A) proposes to remove the compliance date that has passed and add paragraph (c)(2) for determining weighted average.

Subparagraph (d)(6)(B) proposes to require low fuel usage unit(s) complying with paragraph (c)(4) ~~on or after 15 years from the date of rule adoption or when 50 percent or more of the unit's burners are replaced, whichever is earlier,~~ to verify NOx emissions according to the tune-up schedule in subparagraph (c)(4)(B).

Subparagraph (d)(7)(A) proposes to remove the reference to the compliance date July 1, 2009 since the date has already passed. ~~proposes to allow six months after the compliance date specified in Rule 1100 for a RECLAIM or former RECLAIM facility to conduct periodic monitoring for NOx emissions.~~

~~Subparagraph (d)(7)(B) proposes to allow a RECLAIM or former RECLAIM facility until the applicable compliance date specified in Rule 1100 or during a burner replacement, whichever occurs later, to conduct NOx emission checks for low fuel usage units according to the existing tune-up schedule contained in subparagraph (c)(5)(B).~~

Compliance Schedule – Subdivision (e)

Paragraph(e)(1) proposes to require a unit at a RECLAIM facility or former RECLAIM facility with any unit subject to paragraph (c)(1) to meet the applicable NOx emission limit in Table 1146.1-1 in accordance with the schedule specified with PR 1100.

Paragraph (e)(2) proposes to require~~allow~~ any thermal fluid heaters at a non-RECLAIM facility with an emission limit greater than 20 ppm to submit a complete permit application on or before 12 months from the date of rule adoption and to meet the NOx emission limit in Table 1146.1-1 as specified in subparagraph (c)(1)(G). ~~low fuel usage unit at a RECLAIM or former RECLAIM facility until the applicable compliance date specified in Rule 1100 during burner replacement, whichever occurs later, to install a burner meeting the NOx emission level of 30 ppm, as specified in paragraph (c)(1).~~

Paragraph (e)(3) proposes to prohibit NOx emissions in excess of 12 ppm, ~~on or after~~ by 15 years after the date of rule adoption or when 50 percent or more of the unit's burners are replaced, whichever is earlier.

Paragraph (e)(4) proposes that any unit complying with the requirements specified in paragraph (c)(4) that exceeds 18,000 therms of annual heat input from all fuels used would constitute a violation of this rule.

Exemptions - Subdivision (f)

New subdivision (f) is proposed to include an exemption of any unit at a RECLAIM or former RECLAIM facility that is subject to a NOx emission limit in a different rule for an industry-specific

category as defined in PR 1100; or any unit at a municipal sanitation service facility that is subject to a NOx emission limit in a Regulation XI rule adopted or amended after [*date of amendment*].

PAR 1146.2

Definitions - Subdivision (b)
The definitions of Best Available Retrofit Control Technology (BARCT); Former RECLAIM Facility and RECLAIM Facility are proposed be added. The definitions of Fire-Tube Boiler; Heat Input; NOx Emissions; Thermal Fluid Heater are proposed to be modified.

Requirements - Subdivision (c)
Paragraph (c)(3) proposes to exempt units at a RECLAIM or former RECLAIM facility rated at a heat input capacity of greater than one MMBtu per hour but less than or equal to two MMBtu per hour that do not meet the NOx emission limit of 30 ppm (0.036 pound NOx per MMBtu) and 400 ppm of CO (at three percent oxygen (O2), dry) as specified in paragraph (c)(1).

Paragraph (c)(4) proposes to exempt units at a RECLAIM or former RECLAIM facility greater than 15 years old, based on the original date of manufacture, and with a rated heat input capacity of greater than one MMBtu per hour but less than or equal to two MMBtu per hour that do not meet the NOx emission limit of 30 ppm (0.036 pound NOx per MMBtu) and 400 ppm of CO (at three percent oxygen (O2), dry) as specified in paragraph (c)(1).

Paragraph (c)(5) proposes to exempt units at a RECLAIM or former RECLAIM facility greater than 15 years old, based on the original date of manufacture, and with a rated heat input capacity greater than 400,000 Btu per hour but less than or equal to one MMBtu per hour that do not meet the NOx emission limit of 30 ppm (0.036 pound NOx per MMBtu) and 400 ppm of CO (at three percent oxygen (O2), dry) as specified in paragraph (c)(1).

Paragraphs (c)(9) and (c)(10) propose to incorporate the exemptions currently contained in Rule 2001 – Applicability ~~subdivision (j)~~ and its accompanying Table 1 – Rules Not Applicable to RECLAIM Facilities for Requirements Pertaining to NOx Emissions If Rule Was Adopted or Amended Prior to October 5, 2018, which contains maintenance requirements for Type 2 units and a copy of all documents identifying the unit's rated heat input capacity, respectively.

Paragraph (c)(13) proposes to require a technology assessment to be conducted by January 1, 2022 to determine if the NOx emission limits in subdivision (c) represent BARCT. If the NOx emission limits are confirmed or verified that they represent BARCT, notwithstanding the exemptions contained in Rule 2001 – Applicability ~~subdivision (j~~) and its accompanying Table 1– Rules Not Applicable to RECLAIM Facilities for Requirements Pertaining to NOx Emissions If Rule Was Adopted or Amended Prior to October 5, 2018, units at RECLAIM or former RECLAIM facilities with any Type 2 units will be required to meet the NOx emission limits by December 21, 2023. However, if it is determined a more stringent BARCT requirement is needed, SCAQMD will be required to initiate rule development within six months of the completion of the technology assessment.

Exemptions - Subdivision (h)
Subparagraph (h)(1)(C) proposes to exempt units at a RECLAIM or former RECLAIM facility subject to a NOx emission limit in a different rule for an industry-specific category defined in Rule 1100 – Implementation Schedule for NOx Facilities.

Subparagraph (h)(1)(D) proposes to exempt units at a municipal sanitation service facility subject to a NOx emission limit in a Regulation XI rule adopted or amended after [*date of amendment*].

~~Paragraph (h)(3) is proposesd to exempt any RECLAIM facility or former RECLAIM facility, that is subject to a NOx emission limit in a different rule for in an industry-specific category specified in PRRule 1100 from the requirement to comply with NOx emissions limits contained in of paragraphs (c)(1) to (c)(5).~~

PR 1100

Purpose – Subdivision (a)
Subdivision (a) defines the purpose of Rule 1100 is to establish the implementation schedule for when Regulation XX NOx RECLAIM facilities transition to a command-and-control regulatory structure.

Applicability – Subdivision (b)
Subdivision (b) establishes the applicability to include any owner or operator of a RECLAIM or former RECLAIM facilities that owns or operates equipment that meets the applicability provisions specified in Rules 1146 and~~,~~ 1146.1~~, and 1146.2~~.

Definitions - Subdivision (c)
The following new definitions are proposed: Annual Heat Input; ~~Btu; Heat Input;~~ Former RECLAIM Facility; Heat Input; Industry-Specific Category; NOx Emissions, Rated Heat Input Capacity; RECLAIM Facility; Rule 1146 Unit; Rule 1146.1 Unit; and Title V Facility~~; and Rule 1146.2 Unit~~.

Rule 1146 and Rule 1146.1 Implementation Schedule - Subdivision (d)
Paragraph (d)(1) is proposed to establish the timing when an owner or operator of a RECLAIM facility with any Rule 1146 or any Rule 1146.1 units will need to comply with the following requirements:

- On or before 12 months after ~~from~~ the date of rule adoption, submit complete permit applications for Rule 1146 and Rule 1146.1 units that do not currently meet the NOx concentration limits established in Rules 1146 and 1146.1 at the facility;
- On or before January 1, 2021, meet the applicable NOx concentration limit for a minimum of 75 percent of the cumulative total rated heat input ~~for~~ capacity for~~of~~ all Rule 1146 and Rule 1146.1 units; and
- On or before January 1, 2022, meet the applicable NOx concentration limit of 100 percent of Rule 1146 and Rule 1146.1 units (by heat input) at the facility.

Paragraph (d)(2) proposes to allow u~~U~~nits that are not retrofitted and will undergo complete replacement ~~to~~can defer compliance until January 1, 2023 to meet the applicable NOx emission limits, provided the facility submits a complete permit application on or before 12 months after the date of rule adoption for any new Rule 1146 and/or Rule 1146.1 unit, as well as accepts a permit condition that identifies which unit(s) will be replaced and no longer operated when the new units are installed or after January 1, 2023, whichever is earlier; and replaces the existing unit on or before January 1, 2023. ~~notifies the Executive Officer (including Facility Name, Facility Identification Number, Permit Number for the unit(s) being replaced; size of the existing and new units (MMBtu/hr), and fuel type) within 12 months after the date of rule adoption; on or before 12~~

~~months of the date of rule adoption submits a complete permit application for the new Rule 1146 and Rule 1146.1 unit(s); and demonstrates that the heat input capacity of the new unit does not exceed the total heat input capacity of existing units being replaced~~.

~~Subp~~Paragraph (d)(3)~~1)(E)~~ is proposed to establish the applicable NOx concentration limits for units meeting the minimum compliance deadline of 75 percent of the cumulative total heat input for all Rule 1146 and Rule 1146.1 units by January 1, 2021 and 100 percent by January 1, 2022. Rules 1146 and 1146.1 units would be required to meet the NOx concentration limit in Rule 1146, Table 1146-1 and Rule 1146.1, Table 1146.1-1, respectively. ~~Rule 1146 units that meet the applicability provisions specified in Rule 1146 paragraph (c)(2) will also be required to meet the ammonia emission limit specified in Rule 1146 paragraph (c)(2). In addition Rule 1146.1 units meeting the applicability provisions in Rule 1146.1 paragraph (c)(78) will be required to meet the NOx concentration limit specified in Rule 1146.1 paragraph(c)(78).~~

Paragraph (d)(4) is proposed to allow owner or operators of unit(s) in operation prior to 12 months after the date of rule adoption, in lieu of complying with paragraph (d)(3), to meet NOx emission limits and source testing requirements as specified in the SCAQMD Permit to Operate as of the date of rule adoption for units that are 90,000 therms per year and complying with Rule 1146 paragraph (c)(5) or 18,000 therms per year and complying with Rule 1146.1 paragraph (c)(4).

Paragraph (d)(5~~4~~2) is proposed to require an owner or operator of a RECLAIM or former RECLAIM facility with any Rule 1146 or Rule 1146.1 unit that has been installed or modified prior to the date of rule adoption to meet the specified NOx emission limit within 15 years after the date of rule adoption or when 50 percent or more of the unit's burners are replaced, whichever is earlier. The following are Rule 1146 units:

- ~~Units subject to subparagraph (c)(1)(F) with a previous NOx emission limit of less than or equal to seven ppm or less as specified in a SCAQMD Permit to Operate; or~~

- Fire-tube boilers subject to Rule 1146 subparagraph (c)(1)(G) or (c)(1)(J) complying with a previous NOx emission limit that is less than or equal to 9 ppm and greater than 5 ppm; or

- Units subject to Rule 1146.1 subparagraph (c)(1)(E)complying with a previous NOx emission limit that is less than or equal to 12 ppm and greater than 9 ppm; or

- Fire-tube boilers fired on natural gas subject to Rule 1146.1 subparagraph (c)(1)(F) complying with a previous NOx emission limit that is less than or equal to 9 ppm; or

- Units subject to subparagraph ~~(c)(1)(G),~~ (c)(1)(H), or (c)(l)(K~~I~~) complying with a previous NOx emission limit of less than or equal to 12 ppm and greater than five ppm; or

- Thermal fluid heaters, as defined in Rule 1146 paragraph (b)(26~~27~~), subject to Rule 1146 subject to Rule 1146 subparagraph (c)(1)(L~~K~~) complying with a previous NOx emission limit of less than or equal to 20 ppm ~~or less as specified in SCAQMD Permit to Operate~~.

The following are Rule 1146.1 units:

- Units subject to Rule 1146.1 subparagraph (c)(1)(E) or (c)(1)(F) complying with a previous NOx emission limit of less than or equal to 12 ppm ~~or less as specified in a SCAQMD Permit to Operate~~; or

- Thermal fluid heaters, as defined in Rule 1146.1 subparagraph (c)(1)(G) complying with a previous NOx emission limit of less than or equal to 20 ppm ~~or less as specified in a SCAQMD Permit to Operate~~. ~~Rule 1146.2 Type 2 units to meet the NOx concentration limit specified in Rule 1146.2, paragraph (c)(1) unless a more stringent limit is applicable by December 31, 2023. A unit may be modified or demonstrated to meet the NOx emission limits pursuant to the provisions of Rule 1146.2, subdivision (e).~~

~~Paragraph (d)(5) proposes to exempt any unit at a RECLAIM or former RECLAIM facility that is subject to a NOx emission limit in a different rule for identified in an industry-specific category identified.~~

Paragraph (d)(6) proposes for an owner or operator that has been issued a SCAQMD Permit to Construct or Permit to Operate prior to [*date of adoption*] for the following units, notwithstanding paragraph (d)(1), by [*15 years after the date of adoption*] or when 50 percent or more of the unit's burners are replaced, whichever is earlier, the units shall not operate in a manner that discharges NOx emissions (reference at 3 percent volume stack gas oxygen on a dry basis averaged over a period of 15 consecutive minutes) in excess of the following:

- 7 ppm for Rule 1146 Group I units operating without air pollution control equipment for the after treatment of the emissions in the exhaust complying with a previous NOx emission limit of 7 ppm or less and greater than 5 ppm; or

- 9 ppm for Rule 1146 Group III or Rule 1146.1 natural gas fired units complying with a previous NOx emission limit of 12 ppm or less and greater than 9 ppm.

Paragraph (d)(7) proposes to require the owner or operator of any Rule 1146 Group I unit complying with the requirements specified in subparagraph (d)(6)(A) that exceeds 300,000 therms of annual heat input from all fuels used shall:

- within 4 months after exceeding 300,000 therms of annual heat input, submit complete SCAQMD permit applications for the unit that does not meet the applicable NOx concentration limit specified in paragraph (d)(3); and

- within 18 months after exceeding 300,000 therms of annual heat input, demonstrate and maintain compliance with the applicable NOx concentration limit specified in paragraph (d)(3) for the life of the unit.

Paragraph (d)(8) proposes to allow any unit at a RECLAIM or former RECLAIM facility that is subject to a NOx emission limit in a different rule for an industry-specific category to not be subject to the requirements contained in this subdivision.

Monitoring, Reporting, and Recordkeeping Requirements - Subdivision (e)

Paragraph (e)(1)~~(d)(4) is~~ proposes~~d~~ to require Title V facilities to comply with the monitoring, reporting, and recordkeeping requirements specified in Rule 2012.

Paragraph (e)(2)~~(d)(5) is~~ proposes~~d~~ to require~~for a~~ non-Title V RECLAIM facilities~~y~~ that becomes~~a~~ former RECLAIM facilities~~y~~ to comply with the monitoring, reporting, and recordkeeping requirements in the applicable rule(s) as specified in subdivision (b), upon the date the RECLAIM facility becomes a former RECLAIM facility.

SUMMARY OF AFFECTED EQUIPMENT

Among the 266 facilities currently in the NOx RECLAIM program, approximately 103~~111~~ RECLAIM facilities will be affected by PARs 1146 series and PR 1100. Of the 103~~111~~ RECLAIM facilities, overall 291 ~~323~~ permitted units will be affected by PARs 1146 series and PR 1100. Of the 291 permitted units, 148 units are projected to be retrofitted in order to meet the NOx emission limits. It is estimated PARs 1146 series and PR 1100 will reduce NOx by 0.20 ton per day by January 1, 2021 and ~~0.23~~ 0.27 ton per day by January 1, 2023. It is noteworthy that there are units at 824 non-RECLAIM facilities that are expected to be affected by PARs 1146 series and these units are projected to either be retrofitted or replaced. Certain units would need to meet the NOx emission limits either during burner replacement or 15 years after the date of rule adoption. Thermal fluid heaters currently permitted at greater than 20 ppm must submit a permit application within 12 months of rule adoption and must meet the NOx emission limit of 12 ppm by January 1, 2022. However, because the replacement of a burner or retrofitting a boiler would be dependent on facility-specific variables (e.g., age of burner, ability to retrofit, cost, etc.), it is difficult to quantify the number of units at non-RECLAIM facilities that would be affected by PARs 1146 series and PR 1100 and determine when a~~ny~~ burner replacements or boiler retrofits would occur.

~~predict and speculative when and the number of units at non-RECLAIM facilities that would be affected by PARs 1146 series.~~ Table 2-1 identifies the industry sectors, as classified by the North American Industry Classification System (NAICS) code, and the number of respective units at RECLAIM facilities subject to PARs 1146 series and PR 1100.

Table 2-1
Affected Industry Subject to PARs 1146 series and PR 1100

NAICS	NAICS Description	Count
111339	Apricot Farming	2
112111	Backgrounding, Cattle	1
115310	Cruising Timber	1
211111	Coal Gasification At Mine Site	3
211120	Crude Petroleum Extraction	4
212321	Common Sand Quarrying And/Or Beneficiating	1
221112	Electric Power Generation, Fossil Fuel (e.g., Coal, Oil, Gas)	4
221118	Electric Power Generation, Tidal	1
221210	Blue Gas, Carbureted, Production And Distribution	2
221310	Canal, Irrigation	9
221320	Collection, Treatment, And Disposal Of Waste Through A Sewer System	14
221330	Air-Conditioning Supply	1
236115	Cabin Construction General Contractors	1
236220	Addition, Alteration And Renovation For-Sale Builders, Commercial And Institutional Building	2
237110	Aqueduct Construction	1
237210	Building Lot Subdividing	7
237310	Abutment Construction	1
238110	Chimney, Concrete, Construction	1
238210	Airport Runway Lighting Contractors	1
238220	Air System Balancing And Testing	1
238320	Bridge Painting	1
238990	Artificial Turf Installation	4
311111	Animal Feed Mills, Dog And Cat, Manufacturing	4
311119	Alfalfa Meal, Dehydrated, Manufacturing	1
311224	Canola (Rapeseed) Oil, Cake And Meal, Made In Crushing Mills	1
311225	Canola (Rapeseed) Oil, Cake And Meal, Made From Purchased Oils	3
311411	Blast Freezing On A Contract Basis	3
311412	Chop Suey, Frozen, Manufacturing	6
311421	Artichokes, Canned, Manufacturing	6
311422	Baby Foods (Including Meats) Canning	2
311423	Bouillon Made In Dehydration Plants	1
311511	Acidophilus Milk Manufacturing	9
311513	Cheese (Except Cottage Cheese) Manufacturing	3
311520	Custard, Frozen, Manufacturing	1
311611	Abattoirs	1
311612	Bacon, Slab And Sliced, Made From Purchased Carcasses	6
311613	Animal Fats Rendering	2
311710	Cannery, Seafood	2

Table 2-1: Affected Industry Subject to PARs 1146 series and PR 1100 (continued)

NAICS	NAICS Description	Count
311811	Bakeries With Baking From Flour On The Premises, Retailing Not For Immediate Consumption	1
311812	Bagels Made In Commercial Bakeries	2
311824	Batters, Prepared, Made From Purchased Flour	2
311919	Cheese Curls And Puffs Manufacturing	2
311930	Beverage Bases Manufacturing	2
311941	Cheese Based Salad Dressing Manufacturing	3
311942	Chili Pepper Or Powder Manufacturing	1
311999	Almond Pastes Manufacturing	10
312111	Artificially Carbonated Waters Manufacturing	7
312112	Beverages, Naturally Carbonated Bottled Water, Manufacturing	2
312120	Ale Brewing	2
313210	Blankets And Bedspreads Made In Broadwoven Fabric Mills	5
313240	Bags And Bagging Fabrics Made In Warp Or Weft Knitting Mills	1
313310	Bleaching Textile Products, Apparel, And Fabrics	15
314110	Bath Mats And Bath Sets Made In Carpet Mills	3
315190	Athletic Clothing Made In Apparel Knitting Mills	1
321211	Hardwood Plywood Composites Manufacturing	1
321920	Ammunition Boxes, Wood, Manufacturing	1
322121	Absorbent Paper Stock Manufacturing	3
322130	Binder's Board Manufacturing	4
322211	Boxes, Corrugated And Solid Fiber, Made From Purchased Paper Or Paperboard	19
322212	Boxes, Folding (Except Corrugated), Made From Purchased Paperboard	1
322219	Bobbins, Fiber, Made From Purchased Paperboard	1
322299	Cards, Die-Cut (Except Office Supply) Made From Purchased Paper Or Paperboard	1
324121	Asphalt Paving Blocks Made From Purchased Asphaltic Materials	3
324122	Asphalt Roofing Cements Made From Purchased Asphaltic Materials	2
324191	Brake Fluids, Petroleum, Made From Refined Petroleum	3
325110	Acyclic Hydrocarbons (e.g., Butene, Ethylene, Propene) (Except Acetylene) Made From Refined Petroleum Or Liquid Hydrocarbons	1
325120	Acetylene Manufacturing	2
325180	Alkalis Manufacturing	7
325193	Denatured Alcohol Manufacturing	1
325211	Acetal Resins Manufacturing	5
325314	Compost Manufacturing	1
325320	Ant Poisons Manufacturing	1
325411	Acetylsalicylic Acid Manufacturing	2
325412	Adrenal Medicinal Preparations Manufacturing	9

Table 2-1: Affected Industry Subject to PARs 1146 series and PR 1100 (continued)

NAICS	NAICS Description	Count
325414	Agar Culture Media Manufacturing	2
325611	Bar Soaps Manufacturing	1
325612	Air Fresheners Manufacturing	1
325620	After-Shave Preparations Manufacturing	6
325991	Custom Compounding (I.E., Blending And Mixing) Of Purchased Plastics Resins	1
325998	Activated Carbon Or Charcoal Manufacturing	3
326113	Acrylic Film And Unlaminated Sheet (Except Packaging) Manufacturing	1
326130	Laminated Plastics Plate, Rod, And Sheet, Manufacturing	2
326140	Coolers Or Ice Chests, Polystyrene Foam, Manufacturing	4
326150	Cushions, Carpet And Rug, Urethane And Other Foam Plastics (Except Polystrene), Manufacturing	1
326199	Awnings, Rigid Plastics Or Fiberglass, Manufacturing	3
326299	Balloons, Rubber, Manufacturing	2
327120	Adobe Bricks Manufacturing	2
327213	Beer Bottles, Glass, Manufacturing	1
327331	Architectural Block, Concrete (e.g., Fluted, Ground Face, Screen, Slump, Split), Manufacturing	2
327390	Architectural Wall Panels, Precast Concrete, Manufacturing	7
331210	Boiler Tubes, Wrought, Made From Purchased Iron	1
331222	Barbed And Twisted Wire Made In Wire Drawing Plants	1
331315	Aluminum Foil Made By Flat Rolling Purchased Aluminum	1
331492	Alloying Purchased Nonferrous Metals (Except Aluminum, Copper)	2
331512	Foundries, Steel Investment	1
332111	Cold Forgings Made From Purchased Iron Or Steel, Unfinished	2
332431	Aerosol Cans, Light Gauge Metal, Manufacturing	1
332811	Annealing Metals And Metal Products For The Trade	1
332812	Aluminum Coating Of Metal Products For The Trade	2
332813	Anodizing Metals And Metal Products For The Trade	8
332996	Bends, Pipe, Made From Purchased Metal Pipe	1
332999	Aluminum Freezer Foil Not Made In Rolling Mills	2
333241	Bakery Machinery And Equipment Manufacturing	2
333318	Adding Machines Manufacturing	2
333414	Baseboard Heating Equipment Manufacturing	1
334220	Airborne Radio Communications Equipment Manufacturing	3
334412	Circuit Boards, Printed, Bare, Manufacturing	1
334413	Diodes, Solid-State (e.g., Germanium, Silicon), Manufacturing	2
334418	Loaded Computer Boards Manufacturing	1
334510	Arc Lamp Units, Electrotherapeutic (Except Infrared, Ultraviolet), Manufacturing	3

Table 2-1: Affected Industry Subject to PARs 1146 series and PR 1100 (continued)

NAICS	NAICS Description	Count
335312	Armature Rewinding On A Factory Basis	1
336411	Aircraft Conversions (I.E., Major Modifications To System)	6
336412	Aircraft Engine And Engine Parts (Except Carburetors, Pistons, Piston Rings, Valves) Manufacturing	2
336413	Aircraft Assemblies, Subassemblies, And Parts (Except Engines) Manufacturing	4
336414	Developing And Producing Prototypes For Complete Guided Missiles And Space Vehicles	1
336419	Airframe Assemblies For Guided Missiles Manufacturing	2
339112	Anesthesia Apparatus Manufacturing	1
339991	Coaxial Mechanical Face Seals Manufacturing	1
339992	Accordions And Parts Manufacturing	1
339999	Amusement Machines, Coin-Operated, Manufacturing	1
423110	All-Terrain Vehicles (ATVs) Merchant Wholesalers	1
423220	Antique Home Furnishing Merchant Wholesalers	1
423720	Boilers (e.g., Heating, Hot Water, Power, Steam) Merchant Wholesalers	1
423840	Abrasives Merchant Wholesalers	2
423920	Children's Vehicles (Except Bicycles) Merchant Wholesalers	1
423990	Ammunition (Except Sporting) Merchant Wholesalers	1
424130	Bags, Paper And Disposable Plastics, Merchant Wholesalers	3
424310	Apparel Trimmings Merchant Wholesalers	1
424410	General-Line Groceries Merchant Wholesalers	1
424420	Bakery Products, Frozen, Merchant Wholesalers	1
424430	Butter Merchant Wholesalers	3
424470	Cutting Of Purchased Carcasses (Except Boxed Meat Cut On An Assembly-Line Basis) Merchant Wholesalers	1
424480	Berries, Fresh, Merchant Wholesalers	4
424490	Baby Foods, Canned, Merchant Wholesalers	7
424590	Animal Hair Merchant Wholesalers	1
424690	Acids Merchant Wholesalers	4
424710	Bulk Gasoline Stations	1
424910	Agricultural Chemicals Merchant Wholesalers	1
424950	Calcimines, Merchant Wholesalers	2
424990	Art Goods Merchant Wholesalers	1
441110	Automobile Dealers, New Only Or New And Used	1
443142	Audio Equipment Stores (Except Automotive)	1
444190	Building Materials Supply Dealers	5
445110	Commissaries, Primarily Groceries	6
445299	Coffee And Tea (I.E., Packaged) Stores	1
447190	Gasoline Stations Without Convenience Stores	1

Table 2-1: Affected Industry Subject to PARs 1146 series and PR 1100 (continued)

NAICS	NAICS Description	Count
448120	Apparel Stores, Women's And Girls' Clothing	1
448150	Apparel Accessory Stores	1
448190	Bridal Gown Shops (Except Custom)	2
452111	Department Stores (Except Discount Department Stores)	1
453220	Balloon Shops	2
453910	Feed Stores, Pet	1
453998	Art Supply Stores	1
454390	Bazaars (I.E., Temporary Stands)	4
481111	Air Commuter Carriers, Scheduled	1
484110	Bulk Mail Truck Transportation, Contract, Local	4
484121	Bulk Mail Truck Transportation, Contract, Long-Distance (Tl)	2
485113	Bus Line, Local (Except Mixed Mode)	1
486110	Booster Pumping Station, Crude Oil Transportation	4
486210	Booster Pumping Station, Natural Gas Transportation	3
486910	Booster Pumping Station, Refined Petroleum Products Transportation	2
488111	Air Traffic Control Services (Except Military)	1
488190	Aircraft Ferrying Services	1
488210	Freight Car Cleaning Services	2
488320	Loading And Unloading Services At Ports And Harbors	1
488490	Bridge, Tunnel, And Highway Operations	1
488999	Arrangement Of Car Pools And Vanpools	1
493190	Automobile Dead Storage	1
512110	Animated Cartoon Production	3
512131	Cinemas	1
519120	Archives	2
522110	Banks, Commercial	2
522120	Associations, Savings And Loan	1
522310	Agencies, Loan	1
523991	Administrators Of Private Estates	1
523999	Clearinghouses, Commodity Exchange Or Securities Exchange	1
524113	Accidental Death And Dismemberment Insurance Carriers, Direct	1
524114	Dental Insurance Carriers, Direct	1
524210	Agencies, Insurance	2
525920	Bankruptcy Estates	1
531110	Apartment Building Rental Or Leasing	7
531120	Arena, No Promotion Of Events, Rental Or Leasing	16
531190	Agricultural Property Rental Leasing	1
531210	Agencies, Real Estate	25
531312	Commercial Property Managing	4

Table 2-1: Affected Industry Subject to PARs 1146 series and PR 1100 (continued)

NAICS	NAICS Description	Count
532411	Aircraft Rental And Leasing	1
532412	Bulldozer Rental Or Leasing Without Operator	1
532490	Agricultural Machinery And Equipment Rental Or Leasing	1
541330	Acoustical Engineering Consulting Services	1
541380	Acoustics Testing Laboratories Or Services	2
541511	Applications Software Programming Services, Custom Computer	1
541611	Administrative Management Consulting Services	4
541618	Telecommunications Management Consulting Services	2
541711	Biotechnology Research And Development Laboratories Or Service In Botany	1
541990	Appraisal (Except Real Estate) Services	3
551112	Agreement Corporation (Except International Trade Financing)	2
561110	Administrative Management Services	6
561210	Base Facilities Operation Support Services	2
561450	Commercial Credit Reporting Bureaus	1
561499	Address Bar Coding Services	4
561720	Aircraft Janitorial Services	3
561990	Auctioneers, Independent	4
562211	Acid Waste Disposal Facilities	1
562212	Dumps, Nonhazardous Solid Waste (e.g., Trash)	3
562213	Combustors, Nonhazardous Solid Waste	1
562219	Compost Dumps	3
562910	Asbestos Abatement Services	1
611110	Academies, Elementary Or Secondary	40
611210	Academies, Junior College	15
611310	Academies, College Or University	20
611519	Air Traffic Control Schools	2
611699	Bible Schools (Except Degree Granting)	1
621111	Acupuncturists' (MDs Or DOs) Offices (e.g., Centers, Clinics)	9
621310	Chiropractors' Offices (e.g., Centers, Clinics)	1
621399	Acupuncturists' (Except MDs Or DOs) Offices (e.g., Centers, Clinics)	1
621491	Group Hospitalization Plans Providing Health Care Services	3
621493	Ambulatory Surgical Centers And Clinics, Freestanding	2
621511	Bacteriological Laboratories, Diagnostic	2
621610	Home Care Of Elderly, Medical	1
621999	Blood Pressure Screening Facilities	5
622110	Children's Hospitals, General	71
622210	Alcoholism Rehabilitation Hospitals	3
622310	Cancer Hospitals	5
623110	Convalescent Homes Or Convalescent Hospitals (Except Psychiatric)	5

Table 2-1: Affected Industry Subject to PARs 1146 series and PR 1100 (continued)

NAICS	NAICS Description	Count
623220	Alcoholism Rehabilitation Facilities (Except Licensed Hospitals), Residential	1
623311	Assisted-Living Facilities With On-Site Nursing Facilities	2
623990	Boot Camps For Delinquent Youth	1
624110	Adoption Agencies	1
624120	Activity Centers For Disabled Persons, The Elderly, And Persons Diagnosed With Intellectual And Developmental Disabilities	1
624410	Babysitting Services In Provider's Own Home, Child Day Care	1
711212	Automobile Racetracks	1
711310	Air Show Managers With Facilities	3
712110	Art Galleries (Except Retail)	3
713110	Amusement Parks (e.g., Theme, Water)	2
713910	Country Clubs	1
713940	Aerobic Dance And Exercise Centers	3
721110	Alpine Skiing Facilities With Accommodations (I.E., Ski Resort)	22
722310	Airline Food Services Contractors	2
722330	Beverage Stands, Nonalcoholic, Mobile	1
722410	Alcoholic Beverage Drinking Places	1
722511	Bagel Shops, Full Service	6
722513	Carryout Restaurants	2
811111	Automotive Engine Repair And Replacement Shops	3
811192	Automotive Detailing Services (I.E., Cleaning, Polishing)	2
811198	Automotive Air-Conditioning Repair Shops	1
811219	Dental Equipment Repair And Maintenance Services	2
811310	Agricultural Machinery And Equipment Repair And Maintenance Services	3
811490	Bicycle Repair And Maintenance Shops Without Retailing New Bicycles	2
812310	Automatic Laundries, Coin-Operated	1
812320	Agents, Laundry And Dry cleaning	5
812331	Apron Supply Services	24
812332	Clean Room Apparel Supply Services	9
812930	Automobile Parking Garages Or Lots	1
812990	Astrology Services	2
813110	Bible Societies	5
813212	Disease Awareness Fundraising Organizations	1
813410	Alumni Associations	2
813990	Athletic Associations, Regulatory	7
921110	Advisory Commissions, Executive Government	8
921120	Advisory Commissions, Legislative	1
921190	Auditor's Offices, Government	7
922110	Administrative Courts	3

Table 2-1: Affected Industry Subject to PARs 1146 series and PR 1100 (Concluded)

NAICS	NAICS Description	Count
922120	Alcohol, Tobacco, And Firearms Control	5
922130	Attorney Generals' Offices	1
922140	Correctional Boot Camps	7
922150	Pardon Boards And Offices	1
922160	Ambulance And Fire Service Combined	2
923120	Cancer Detection Program Administration	1
923130	Community Social Service Program Administration	1
924110	Enforcement Of Environmental And Pollution Control Regulations	4
926110	Arts And Cultural Program Administration, Government	1
926120	Aircraft Inspection, Government	1
928110	Air Force	3
Unknown	#N/A	24
	Total	927

~~**Table 2-1**~~

~~**Affected Industry Subject to PARs 1146 series and PR 1100 (Concluded)**~~

~~NAICS Code~~	~~Description of Industry~~	~~Number of Units~~
~~211111~~	~~Oil and Gas Extraction~~	~~78~~
~~211120~~	~~Crude Petroleum Extraction~~	~~78~~
~~221112~~	~~Fossil Fuel Electric Power Generation~~	~~54~~
~~221210~~	~~Natural Gas Distribution~~	~~3~~
~~221330~~	~~Steam and Air-Conditioning Supply~~	~~69~~
~~311111~~	~~Dog and Cat Food Manufacturing~~	~~1~~
~~311511~~	~~Fluid Milk Manufacturing~~	~~2~~
~~311611~~	~~Animal (except Poultry) Slaughtering~~	~~3~~
~~311613~~	~~Rendering and Meat Byproduct Processing~~	~~38~~
~~311812~~	~~Commercial Bakeries~~	~~3~~
~~311824~~	~~Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour~~	~~5~~
~~311930~~	~~Flavoring Syrup and Concentrate Manufacturing~~	~~1~~
~~312120~~	~~Breweries~~	~~67~~
~~313210~~	~~Broadwoven Fabric Mills~~	~~65~~
~~313310~~	~~Textile and Fabric Finishing Mills~~	~~12~~
~~314110~~	~~Carpet and Rug Mills~~	~~12~~
~~322110~~	~~Pulp Mills~~	~~1~~
~~322121~~	~~Paper (except Newsprint) Mills~~	~~4~~
~~322130~~	~~Paperboard Mills~~	~~67~~
~~322211~~	~~Corrugated and Solid Fiber Box Manufacturing~~	~~5~~
~~324110~~	~~Petroleum Refineries~~	~~4~~
~~324121~~	~~Asphalt Paving Mixture and Block Manufacturing~~	~~612~~
~~324122~~	~~Asphalt Shingle and Coating Materials Manufacturing~~	~~712~~
~~324191~~	~~Petroleum Lubricating Oil and Grease Manufacturing~~	~~4~~

325120	Chemical Manufacturing	6
325180	Other Basic Inorganic Chemical Manufacturing	3
325211	Plastics Material and Resin Manufacturing	2
325411	Medicinal and Botanical Manufacturing	1
325412	Pharmaceutical Preparation Manufacturing	12

NAICS Code	Description of Industry	Number of Units
325414	Biological Product (except Diagnostic) Manufacturing	2
326140	Polystyrene Foam Product Manufacturing	6
327120	Clay Building Material and Refractories Manufacturing	1
331222	Steel Wire Drawing	2
331315	Aluminum Sheet, Plate, and Foil Manufacturing	2
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum)	2
331529	Other Nonferrous Metal Foundries (except Die-Casting)	1
332111	Iron and Steel Forging	3
332431	Metal Can Manufacturing	3
332811	Metal Heat Treating	1
332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	2
332996	Fabricated Pipe and Pipe Fitting Manufacturing	5
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	25
334412	Bare Printed Circuit Board Manufacturing	2
334413	Semiconductor and Related Device Manufacturing	7
336411	Aircraft Manufacturing	3237
336412	Aircraft Engine and Engine Parts Manufacturing	2
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	3
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	2
339991	Gasket, Packing, and Sealing Device Manufacturing	2
445110	Supermarkets and Other Grocery (except Convenience) Stores	4
486110	Pipeline Transportation of Crude Oil	78
486210	Pipeline Transportation of Natural Gas	9
486910	Pipeline Transportation of Refined Petroleum Products	3
488111	Air Traffic Control	2
522120	Savings Institutions	1
531210	Offices of Real Estate Agents and Brokers	2
541511	Custom Computer Programming Services	2
541990	All Other Professional, Scientific, and Technical Services	1
561110	Office Administrative Services	3
713110	Amusement and Theme Parks	19
721110	Hotels (except Casino Hotels) and Motels	24
812331	Linen Supply	35
812332	Industrial Launderers	2
	Total	291323

CHAPTER 3

EXISTING SETTING

Introduction

Existing Setting

Air Quality

Hazards and Hazardous Materials

INTRODUCTION

In order to determine the significance of the impacts associated with a proposed project, it is necessary to evaluate the project's impacts against the backdrop of the environment as it exists at the time the environmental analysis is commenced. The CEQA Guidelines define "environment" as "the physical conditions that exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance." (CEQA Guidelines Section 15360; *see also* Public Resources Code Section 21060.5.) Furthermore, a CEQA document must include a description of the physical environment in the vicinity of the project, as it exists at the time the environmental analysis is commenced, from both a local and regional perspective. (CEQA Guidelines Section 15125.) Therefore, the "environment" or "existing setting" against which a project's impacts are compared consists of the immediate, contemporaneous physical conditions at and around the project site. (Remy, et al; 1996.)

The following sections summarize the existing setting for control measure CMB-05 and the existing rules that will be affected by the proposed project (e.g., PARs 1146 series) as well as the regional existing setting for air quality and hazards and hazardous materials which were the only environmental topics identified that may be adversely affected by the proposed project.

The March 2017 Final Program EIR for the 2016 AQMP also contains comprehensive information on existing and projected regional environmental settings for the topic of air quality and hazards and hazardous materials. The March 2017 Final Program EIR for the 2016 AQMP can be obtained by visiting the following website at: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfProgram EIR.pdf.

Hard copies of the above referenced document as well as the other documents referenced in the following sections are also available by visiting the SCAQMD's Public Information Center at SCAQMD Headquarters located at 21865 Copley Drive, Diamond Bar, CA 91765; by contacting Fabian Wesson, Public Advisor by calling (909) 396-2039 or by emailing at PICrequests@aqmd.gov.

EXISTING SETTNG

In general, Rules 1146, 1146.1, and 1146.2 were developed to reduce NOx emissions from boilers, steam generators, process heaters, and natural gas-fired water heaters. Control measure CMB-05 in the 2016 AQMP was also developed to identify a series of approaches that can be explored to ensure equivalency with equipment-based command-and-control regulations implementing BARCT, and to generate further NOx emission reductions at RECLAIM facilities. The following summarizes the existing setting for control measure CMB-05 as well as the current version of Rules 1146, 1146.1, and 1146.2.

CMB-05

The 2016 AQMP identifies control measures and strategies to bring the region into attainment with the revoked 1997 8-hour NAAQS (standard) (80 parts per billion (ppb)) for ozone by 2024; the 2008 8-hour ozone standard (75 ppb) by 2032; the 2012 annual PM2.5 standard (12 microgram per cubic meter (ug/m3) by 2025; the 2006 24-hour PM2.5 standard (35 ug/m3) by 2019; and the revoked 1979 1-hour ozone standard (120 ppb) by 2023. The 2016 AQMP consists of three

components: 1) the SCAQMD's Stationary, Area, and Mobile Source Control Measures; 2) State and Federal Control Measures provided by the CARB; and 3) Regional Transportation Strategy and Control Measures provided by the Southern California Association of Governments. The 2016 AQMP includes emission inventories and control measures for stationary, area and mobile sources, the most current air quality setting, updated growth projections, new modeling techniques, demonstrations of compliance with state and federal Clean Air Act requirements, and an implementation schedule for adoption of the proposed control strategy. Control measure CMB-05, one of several components in the 2016 AQMP, was developed to identify a series of approaches that can be explored to ensure equivalency with command-and-control regulations implementing BARCT, and to generate five tons per day of further NOx emission reductions at RECLAIM facilities as soon as feasible, and no later than 2025, and to transition to a command-and-control regulatory structure requiring BARCT level controls as soon as practicable. Because many of the RECLAIM program's original advantages appeared to be diminishing, CMB-05 prescribed an orderly sunset of the RECLAIM program to create more regulatory certainty and reduce compliance burdens for RECLAIM facilities, while also achieving more actual and SIP creditable emissions reductions. A NOx RECLAIM re-assessment working group was convened to examine the functionality, benefits, and challenges of the RECLAIM program and options for an orderly transition to a command-and-control structure. The conclusion from these working groups indicated a necessity to first amend Rules 1146, 1146.1 and 1146.2 as the first step in achieving the goals of CMB-05.

The analysis in the March 2017 Final Program EIR for the 2016 AQMP identified potential adverse impacts that may result from implementing the various components in the plan for the following environmental topic areas: 1) aesthetics; 2) air quality and GHGs; 3) energy; 4) hazards and hazardous materials; 5) hydrology and water quality; 6) noise; 7) solid and hazardous waste; and 8) transportation and traffic. The analysis concluded that significant and unavoidable adverse environmental impacts were expected to occur after implementing mitigation measures for the following topic areas: 1) aesthetics from increased glare and from the construction and operation of catenary lines and use of bonnet technology for ships; 2) construction air quality and GHGs; 3) energy (due to increased electricity demand); 4) hazards and hazardous materials due to: a) increased flammability of solvents; b) storage, accidental release and transportation of ammonia (which is specific to CMB-05); c) storage and transportation of liquefied natural gas (LNG); d) proximity to schools; 5) hydrology (water demand); 6) construction noise and vibration; 7) solid construction waste and operational waste from vehicle and equipment scrapping; and, 8) transportation and traffic during construction and during operation on roadways with catenary lines and at the harbors. Mitigation measures for the potentially significant impacts were required and were made a condition of the approval. Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Program were adopted.

Rule 1146

Specifically, Rule 1146 applies to boilers, steam generators, and process heaters used at industrial, institutional, and commercial operations with a rated heat input capacity greater than or equal to five MMBtu per hour. Rule 1146 does not regulate NOx emissions from boilers used by electric utilities to generate electricity, boilers and process heaters with a rated heat input capacity greater than 40 MMBtu per hour, and sulfur plant reactor boilers. Rule 1146 establishes three groups (Group I, Group II, and Group III) for units burning natural gas or gaseous fuels. Group I unit includes any unit burning natural gas with a rated heat input greater than or equal to 75 MMBtu per hour, excluding thermal fluid heaters, and is required to meet a NOx emission limit of five

ppm or 0.0062 pound per MMBtu. Group II unit includes any unit burning gaseous fuels, excluding digester and landfill gases, with a rated heat input less than 75 MMBtu per hour and greater than or equal 20 MMBtu per hour, excluding thermal heaters. Group III units include any unit burning gaseous fuels, excluding digester and landfill gases~~, and thermal fluid heaters~~ with a rated heat input less than 20 MMBtu per hour and greater than or equal to five MMBtu per hour and all units operated at schools and universities greater than or equal to five MMBtu per hour, excluding atmospheric units and thermal fluid heaters. Group II and Group III units are required to meet a NOx emission limit of nine ppm or 0.011 pound per MMBtu. Rule 1146 also establishes that any units fired on non-gaseous fuels, landfill gas, or digester gas are required to meet NOx emission limits of 40 ppm, 25 ppm, or 15 ppm, respectively. Atmospheric units are required to meet a 12 ppm or 0.015 pound per MMBtu NOx emission limit.

The most recent two amendments to Rule 1146 were in September 2008 and November 2013. In the September 2008 amendments to Rule 1146, the allowable NOx emission limits for boilers, steam generators and process heaters were reduced from 30 ppm to either 12 ppm, nine ppm or five ppm, depending on equipment size and operational characteristics. The September 2008 amendments also added NOx compliance limits for units burning landfill or digester gases at 25 ppm and 15 ppm, respectively. Other changes included: 1) establishing a weighted average formula for dual fueled co-fired units; 2) allowing existing units to be de-rated to no less than two MMBtu per hour per unit; 3) requiring compliance with a 30 ppm NOx limit for low fuel usage equipment by January 1, 2015 or burner replacement, whichever occurs later; 4) allowing a later compliance date for health facilities complying with seismic safety requirements; 5) establishing a staged compliance schedule over a multi-year period which varies by equipment size range and unit operation; 6) making the frequency of compliance testing compatible with sources subject to the RECLAIM program for the same equipment size range; and 7) allowing NOx emissions monitoring with a portable analyzer. The analysis in the September 2008 Final EA for Rule 1146 concluded that the project would achieve NOx emission reductions of approximately 1.17 tons per day of NOx emissions by 2016 by relying on currently available NOx control technologies (e.g., low NOx burners and SCR systems). The September 2008 Final EA for Rule 1146 also concluded that the project would have a significant effect on the environment for air quality during construction (before applying the NOx emission reductions) and hazards and hazardous materials associated with the use and storage of aqueous ammonia. Mitigation measures for the potentially significant hazards and hazardous materials impacts were required and were made a condition of the approval. Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Program were adopted.

The November 2013 amendments to Rule 1146 addressed a SIP approvability issue that was raised by the U.S. EPA regarding the use of source test data and portable analyzers test results to prove a violation of the emission standard. Also included in the November 2013 amendments were the following minor changes: 1) a clarification that Rules 1146 and 1146.1 do not apply to NOx sources subject to the SCAQMD's Regulation XX – RECLAIM; 2) the identification of certain equipment that are not included under boiler or steam generator category; 3) an enhanced description pertaining to the types of operations that would be subject to Rule 1146; 4) a clarification that low fuel usage equipment are only subject to periodic tune-up requirements; and, 5) a prohibition from derating equipment to a level at or below two million MMBtu per hour. No NOx emission reductions were attributed to the November 2013 amendments to Rule 1146. The project was reviewed pursuant to CEQA Guidelines Section 15002(k)(1) and SCAQMD staff concluded that it could be seen with certainty that there was no possibility that the project had the

potential to create any significant adverse impacts on the environment. Therefore, the SCAQMD determined that the project was exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) - Review for Exemption. A Notice of Exemption was filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

Rule 1146.1

As with Rule 1146, Rule 1146.1 also applies to boilers, steam generators, and process heaters at industrial, institutional, and commercial operations, but for units with a rated heat input capacity greater than two but~~and~~ less than five MMBtu per hour. Similar to Rule 1146, units using landfill gas or digester gas would also need to meet the NOx emission limit of 25 ppm or 15 ppm, respectively. Atmospheric units would also be required to meet a 12 ppm NOx emission limit. All other units, excluding thermal fluid heaters, fired on natural gas would need to meet a nine ppm or 0.011 pound per MMBtu NOx emission limit.

The most recent two amendments to Rule 1146.1 were also in September 2008 and November 2013. Similar to Rule 1146, but applicable to units with smaller rated heat inputs, the September 2008 amendments to Rule 1146.1 further reduced the NOx emission limits, included new NOx limits for atmospheric units to be 12 ppm or 0.015 pound per MMBtu, and units burning landfill or digester gases at 25 ppm and 15 ppm, respectively. The amendments also: 1) established a weighted average formula for dual fueled co-fired units; 2) allowed existing units to be de-rated to no less than two MMBtu per hour per unit; 3) made the frequency of compliance testing compatible with RECLAIM sources for the same equipment size range; 4) allowed for monitoring of NOx and CO emissions with a portable analyzer; 5) for low-fuel usage units, required compliance with a 30 ppm NOx limit by January 1, 2015 or burner replacement, whichever occurs later; 6) allowed thermal fluid heaters to continue compliance with the 30 ppm NOx limits; and, 7) allowed a later compliance date for health facilities complying with seismic safety requirements. The analysis in the September 2008 Final EA for Rule 1146.1 concluded that the project would achieve NOx emission reductions of approximately 0.28 tons per day by 2015 by relying on currently available NOx control technologies (e.g., low NOx burners). The September 2008 Final EA for Rule 1146.1 identified no significant adverse environmental impacts for any environmental topic areas. Since there were no significant adverse environmental impacts identified, mitigation measures were not required and Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Program were not adopted.

The November 2013 amendments to Rule 1146.1 were combined with the November 2013 amendments to Rule 1146, and addressed a SIP approvability issue that was raised by the U.S. EPA regarding the use of source test data and portable analyzers test results to prove a violation of the emission standard. Also included in the November 2013 amendments were the following minor changes: 1) a clarification that Rules 1146 and 1146.1 do not apply to NOx sources subject to the SCAQMD's Regulation XX – RECLAIM; 2) the identification of certain equipment that are not included under boiler or steam generator category; 3) an enhanced description pertaining to the types of operations that would be subject to Rule 1146; 4) a clarification that low fuel usage equipment are only subject to periodic tune-up requirements; and, 5) a prohibition from derating equipment to a level at or below two million MMBtu per hour. No NOx emission reductions were attributed to the November 2013 amendments to Rule 1146. The project was reviewed pursuant to CEQA Guidelines Section 15002(k)(1) and SCAQMD staff concluded that it could be seen with certainty that there was no possibility that the project had the potential to create any significant adverse impacts on the environment. Therefore, the SCAQMD determined that the project was

exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3) - Review for Exemption. A Notice of Exemption was filed with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties.

Rule 1146.2

Rule 1146.2 addresses natural gas-fired water heaters, boilers, and process heaters less than or equal to two MMBtu per hour. Rule 1146.2 exempts units used in recreational vehicles and units subject to SCAQMD Rule 1121. Rule 1146.2 requires new Type 2 units (rated heat input capacity greater than 400,000 Btu per hour and less than or equal to two MMBtu per hour) and Type 1 (rated heat input capacity less than or equal to 400,000 Btu per hour) to meet a NOx emission limit of 30 ppm and 20 ppm, respectively. Pool heaters rated at less than or equal to 400,000 Btu per hour are required to meet the NOx emission limit of 55 ppm (or 40 ng per J heat output). However, the current amendments to Rule 1146.2 will not require RECLAIM facilities to meet NOx emission limits in Rule 1146.2 by December 31, 2023 unless a more stringent BARCT limit is applicable.

The most recent amendments to Rule 1146.2 occurred in May 2006 and partially offset the NOx emission reductions foregone from the January 2005 amendments to Rule 1146.2. The May 2006 amendments to Rule 1146.2 required: 1) Type 2 units (equipment with heat input ratings greater than 400,000 Btu per hour) to meet a NOx emission limit of 20 ppm on or after January 1, 2010; and 2) Type 1 units (equipment with a heat input rating equivalent to or less than 400,000 Btu per hour) to meet a NOx emission limit of 20 ppm on or after January 1, 2012. Other changes included: 1) providing more detailed specifications for demonstrating compliance with an existing exemption from retrofit requirements for equipment operating less than 9,000 therms per year; 2) clarifying rule applicability; 3) a specific recordkeeping requirement for larger units; 4) enhancing compliance and enforceability; and, 5) improving clarity. The analysis in the May 2006 Final EA for Rule 1146.2 concluded that the project would achieve annual NOx emission reductions beginning in 2010, culminating in an overall reduction of 1.8 tons per day of NOx emissions by January 1, 2027 by relying on currently available NOx control technologies (e.g., low NOx burners). The May 2006 Final EA for Rule 1146.2 identified no significant adverse environmental impacts for any environmental topic areas. Since there were no significant adverse environmental impacts identified, mitigation measures were not required and Findings, a Statement of Overriding Considerations, and a Mitigation Monitoring Program were not adopted.

NOx Emission Inventory for Rules 1146, 1146.1 and 1146.2

The total baseline NOx emission inventory for equipment at RECLAIM facilities subject to Rules 1146 and 1146.1 are summarized in Table 3-1 and is estimated to be 0.42~~41~~36 ton per day based on the SCAQMD RECLAIM inventory database from calendar year 2016. The inventory excludes facilities that would be subject to sector specific command-and-control regulation (electricity generating facilities and refineries). Thirty-two Rule 1146.2 units are currently permitted in the RECLAIM program with most of the units (29~~28~~ out of 32) meeting the Rule 1146.2 NOx emission limits. Three~~Four~~ of the 32 units do not meet the NOx emission limits and these units would require retrofitting or replacement by December 31, 2023 under the proposed project. However, it is important to note that Rule 1146.2 units are smaller units that are exempt from permitting requirements under Rule 219 -Equipment Not Requiring a Written Permit Pursuant to Regulation II. Non-RECLAIM facilities currently register Rule 1146.2 equipment from one up to and including two MMBtu per hour under Rule 222 - Filing Requirements For Specific Emission Sources Not Requiring a Written Permit Pursuant to Regulation II. RECLAIM facilities are currently exempt from this provision. Additionally, the RECLAIM NOx emissions for combustion

sources not requiring a written permit are reported on a quarterly basis as an aggregate sum for these devices. As a result, the permitted Rule 1146.2 universe may not fully represent the actual number of Rule 1146.2 units at RECLAIM facilities because the majority of the Rule 1146.2 units in RECLAIM are not currently registered or permitted with SCAQMD. Therefore, it is difficult to establish a precise inventory of the Rule 1146.2 units at RECLAIM facilities at this time. To aid in assessing the baseline emissions for future rulemaking efforts, RECLAIM facilities are required to submit their inventory of all small boilers and process heaters that would be subject to Rule 1146.2 requirements for Type 2 units as part of the initial determination notification process, pursuant to Rule 2002, paragraph (f)(6). The proposed amendments to Rules 1146, 1146.1, and 1146.2 affect a wide variety of RECLAIM facilities. For the lists of industry sectors and number of units affected by the proposed amendments to Rules 1146, 1146.1, and 1146.2, see Table 2-1.

Table 3-1
NOx Baseline Emission Inventory for Rules 1146, 1146.1, and 1146.2 Units in RECLAIM

Category	NOx Baseline Emission Inventory (tons/day)	Number of Affected Units
Rule 1146 – Group I (≥ 75 MMBtu/hour)	0.085	3
Rule 1146 – Group II (≥ 20 to < 75 MMBtu/hour)	0.2119	52
Rule 1146 – Group III (≥ 5 to < 20 MMBtu/hour)	0.10	69
Rule 1146 – Thermal Fluid Heaters	0.0030	2
Rule 1146.1 (> 2 to < 5 MMBtu/hour)	0.0112	19
Rule 1146.2 (≤ 2 MMBtu/hour)	0.008087	3
Total Emission Inventory	**0.4236**	**148149**

Over half the NOx emissions inventory can be attributed to Rule 1146 units in Group II. The Rule 1146 Group I units contribute to 2013 percent of NOx baseline emissions., however, on average each unit accounts for more than double the amount of emissions than a Rule 1146 Group II unit. The Rule 1146 Group III units make up 248 percent of the emissions inventory, which is equivalent towith 0.10 ton per day of NOx. A majority of the NOx baseline emission inventory comes from larger units subject to Rule 1146. Rule 1146.1 units make up the second majority of NOx baseline emissions inventory. Units subject to Rule 1146.2 make up thea smallest amount of the emission inventory. Thus, the compliance deadlines as proposed in Rule 1100 are expected to achieve greater NOx emissions reductions earlier from units subject to Rule 1146 and 1146.1.

AIR QUALITY

It is the responsibility of SCAQMD to ensure that state and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, CO, NO2, PM10, PM2.5, SO2, and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are more stringent than the federal standards and in the case of PM10 and SO2, far more stringent. California has also established standards for sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride. The state and NAAQS for each of these pollutants and their effects on health are summarized in Table 3-2. SCAQMD monitors levels of various criteria pollutants at 38 monitoring stations. The 2016 air quality data (the latest data available) from SCAQMD's monitoring stations are presented in Table 3-3.

Table 3-2
State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standard[a]	Federal Primary Standard[b]	Most Relevant Effects
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m3)	0.12 ppm	(a) Short-term exposures: 1) Pulmonary function decrements and localized lung edema in humans and animals; and 2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; and (d) Property damage.
	8-hour	0.070 ppm (137 µg/m3)	0.070 ppm (137 µg/m3)	
Suspended Particulate Matter (PM10)	24-hour	50 µg/m3	150 µg/m3	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; and (b) Excess seasonal declines in pulmonary function, especially in children.
	Annual Arithmetic Mean	20 µg/m3	No Federal Standard	
Suspended Particulate Matter (PM2.5)	24-hour	No State Standard	35 µg/m3	(a) Increased hospital admissions and emergency room visits for heart and lung disease; (b) Increased respiratory symptoms and disease; and (c) Decreased lung functions and premature death.
	Annual Arithmetic Mean	12 µg/m3	12 µg/m3	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m3)	35 ppm (40 mg/m3)	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
	8-Hour	9 ppm (10 mg/m3)	9 ppm (10 mg/m3)	

Table 3-2 (Concluded)
State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standard[a]	Federal Primary Standard[b]	Most Relevant Effects
Nitrogen Dioxide (NO2)	1-Hour	0.18 ppm (339 µg/m3)	0.100 ppm (188 µg/m3)	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	0.053 ppm (100 µg/m3)	
Sulfur Dioxide (SO2)	1-Hour	0.25 ppm (655 µg/m3)	75 ppb (196 µg/m3)–	Broncho-constriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
	24-Hour	0.04 ppm (105 µg/m3)	No Federal Standard	
Sulfates	24-Hour	25 µg/m3	No Federal Standard	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage
Hydrogen Sulfide (H2S)	1-Hour	0.03 ppm (42 µg/m3)	No Federal Standard	Odor annoyance.
Lead (Pb)	30-Day Average	1.5 µg/m3	No Federal Standard	(a) Increased body burden; and (b) Impairment of blood formation and nerve conduction.
	Calendar Quarter	No State Standard	1.5 µg/m3	
	Rolling 3-Month Average	No State Standard	0.15 µg/m3	
Visibility Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standard	The statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. This is a visibility based standard not a health based standard. Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent.
Vinyl Chloride	24-Hour	0.01 ppm (26 µg/m3)	No Federal Standard	Highly toxic and a known carcinogen that causes a rare cancer of the liver.

ppb = parts per billion parts of air, by volume
ppm = parts per million parts of air, by volume
µg/m3 = micrograms per cubic meter
mg/m3 = milligrams per cubic meter

[a] The California ambient air quality standards for O3, CO, SO2 (1-hour and 24-hour), NO2, PM10, and PM2.5 are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

[b] The national ambient air quality standards, other than O3 and those based on annual averages are not to be exceeded more than once a year. The O3 standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standards is equal to or less than one.

Table 3-3
2016 Air Quality Data – South Coast Air Quality Management District

CARBON MONOXIDE (CO)[a]				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. in ppm 1-hour	Max. Conc. in ppm, 8-hour
LOS ANGELES COUNTY				
1	Central Los Angeles	361	1.9	1.4
2	Northwest Coastal Los Angeles County	366	2.2	1.1
3	Southwest Coastal Los Angeles County	362	1.6	1.3
4	South Coastal Los Angeles County 1	--	--	--
4	South Coastal Los Angeles County 2	--	--	--
4	South Coastal Los Angeles County 3	363	3.3	2.2
4	I-710 Near Road##	--	--	--
6	West San Fernando Valley	366	2.4	1.9
8	West San Gabriel Valley	366	1.5	1
9	East San Gabriel Valley 1	366	1.3	1.2
9	East San Gabriel Valley 2	364	1.1	1
10	Pomona/Walnut Valley	361	1.7	1.3
11	South San Gabriel Valley	366	2.8	1.7
12	South Central Los Angeles County	366	4.4	3.9
13	Santa Clarita Valley	366	1.3	1.1
ORANGE COUNTY				
16	North Orange County	366	3.1	1.5
17	Central Orange County	355	2.6	2.1
17	I-5 Near Road##	360	3.7	2.2
18	North Coastal Orange County	366	2.1	1.7
19	Saddleback Valley	353	1.3	0.7
RIVERSIDE COUNTY				
22	Corona/Norco Area	--	--	--
23	Metropolitan Riverside County 1	359	1.7	1.3
23	Metropolitan Riverside County 3	366	1.9	1.4
24	Perris Valley	--	--	--
25	Elsinore Valley	298*	1.2	0.6
26	Temecula Valley	--	--	--
29	San Gorgonio Pass	--	--	--
30	Coachella Valley 1**	361	3.1	1.5
30	Coachella Valley 2**	--	--	--
30	Coachella Valley 3**	--	--	--
SAN BERNARDINO COUNTY				
32	Northwest San Bernardino Valley	366	1.7	1.3
33	I-10 Near Road##	366	1.7	1.3
33	CA-60 Near Road##	--	--	--
34	Central San Bernardino Valley 1	359	1.7	1
34	Central San Bernardino Valley 2	358	2.2	1.7
35	East San Bernardino Valley	--	--	--
37	Central San Bernardino Mountains	--	--	--
38	East San Bernardino Mountains	--	--	--
DISTRICT MAXIMUM			**4.4**	**3.9**
SOUTH COAST AIR BASIN			**4.4**	**3.9**

ppm = parts per million
-- = Pollutant not monitored
= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.
**Salton Sea Air Basin
*Incomplete Data

[a] The federal 8-hour standard (8-hour average CO > 9 ppm) and state 8-hour standard (8-hour average CO > 9.0 ppm) were not exceeded. The federal and state 1-hour standards (35 ppm and 20 ppm) were not exceeded either.

Table 3-3 (Continued)
2016 Air Quality Data – South Coast Air Quality Management District

OZONE (O3)

Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. in ppm 1-hr	Max. Conc. in ppm 8-hr	4th High Conc. ppm 8-hr	No. Days Standard Exceeded				
						Federal			State	
						Old > 0.124 ppm 1-hr	Current > 0.070 ppm 8-hr*	2008 > 0.075 ppm 8-hr	Current > 0.09 ppm 1-hr	Current > 0.070 ppm 8-hr
LOS ANGELES COUNTY										
1	Central LA	364	0.103	0.078	0.071	0	4	1	2	4
2	Northwest Coastal LA County	365	0.085	0.073	0.066	0	2	0	0	2
3	Southwest Coastal LA County	361	0.087	0.08	0.067	0	2	1	0	3
4	South Coastal LA County 1	--	--	--	--	--	--	--	--	--
4	South Coastal LA County 2	--	--	--	--	--	--	--	--	--
4	South Coastal LA County 3	365	0.079	0.059	0.055	0	0	0	0	0
4	I-710 Near Road##	--	--	--	--	--	--	--	--	--
6	West San Fernando Valley	364	0.122	0.098	0.086	0	23	14	9	23
8	West San Gabriel Valley	358	0.126	0.09	0.082	1	18	15	12	19
9	East San Gabriel Valley 1	366	0.146	0.106	0.095	4	39	25	30	40
9	East San Gabriel Valley 2	362	0.148	0.114	0.098	6	52	31	38	55
10	Pomona/Walnut Valley	360	0.127	0.092	0.087	1	26	14	20	29
11	South San Gabriel Valley	359	0.111	0.081	0.074	0	6	2	9	6
12	South Central LA County	365	0.098	0.071	0.064	0	1	0	1	1
13	Santa Clarita Valley	366	0.13	0.115	0.1	2	57	35	29	59
ORANGE COUNTY										
16	North Orange County	365	0.103	0.078	0.075	0	6	3	3	7
17	Central Orange County	354	0.103	0.074	0.071	0	4	0	2	4
17	I-5 Near Road##	--	--	--	--	--	--	--	--	--
18	North Coastal Orange County	366	0.09	0.069	0.065	0	0	0	0	0
19	Saddleback Valley	365	0.122	0.093	0.079	0	13	6	5	13
RIVERSIDE COUNTY										
22	Corona/Norco Area	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	357	0.142	0.104	0.097	1	69	47	33	71
23	Metropolitan Riverside County 3	365	0.14	0.106	0.095	1	65	43	34	70
24	Perris Valley	366	0.131	0.098	0.092	1	55	30	23	56
25	Elsinore Valley	360	0.124	0.093	0.087	0	44	25	15	45
26	Temecula Valley	355	0.092	0.081	0.077	0	19	6	0	20
29	San Gorgonio Pass	358	0.128	0.106	0.094	1	52	39	26	54
30	Coachella Valley 1**	363	0.103	0.092	0.087	0	46	20	6	48
30	Coachella Valley 2**	331	0.099	0.089	0.081	0	27	12	3	29
30	Coachella Valley 3**	--	--	--	--	--	--	--	--	--
SAN BERNARDINO COUNTY										
32	Northwest San Bernardino Valley	366	0.156	0.116	0.11	10	88	65	53	89
33	I-10 Near Road##	--	--	--	--	--	--	--	--	--
33	CA-60 Near Road##	--	--	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	362	0.139	0.105	0.098	3	49	39	34	52
34	Central San Bernardino Valley 2	366	0.158	0.118	0.114	10	106	76	70	108
35	East San Bernardino Valley	364	0.145	0.119	0.103	3	97	71	55	100
37	Central San Bernardino Mountains	365	0.163	0.121	0.116	9	101	80	64	103
38	East San Bernardino Mountains	--	--	--	--	--	--	--	--	--
DISTRICT MAXIMUM			**0.163**	**0.121**	**0.116**	**10**	**106**	**80**	**70**	**108**
SOUTH COAST AIR BASIN			**0.163**	**0.121**	**0.116**	**17**	**132**	**103**	**83**	**132**

ppm = parts per million
-- = Pollutant not monitored
= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.
**Salton Sea Air Basin
*Incomplete data

Table 3-3 (Continued)
2016 Air Quality Data – South Coast Air Quality Management District

NITROGEN DIOXIDE (NO2)[b]					
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	1-hour Max. Conc. ppb, 1,	1-hour 98th Percentile Conc. ppb,	Annual Average AAM Conc. ppb
LOS ANGELES COUNTY					
1	Central LA	366	64.7	61	20.8
2	Northwest Coastal LA County	366	54.5	49.3	11.6
3	Southwest Coastal LA County	348	81.5	54.7	10.1
4	South Coastal LA County 1	--	--	--	--
4	South Coastal LA County 2	--	--	--	--
4	South Coastal LA County 3	366	75.6	66.3	18.5
4	I-710 Near Road##	366	95.3	76.6	23.9
6	West San Fernando Valley	355	55.5	45.9	12.9
8	West San Gabriel Valley	366	71.9	58.4	15.4
9	East San Gabriel Valley 1	366	74.2	58.3	16.6
9	East San Gabriel Valley 2	365	65.4	45.7	11.6
10	Pomona/Walnut Valley	360	69.3	62.5	20.1
11	South San Gabriel Valley	361	63.2	60.1	20
12	South Central LA County	366	63.7	58.4	15.6
13	Santa Clarita Valley	361	46.4	39.4	10.2
ORANGE COUNTY					
16	North Orange County	359	60.4	51.5	14.7
17	Central Orange County	354	64.3	56.7	14.8
17	I-5 Near Road##	357	75.2	60.1	23.4
18	North Coastal Orange County	349	59.8	51.2	10.1
19	Saddleback Valley	--	--	--	--
RIVERSIDE COUNTY					
22	Corona/Norco Area	--	--	--	--
23	Metropolitan Riverside County 1	366	73.1	52.2	14.9
23	Metropolitan Riverside County 3	366	64.9	48.3	13.6
24	Perris Valley	--	--	--	--
25	Elsinore Valley	345*	51.3	35.6	8.1
26	Temecula Valley	--	--	--	--
29	San Gorgonio Pass	348	46.9	42.6	7.9
30	Coachella Valley 1**	363	42.6	34.4	6
30	Coachella Valley 2**	--	--	--	--
30	Coachella Valley 3**	--	--	--	--
SAN BERNARDINO COUNTY					
32	Northwest San Bernardino Valley	366	70.1	55.1	16.5
33	I-10 Near Road##	362	93.4	74.3	29.3
33	CA-60 Near Road##	361	89.8	71.3	31
34	Central San Bernardino Valley 1	357	71.7	56.4	18.2
34	Central San Bernardino Valley 2	355	60.1	51.4	16.6
35	East San Bernardino Valley	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--
38	East San Bernardino Mountains	--	--	--	--
DISTRICT MAXIMUM			**95.3**	**76.6**	**31**
SOUTH COAST AIR BASIN			**95.3**	**76.6**	**31**

ppb = parts per billion
AAM = Annual Arithmetic Mean
-- = Pollutant not monitored
**Salton Sea Air Basin
= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.

[b] The NO2 federal 1-hour standard is 100 ppb and the annual standard is annual arithmetic mean NO2 > 0.0534 ppm (53.4 ppb). The state 1-hour and annual standards are 0.18 ppm (180 ppb) and 0.030 ppm (30 ppb).

Table 3-3 (Continued)
2016 Air Quality Data – South Coast Air Quality Management District

SULFUR DIOXIDE (SO2)[c]				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Maximum Conc. ppb, 1-hour	99th Percentile Conc. ppb, 1-hour
LOS ANGELES COUNTY				
1	Central LA	366	13.4	2.5
2	Northwest Coastal LA County	--	--	--
3	Southwest Coastal LA County	363	9.7	5.7
4	South Coastal LA County 1	--	--	--
4	South Coastal LA County 2	--	--	--
4	South Coastal LA County 3	366	17.8	12
4	I-710 Near Road##	--	--	--
6	West San Fernando Valley	--	--	--
8	West San Gabriel Valley	--	--	--
9	East San Gabriel Valley 1	--	--	--
9	East San Gabriel Valley 2	--	--	--
10	Pomona/Walnut Valley	--	--	--
11	South San Gabriel Valley	--	--	--
12	South Central LA County	--	--	--
13	Santa Clarita Valley	--	--	--
ORANGE COUNTY				
16	North Orange County	--	--	--
17	Central Orange County	--	--	--
17	I-5 Near Road##	--	--	--
18	North Coastal Orange County	366	3.3	2.1
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Corona/Norco Area	--	--	--
23	Metropolitan Riverside County 1	366	5.6	2
23	Metropolitan Riverside County 3	--	--	--
24	Perris Valley	--	--	--
25	Elsinore Valley	--	--	--
26	Temecula Valley	--	--	--
29	San Gorgonio Pass	--	--	--
30	Coachella Valley 1**	--	--	--
30	Coachella Valley 2**	--	--	--
30	Coachella Valley 3**	--	--	--
SAN BERNARDINO COUNTY				
32	Northwest San Bernardino Valley	--	--	--
33	I-10 Near Road##	--	--	--
33	CA-60 Near Road##	--	--	--
34	Central San Bernardino Valley 1	363	6.3	2
34	Central San Bernardino Valley 2	--	--	--
35	East San Bernardino Valley	--	--	--
37	Central San Bernardino Mountains	--	--	--
38	East San Bernardino Mountains	--	--	--
DISTRICT MAXIMUM			**17.8**	**12**
SOUTH COAST AIR BASIN			**17.8**	**12**

ppb = parts per billion ** Salton Sea Air Basin
-- = Pollutant not monitored
= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.

[c] The federal SO2 1-hour standard is 75 ppb (0.075 ppm). The state standards are 1-hour average SO2 > 0.25 ppm (250 ppb) and 24-hour average SO2 > 0.04 ppm (40 ppb).

Table 3-3 (Continued)
2016 Air Quality Data – South Coast Air Quality Management District

SUSPENDED PARTICULATE MATTER PM10[d]						
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. µg/m^3, 24-hour	No. (%) Samples Exceeding Standard		Annual Average AAM Conc.[e] µg/m^3
				Federal > 150 µg/m^3, 24-hour	State > 50 µg/m^3, 24-hour	
LOS ANGELES COUNTY						
1	Central LA	277*	67	0	18(6%)	32.4
2	Northwest Coastal LA County	--	--	--	--	--
3	Southwest Coastal LA County	60	43	0	0(0%)	21.6
4	South Coastal LA County 1	--	--	--	--	--
4	South Coastal LA County 2	60	56	0	3(5%)	27.8
4	South Coastal LA County 3	59	75	0	8(14%)	31.9
4	I-710 Near Road[##]	--	--	--	--	--
6	West San Fernando Valley	--	--	--	--	--
8	West San Gabriel Valley	--	--	--	--	--
9	East San Gabriel Valley 1	60	74	0	12(20%)	33.7
9	East San Gabriel Valley 2	362	74	0	21(6%)	29.8
10	Pomona/Walnut Valley	--	--	--	--	--
11	South San Gabriel Valley	--	--	--	--	--
12	South Central LA County	--	--	--	--	--
13	Santa Clarita Valley	60	96	0	1(2%)	23.4
ORANGE COUNTY						
16	North Orange County	--	--	--	--	--
17	Central Orange County	353	74	0	3(1%)	24.4
17	I-5 Near Road[##]	--	--	--	--	--
18	North Coastal Orange County	--	--	--	--	--
19	Saddleback Valley	59	59	0	1(2%)	21
RIVERSIDE COUNTY						
22	Corona/Norco Area	51*	62	0	7(14%)	31.7
23	Metropolitan Riverside County 1	302*	82	0	58(19%)	36.9
23	Metropolitan Riverside County 3	356+	116	0	175(49%)	49
24	Perris Valley	57	76	0	5(9%)	32.2
25	Elsinore Valley	366	99	0	4(1%)	21.4
26	Temecula Valley	--	--	--	--	--
29	San Gorgonio Pass	57	65	0	3(5%)	24
30	Coachella Valley 1**	355+	113	0	6(2%)	20.8
30	Coachella Valley 2**	313*+	137	0	56(18%)	36.9
30	Coachella Valley 3**	272*+	150	0	76(28%)	43
SAN BERNARDINO COUNTY						
32	Northwest San Bernardino Valley	363	72	0	5(1%)	25
33	I-10 Near Road[##]	--	--	--	--	--
33	CA-60 Near Road[##]	--	--	--	--	--
34	Central San Bernardino Valley 1	61	94	0	15(25%)	38.1
34	Central San Bernardino Valley 2	333*	91	0	33(10%)	33.1
35	East San Bernardino Valley	56	72	0	4(7%)	27.8
37	Central San Bernardino Mountains	61	46	0	0(0%)	17.1
38	East San Bernardino Mountains	--	--	--	--	--
DISTRICT MAXIMUM			**150+**	**0+**	**175+**	**49.0+**
SOUTH COAST AIR BASIN			**116+**	**0+**	**181+**	**49.0+**

µg/m^3 = micrograms per cubic meter of air
AAM = Annual Arithmetic Mean
-- = Pollutant not monitored
**Salton Sea Air Basin
*Incomplete Data

[##] = Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.
+ = High PM10 (≥ 155 µg/m^3) data recorded in Coachella Valley (due to high winds) and the Basin (due to Independence Day fireworks) are excluded in accordance with the U.S. EPA Exceptional Event Rule.

[d] Federal Reference Method (FRM) PM10 samples were collected every 6 days at all sites except for Stations 4144 and 4157, where samples were collected every 3 days. PM10 statistics listed above are for the FRM data only. Federal Equivalent Method (FEM) PM10 continuous monitoring instruments were operated at some of the above locations. Max 24-hour average PM10 at sites with FEM monitoring was 152 µg/m3, at Indio.

[e] State standard is annual average (AAM) > 20 µg/m3. Federal annual PM10 standard (AAM > 50 µg/m3) was revoked in 2006.

Table 3-3 (Continued)
2016 Air Quality Data – South Coast Air Quality Management District

SUSPENDED PARTICULATE MATTER PM2.5 [f]						
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. µg/m³, 24-hour	98th Percentile Conc. in µg/m³ 24-hr	No. (%) Samples Exceeding Federal Std > 35 µg/m³, 24-hour	Annual Average AAM Conc.[g] µg/m³
LOS ANGELES COUNTY						
1	Central LA	357	44.39	27.3	2(0.6%)	11.83
2	Northwest Coastal LA County	--	--	--	--	--
3	Southwest Coastal LA County	--	--	--	--	--
4	South Coastal LA County 1	356	29.37	23.56	0	10.36
4	South Coastal LA County 2	350	28.93	22.05	0	9.62
4	South Coastal LA County 3	--	--	--	--	--
4	I-710 Near Road##	352	33.31	26.09	0	12.03
6	West San Fernando Valley	113	30.05	24.59	0	9.23
8	West San Gabriel Valley	119	29.21	25.38	0	9.59
9	East San Gabriel Valley 1	122	32.17	29.01	0	10.15
9	East San Gabriel Valley 2	--	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--	--
11	South San Gabriel Valley	120	46.59	25.13	2(1.7%)	11.75
12	South Central LA County	115	36.35	26.35	1(0.9%)	11.13
13	Santa Clarita Valley	--	--	--	--	--
ORANGE COUNTY						
16	North Orange County	--	--	--	--	--
17	Central Orange County	349	44.45	24.02	1(0.3%)	9.47
17	I-5 Near Road##	--	--	--	--	--
18	North Coastal Orange County	--	--	--	--	--
19	Saddleback Valley	117	24.79	13.41	0	7.36
RIVERSIDE COUNTY						
22	Corona/Norco Area	--	--	--	--	--
23	Metropolitan Riverside County 1	357+	39.12	31.65	4(1.1%)	12.54
23	Metropolitan Riverside County 3	352+	45.64	35.14	6(1.7%)	14.02
24	Perris Valley	--	--	--	--	--
25	Elsinore Valley	--	--	--	--	--
26	Temecula Valley	--	--	--	--	--
29	San Gorgonio Pass	--	--	--	--	--
30	Coachella Valley 1**	112	14.71	12.43	0	5.53
30	Coachella Valley 2**	115	25.84	15.04	0	7.74
30	Coachella Valley 3**	--	--	--	--	--
SAN BERNARDINO COUNTY						
32	Northwest San Bernardino Valley	--	--	--	--	--
33	I-10 Near Road##	--	--	--	--	--
33	CA-60 Near Road##	347*+	44.14	33.02	6(1.7%)	14.73
34	Central San Bernardino Valley 1	111+	30.45	26.25	0	12.04
34	Central San Bernardino Valley 2	113+	32.54	27.12	0	10.84
35	East San Bernardino Valley	--	--	--	--	--
37	Central San Bernardino Mountains	--	--	--	--	--
38	East San Bernardino Mountains	55	28.42	22.14	0	6.83
DISTRICT MAXIMUM			**46.6+**	**35.1+**	**6+**	**14.73+**
SOUTH COAST AIR BASIN			**46.6+**	**35.1+**	**9+**	**14.73+**

µg/m³ = micrograms per cubic meter of air
AAM = Annual Arithmetic Mean
-- = Pollutant not monitored
**Salton Sea Air Basin
*Incomplete Data

= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710

\+ = High PM10 (≥ 155 µg/m³) data recorded in Coachella Valley (due to high winds) and the Basin (due to Independence Day fireworks) are excluded in accordance with the U.S. EPA Exceptional Event Rule.

[f] PM2.5 samples were collected every 3 days at all sites except for station numbers 072, 077, 087, 3176, 4144 and 4165, where samples were taken daily, and station number 5818 where samples were taken every 6 days. PM2.5 statistics listed above are for the FRM data only. FEM PM2.5 continuous monitoring instruments were operated at some of the above locations for special purposes studies.

[g] Both federal and state standards are annual average (AAM) > 12.0 µg/m³.

Table 3-3 (Concluded)
2016 Air Quality Data – South Coast Air Quality Management District

Source Receptor Area No.	Location of Air Monitoring Station	LEAD[h] Max. Monthly Average Conc. [m] µg/m³	LEAD[h] Max. 3-Month Rolling Average [m] µg/m³	SULFATES (SOx)[i] No. Days of Data	SULFATES (SOx)[i] Max. Conc. µg/m³, 24-hour
LOS ANGELES COUNTY					
1	Central LA	0.016	0.01	58	5.8
2	Northwest Coastal LA County	--	--	--	--
3	Southwest Coastal LA County	0.006	0.01	58	6.2
4	South Coastal LA County 1	--	--	--	--
4	South Coastal LA County 2	0.008	0.01	59	6.3
4	South Coastal LA County 3	--	--	57	7.4
4	I-710 Near Road##	--	--	--	--
6	West San Fernando Valley	--	--	--	--
8	West San Gabriel Valley	--	--	--	--
9	East San Gabriel Valley 1	--	--	58	9.5#
9	East San Gabriel Valley 2	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--
11	South San Gabriel Valley	0.011	0.01	--	--
12	South Central LA County	0.016	0.01	--	--
13	Santa Clarita Valley	--	--	59	4.1
ORANGE COUNTY					
16	North Orange County	--	--	--	--
17	Central Orange County	--	--	59	5.3#
17	I-5 Near Road##	--	--	--	--
18	North Coastal Orange County	--	--	--	--
19	Saddleback Valley	--	--	58	3.7
RIVERSIDE COUNTY					
22	Corona/Norco Area	--	--	50	8.2#
23	Metropolitan Riverside County 1	0.007	0.01	114	15.2#
23	Metropolitan Riverside County 3	--	--	118	13.6#
24	Perris Valley	--	--	55	6.0#
25	Elsinore Valley	--	--	--	--
26	Temecula Valley	--	--	--	--
29	San Gorgonio Pass	--	--	56	4.0#
30	Coachella Valley 1**	--	--	51	3.9
30	Coachella Valley 2**	--	--	113	4.1
30	Coachella Valley 3**	--	--	--	--
SAN BERNARDINO COUNTY					
32	Northwest San Bernardino Valley	0.007	0.01	--	--
33	I-10 Near Road##	--	--	--	--
33	CA-60 Near Road##	--	--	--	--
34	Central San Bernardino Valley 1	--	--	59	17.1#
34	Central San Bernardino Valley 2	0.01	0.01	55	16.0#
35	East San Bernardino Valley	--	--	56	12.1#
37	Central San Bernardino Mountains	--	--	59	3.9#
38	East San Bernardino Mountains	--	--	--	--
DISTRICT MAXIMUM		**0.016++**	**0.01++**		**17.1#**
SOUTH COAST AIR BASIN		**0.016++**	**0.01++**		**17.1#**

µg/m³ = micrograms per cubic meter of air
-- =Pollutant not monitored
**Salton Sea Air Basin
*Incomplete Data
= Four near-road sites measuring one or more of the pollutants PM2.5, CO, and/or NO2 are operating near the following freeways: I-1, I-10, CA-60, and I-710.

+ = High PM10 (≥ 155 µg/m³) data recorded in Coachella Valley (due to high winds) and the Basin (due to Independence Day fireworks) are excluded in accordance with the U.S. EPA Exceptional Event Rule.
++ = Higher lead concentrations were recorded at near-source monitoring sites immediately downwind of stationary lead sources. Maximum monthly and 3-month rolling averages recorded were 0.88 µ/m³ and 0.06 µ/m³.

[h] Federal lead standard is 3-months rolling average > 0.15 µg/m3; state standard is monthly average ≥ 1.5 µg/m3. .Lead standards were not exceeded.

[i] Sulfate data is not available at this time. State sulfate standard is 24-hour ≥ 25 µg/m3. There is no federal standard for sulfate.

Carbon Monoxide

CO is a primary pollutant, meaning that it is directly emitted into the air, not formed in the atmosphere by chemical reaction of precursors, as is the case with ozone and other secondary pollutants. Ambient concentrations of CO in the Basin exhibit large spatial and temporal variations due to variations in the rate at which CO is emitted and in the meteorological conditions that govern transport and dilution. Unlike ozone, CO tends to reach high concentrations in the fall and winter months. The highest concentrations frequently occur on weekdays at times consistent with rush hour traffic and late night during the coolest, most stable portion of the day.

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise and electrocardiograph changes indicative of worsening oxygen supply to the heart.

Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with oxygen transport by competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include patients with diseases involving heart and blood vessels, fetuses, and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes.

Reductions in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels. These include preterm births and heart abnormalities.

CO concentrations were measured at 25 locations in the Basin and neighboring Salton Sea Air Basin areas in 2016. CO concentrations did not exceed the standards in 2016. The highest 1-hour average CO concentration recorded (4.4 ppm in the South Central Los Angeles County area) was 13 percent of the federal 1-hour CO standard of 35 ppm and 22 percent of the state 1-hour standard of 20 ppm. The highest 8-hour average CO concentration recorded (3.9 ppm in the South Central Los Angeles County area) was 43 percent of the federal and state 8-hour CO standard of 9.0 ppm.

In 2004, SCAQMD formally requested the U.S. EPA to re-designate the Basin from nonattainment to attainment with the CO NAAQS. On March 24, 2007, U.S. EPA published in the Federal Register its proposed decision to re-designate the Basin from nonattainment to attainment for CO. The comment period on the re-designation proposal closed on March 16, 2007 with no comments received by the U.S. EPA. On May 11, 2007, U.S. EPA published in the Federal Register its final decision to approve SCAQMD's request for re-designation from non-attainment to attainment for CO, effective June 11, 2007.

On August 12, 2011 U.S. EPA issued a decision to retain the existing NAAQS for CO, determining that those standards provided the required level of public health protection. However, U.S. EPA added a monitoring requirement for near-road CO monitors in urban areas with population of one million or more, utilizing stations that would be implemented to meet the 2010 NO2 near-road monitoring requirements. The two new CO monitors are at the I-5 near-road site, located in Orange County near Anaheim, and the I-10 near-road site, located near Etiwanda Avenue in San Bernardino County near Ontario, Rancho Cucamonga, and Fontana.

Ozone

Ozone (O3), a colorless gas with a sharp odor, is a highly reactive form of oxygen. High ozone concentrations exist naturally in the stratosphere. Some mixing of stratospheric ozone downward through the troposphere to the earth's surface does occur; however, the extent of ozone transport is limited. At the earth's surface in sites remote from urban areas ozone concentrations are normally very low (e.g., from 0.03 ppm to 0.05 ppm).

The propensity of ozone for reacting with organic materials causes it to be damaging to living cells and ambient ozone concentrations in the Basin are frequently sufficient to cause health effects. Ozone enters the human body primarily through the respiratory tract and causes respiratory irritation and discomfort, makes breathing more difficult during exercise, and reduces the respiratory system's ability to remove inhaled particles and fight infection.

Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible subgroups for ozone effects. Short-term exposures (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in high ozone communities. Elevated ozone levels are also associated with increased school absences.

Ozone exposure under exercising conditions is known to increase the severity of the above mentioned observed responses. Animal studies suggest that exposures to a combination of pollutants which include ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

In 2016, SCAQMD regularly monitored ozone concentrations at 29 locations in the Basin and the Coachella Valley portion of the Salton Sea Air Basin. Maximum ozone concentrations (fourth highest concentration ppm 8-hour) for all areas monitored were below the stage 1 episode level (0.20 ppm) and below the health advisory level (0.15 ppm) (see Table 3-3). All counties in the Basin, as well as the Coachella Valley, exceeded the level of the new 2015 (0.070 ppm), the former 2008 (0.075 ppm), and/or the 1997 (0.08 ppm) 8-hour ozone NAAQS in 2016. While not all stations had days exceeding the previous 8-hour standards, all monitoring stations except two (South Coastal LA County 3 and North Coastal Orange County) had at least one day over the 2015 federal ozone standard (70 ppb).

In 2016, the maximum ozone concentrations in the Basin continued to exceed federal standards by wide margins. Maximum 1-hour and 8-hour average ozone concentrations were 0.163 ppm and 0.121 ppm, respectively (the maximum 1-hour and 8-hour average was recorded in the Central San Bernardino Mountain area). The maximum 8-hour concentration of 0.121 ppm was 173 percent of the new federal standard (0.070 ppm). The maximum 1-hour concentration was 181 percent of the 1-hour state ozone standard of 0.09 ppm. The 8-hour average concentration was 173 percent of the 8-hour state ozone standard of 0.070 ppm.

Nitrogen Dioxide

NO2 is a reddish-brown gas with a bleach-like odor. Nitric oxide (NO) is a colorless gas, formed from the nitrogen (N2) and oxygen (O2) in air under conditions of high temperature and pressure which are generally present during combustion of fuels; NO reacts rapidly with the oxygen in air to form NO2. NO2 is responsible for the brownish tinge of polluted air. The two gases, NO and NO2, are referred to collectively as NOx. In the presence of sunlight, NO2 reacts to form nitric oxide and an oxygen atom. The oxygen atom can react further to form ozone, via a complex series of chemical reactions involving hydrocarbons. Nitrogen dioxide may also react to form nitric acid (HNO3) which reacts further to form nitrates, components of PM2.5 and PM10.

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposures to NO2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma and/or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these subgroups. More recent studies have found associations between NO2 exposures and cardiopulmonary mortality, decreased lung function, respiratory symptoms, and emergency room asthma visits.

In animals, exposure to levels of NO2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO2.

In 2016, nitrogen dioxide concentrations were monitored at 27 locations. No area of the Basin or SSAB exceeded the federal or state standards for NO2. The Basin has not exceeded the federal standard for NO2 (0.0534 ppm) since 1991, when the Los Angeles County portion of the Basin recorded the last exceedance of the standard in any county within the United States. The current 1-hour average NO2 NAAQS (100 ppb) was last exceeded on two days in 2014 in the South Coastal Los Angeles County area at the Long Beach-Hudson air monitoring station. However, the 98th percentile form of the standard was not exceeded, and the 2013-2015 design value is not in violation of the NAAQS. The higher relative concentrations in the Los Angeles area are indicative of the concentrated emission sources, especially heavy-duty vehicles. NOx emission reductions continue to be necessary because it is a precursor to both ozone and PM (PM2.5 and PM10) concentrations.

With the revised NO2 federal standard in 2010, near-road NO2 measurements were required to be phased in for larger cities. The four near-road monitoring stations are: (1) I-5 near-road, located in Orange County near Anaheim; (2) I-710 near-road, located at Long Beach Blvd. in Los Angeles County near Compton and Long Beach; (3) SR-60 near-road, located west of Vineyard Avenue near the San Bernardino/Riverside County border near Ontario, Mira Loma, and Upland; and (4) I-10 near-road, located near Etiwanda Avenue in San Bernardino County near Ontario, Rancho Cucamonga, and Fontana.

The longest operating near-road station in the Basin, adjacent to I-5 in Orange County, has not exceeded the level of the 1-hour NO2 NAAQS (100 ppb) since the measurements began on January 1, 2014. The peak 1-hour NO2 concentration at that site in 2014 was 78.8 ppb and the peak

concentration for 2015 was 70.2 ppb. This can be compared to the annual peak values measured at the nearest ambient monitoring station in Central Orange County (Anaheim station), where the 2014 and 2015 peaks were 75.8 and 59.1, respectively.

Sulfur Dioxide

SO2 is a colorless gas with a sharp odor. It reacts in the air to form sulfuric acid (H2SO4), which contributes to acid precipitation, and sulfates, which are components of PM10 and PM2.5. Most of the SO2 emitted into the atmosphere is produced by burning sulfur-containing fuels.

Exposure of a few minutes to low levels of SO2 can result in airway constriction in some asthmatics. All asthmatics are sensitive to the effects of SO2. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, is observed after acute higher exposure to SO2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO2.

Animal studies suggest that despite SO2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO2 levels. In these studies, efforts to separate the effects of SO2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

No exceedances of federal or state standards for sulfur dioxide occurred in 2016 at any of the six locations monitored the Basin. The maximum 1-hour SO2 concentration was 17.8 ppb, as recorded in the South Coastal Los Angeles County area. The 99th percentile of 1-hour SO2 concentration was 12 ppb, as recorded in South Coastal Los Angeles County area. Though SO2 concentrations remain well below the standards, SO2 is a precursor to sulfate, which is a component of fine particulate matter, PM10, and PM2.5. Historical measurements showed concentrations to be well below standards and monitoring has been discontinued.

Particulate Matter (PM10 and PM2.5)

Of great concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Respirable particles (particulate matter less than about 10 micrometers in diameter (PM10)) can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis, and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of PM10 and PM2.5.

A consistent correlation between elevated ambient fine particulate matter (PM2.5) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks, and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. Studies have reported an association between long-term exposure to air pollution dominated by PM2.5 and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in fine particulate matter concentration levels have also been related to hospital admissions for acute respiratory conditions, to school and kindergarten absences, to a decrease in respiratory function in normal children, and to increased medication use in children and adults with asthma. Studies have also shown lung function growth in children is reduced with long-term exposure to particulate matter. In addition to children, the elderly and people with preexisting respiratory and/or cardiovascular disease appear to be more susceptible to the effects of PM10 and PM2.5.

SCAQMD monitored PM10 concentrations at 23 locations in 2016. The federal 24-hour PM10 standard (150 µg/m3) was not exceeded in 2016. The Basin has remained in attainment of the PM10 NAAQS since 2006. The maximum three-year average 24-hour PM10 concentration of 150 µg/m3 was recorded in the Coachella Valley area and was 100 percent of the federal standard and 300 percent of the much more stringent state 24-hour PM10 standard (50 µg/m3). The state 24-hour PM10 standard was exceeded at several of the monitoring stations. The maximum annual average PM10 concentration of 49 µg/m3 was recorded in Metropolitan Riverside County. The federal annual PM10 standard has been revoked. The much more stringent state annual PM10 standard (20 µg/m3) was exceeded in most stations in each county in the Basin and in the Coachella Valley.

In 2016, PM2.5 concentrations were monitored at 19 locations throughout the Basin. U.S. EPA revised the federal 24-hour PM2.5 standard from 65 µg/m3 to 35 µg/m3, effective December 17, 2006. In 2016, the maximum PM2.5 concentrations in the Basin exceeded the new federal 24-hour PM2.5 standard in seven out of 19 locations. The maximum 24-hour PM2.5 concentration of 46.6 µg/m3 was recorded in the South San Gabriel Valley area. The 98th percentile 24-hour PM2.5 concentration of 35.1 µg/m3 was recorded in the Metropolitan Riverside County, which barely exceeds the federal standard of 35 µg/m3. The maximum annual average concentration of 14.73 µg/m3 was recorded in San Bernardino County, which represents 98 percent of the 2006 federal standard of 15 µg/m3.

On December 14, 2012, U.S. EPA strengthened the annual NAAQS for PM2.5 to 12 µg/m3 and, as part of the revisions, a requirement was added to monitor near the most heavily trafficked roadways in large urban areas. Particle pollution is expected to be higher along these roadways as a result of direct emissions from cars and heavy-duty diesel trucks and buses. SCAQMD has installed the two required PM2.5 monitors by January 1, 2015, at locations selected based upon the existing near-roadway NO2 sites that were ranked higher for heavy-duty diesel traffic. The locations are: (1) I-710, located at Long Beach Blvd. in Los Angeles County near Compton and Long Beach; and (2) SR-60, located west of Vineyard Avenue near the San Bernardino/Riverside County border near Ontario, Mira Loma, and Upland. These near-road sites measure PM2.5 daily with FRM filter-based measurements.

Lead

Lead in the atmosphere is present as a mixture of a number of lead compounds. Leaded gasoline and lead smelters have been the main sources of lead emitted into the air. Due to the phasing out of leaded gasoline, there was a dramatic reduction in atmospheric lead in the Basin over the past three decades.

Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central

nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Lead poisoning can cause anemia, lethargy, seizures, and death. It appears that there are no direct effects of lead on the respiratory system. Lead can be stored in the bone from early-age environmental exposure, and elevated blood lead levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland), and osteoporosis (breakdown of bone tissue). Fetuses and breast-fed babies can be exposed to higher levels of lead because of previous environmental lead exposure of their mothers.

The state standards for lead were not exceeded in any area of the SCAQMD in 2016. There have been no violations of these standards at SCAQMD's regular air monitoring stations since 1982, as a result of removal of lead from gasoline. However, monitoring at two stations immediately adjacent to stationary sources of lead recorded exceedances of the standard in Los Angeles County over the 2007-2009-time period. These data were used for designations under the revised standard that also included new requirements for near-source monitoring. As a result, a nonattainment designation was finalized for much of the Los Angeles County portion of the Basin when the current standard was implemented.

The current lead concentrations in Los Angeles County are now below the NAAQS. The maximum quarterly average lead concentration (0.01 µg/m3 at several monitoring) was seven percent of the federal quarterly average lead standard (0.15 µg/m3). The maximum monthly average lead concentration (0.016 µg/m3 in South Central Los Angeles County) was one percent of the state monthly average lead standard. As a result of the 2012-2014 design value below the NAAQS, SCAQMD will be requesting that U.S. EPA re-designate the nonattainment area as attaining the federal lead standard. Stringent SCAQMD rules governing lead-producing sources will help to ensure that there are no future violations of the federal standard. Furthermore, one business that had been responsible for the highest measured lead concentrations in Los Angeles County has closed and is in the process of demolition and site clean-up.

Sulfates

Sulfates are chemical compounds which contain the sulfate ion and are part of the mixture of solid materials which make up PM10. Most of the sulfates in the atmosphere are produced by oxidation of SO2. Oxidation of sulfur dioxide yields sulfur trioxide (SO3), which reacts with water to form sulfuric acid, which then contributes to acid deposition. The reaction of sulfuric acid with basic substances such as ammonia yields sulfates, a component of PM10 and PM2.5.

Most of the health effects associated with fine particles and SO2 at ambient levels are also associated with sulfates. Thus, both mortality and morbidity effects have been observed with an increase in ambient sulfate concentrations. However, efforts to separate the effects of sulfates from the effects of other pollutants have generally not been successful.

Clinical studies of asthmatics exposed to sulfuric acid suggest that adolescent asthmatics are possibly a subgroup susceptible to acid aerosol exposure. Animal studies suggest that acidic particles such as sulfuric acid aerosol and ammonium bisulfate are more toxic than nonacidic particles like ammonium sulfate. Whether the effects are attributable to acidity or to particles remains unresolved.

The most current preliminary data available for sulfates is for 2016. In 2016, the state 24-hour sulfate standard (25 µg/m3) was not exceeded in any of the 19 monitoring locations in the Basin. The maximum 24-hour sulfate concentration was 17.1 ppb, as recorded in the Central San Bernardino Valley. There are no federal sulfate standards.

Vinyl Chloride

Vinyl chloride is a colorless, flammable gas at ambient temperature and pressure. It is also highly toxic and is classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as A1 (confirmed carcinogen in humans) and by the International Agency for Research on Cancer (IARC) as 1 (known to be a human carcinogen). (Air Gas, 2010.) At room temperature, vinyl chloride is a gas with a sickly-sweet odor that is easily condensed. However, it is stored as a liquid. Due to the hazardous nature of vinyl chloride to human health there are no end products that use vinyl chloride in its monomer form. Vinyl chloride is a chemical intermediate, not a final product. It is an important industrial chemical chiefly used to produce polymer polyvinyl chloride (PVC). The process involves vinyl chloride liquid fed to polymerization reactors where it is converted from a monomer to a polymer PVC. The final product of the polymerization process is PVC in either a flake or pellet form. Billions of pounds of PVC are sold on the global market each year. From its flake or pellet form, PVC is sold to companies that heat and mold the PVC into end products such as PVC pipe and bottles.

In the past, vinyl chloride emissions have been associated primarily with sources such as landfills. Risks from exposure to vinyl chloride are considered to be localized impacts rather than regional impacts. Because landfills in the SCAQMD are subject to Rule 1150.1 – Control of Gaseous Emissions from Municipal Solid Waste Landfills, which contain stringent requirements for landfill gas collection and control, potential vinyl chloride emissions are expected to be below the level of detection. Therefore, SCAQMD does not monitor for vinyl chloride at its monitoring stations.

Volatile Organic Compounds

It should be noted that there are no state or NAAQS for VOCs because they are not classified as criteria pollutants. VOCs are regulated, however, because limiting VOC emissions reduces the rate of photochemical reactions that contribute to the formation of ozone. VOCs are also transformed into organic aerosols in the atmosphere, contributing to higher PM10 and lower visibility levels.

Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOCs because of interference with oxygen uptake. In general, ambient VOC concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon components classified as VOC emissions are thought or known to be hazardous. Benzene, for example, one hydrocarbon component of VOC emissions, is known to be a human carcinogen.

Non-Criteria Pollutants

Although SCAQMD's primary mandate is attaining the state and NAAQS for criteria pollutants within the Basin, SCAQMD also has a general responsibility pursuant to Health and Safety Code Section 41700 to control emissions of air contaminants and prevent endangerment to public health. Additionally, state law requires SCAQMD to implement airborne toxic control measures (ATCM)

adopted by CARB and to implement the Air Toxics "Hot Spots" Act. As a result, SCAQMD has regulated pollutants other than criteria pollutants such as TACs, GHGs, and stratospheric ozone depleting compounds. SCAQMD has developed a number of rules to control non-criteria pollutants from both new and existing sources. These rules originated through state directives, Clean Air Act (CAA) requirements, or the SCAQMD rulemaking process.

In addition to promulgating non-criteria pollutant rules, SCAQMD has been evaluating AQMP control measures as well as existing rules to determine whether or not they would affect, either positively or negatively, emissions of non-criteria pollutants. For example, rules in which VOC components of coating materials are replaced by a non-photochemically reactive chlorinated substance would reduce the impacts resulting from ozone formation, but could increase emissions of toxic compounds or other substances that may have adverse impacts on human health.

The following subsections summarize the existing setting for the two major categories of non-criteria pollutants: compounds that contribute to TACs, global climate change, and stratospheric ozone depletion.

Air Quality – Toxic Air Contaminants (TACs)

Federal

Under Section 112 of the CAA, U.S. EPA is required to regulate sources that emit one or more of the 187 federally listed hazardous air pollutants (HAPs). HAPs are toxic air pollutants identified in the CAA, which are known or suspected of causing cancer or other serious health effects. The federal HAPs are listed on the U.S. EPA website at http://www.epa.gov/ttn/atw/orig189.html. In order to implement the CAA, approximately 100 National Emission Standards for Hazardous Air Pollutants (NESHAPs) have been promulgated by U.S. EPA for major sources (sources emitting greater than 10 ton per year (tpy) of a single HAP or greater than 25 tpy of multiple HAPs). SCAQMD can either directly implement NESHAPs or adopt rules that contain requirements at least as stringent as the NESHAP requirements. However, since NESHAPs often apply to sources in the Basin that are controlled, many of the sources that would have been subject to federal requirements already comply or are exempt.

In addition to the major source NESHAPs, U.S. EPA has also controlled HAPs from urban areas by developing Area Source NESHAPs under their Urban Air Toxics Strategy. U.S. EPA defines an area source as a source that emits less than 10 tons annually of any single hazardous air pollutant or less than 25 tons annually of a combination of hazardous air pollutants. The CAA requires the U.S. EPA to identify a list of at least 30 air toxics that pose the greatest potential health threat in urban areas. U.S. EPA is further required to identify and establish a list of area source categories that represent 90 percent of the emissions of the 30 urban air toxics associated with area sources, for which Area Source NESHAPs are to be developed under the CAA. U.S. EPA has identified a total of 70 area source categories with regulations promulgated for more than 30 categories so far.

The federal toxics program recognizes diesel engine exhaust (diesel particulate matter or DPM) as a health hazard; however, DPM itself is not one of their listed TACs. Rather, each toxic compound in the speciated list of compounds in exhaust is considered separately. Although there are no specific NESHAP regulations for DPM, DPM reductions are realized through federal regulations including diesel fuel standards and emission standards for stationary, marine, and locomotive engines; and idling controls for locomotives.

State

The California air toxics program was based on the CAA and the original federal list of hazardous air pollutants. The state program was established in 1983 under the Toxic Air Contaminant Identification and Control Act, Assembly Bill (AB) 1807, Tanner. Under the state program, TACs are identified through a two-step process of risk identification and risk management. This two-step process was designed to protect residents from the health effects of toxic substances in the air.

Control of TACs under the TAC Identification and Control Program: California's TAC identification and control program, adopted in 1983 as AB 1807, is a two-step program in which substances are identified as TACs and ATCMs are adopted to control emissions from specific sources. CARB has adopted a regulation designating all 188 federal hazardous air pollutants (HAPs) as TACs.

ATCMs are developed by CARB and implemented by SCAQMD and other air districts through the adoption of regulations of equal or greater stringency. Generally, the ATCMs reduce emissions to achieve exposure levels below a determined health threshold. If no such threshold levels are determined, emissions are reduced to the lowest level achievable through the best available control technology unless it is determined that an alternative level of emission reduction is adequate to protect public health.

Under California law, a federal NESHAP automatically becomes a state ATCM, unless CARB has already adopted an ATCM for the source category. Once a NESHAP becomes an ATCM, CARB and each air pollution control or air quality management district have certain responsibilities related to adoption or implementation and enforcement of the NESHAP/ATCM.

Control of TACs under the Air Toxics "Hot Spots" Act: The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588) establishes a statewide program to inventory and assess the risks from facilities that emit TACs and to notify the public about significant health risks associated with the emissions. Facilities are phased into the AB 2588 program based on their emissions of criteria pollutants or their occurrence on lists of toxic emitters compiled by SCAQMD. Phase I consists of facilities that emit over 25 tpy of any criteria pollutant and facilities present on SCAQMD's toxics list. Phase I facilities entered the program by reporting their TAC emissions for calendar year 1989. Phase II consists of facilities that emit between 10 and 25 tpy of any criteria pollutant and submitted air toxic inventory reports for calendar year 1990 emissions. Phase III consists of certain designated types of facilities which emit less than 10 tpy of any criteria pollutant and submitted inventory reports for calendar year 1991 emissions. Inventory reports are required to be updated every four years under the state law.

Air Toxics Control Measures: As part of its risk management efforts, CARB has passed state ATCMs to address air toxics from mobile and stationary sources. Some key ATCMs for stationary sources include reductions of benzene emissions from service stations, hexavalent chromium emissions from chrome plating, perchloroethylene emissions from dry cleaning, ethylene oxide emissions from sterilizers, and multiple air toxics from the automotive painting and repair industries.

Many of CARB's recent ATCMs are part of the CARB Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Diesel Risk Reduction Plan), which

was adopted in September 2000 (http://www.arb.ca.gov/diesel/documents/rrpapp.htm) with the goal of reducing DPM emissions from compression ignition engines and associated health risk by 75 percent by 2010 and 85 percent by 2020. The Diesel Risk Reduction Plan includes strategies to reduce emissions from new and existing engines through the use of ultra-low sulfur diesel fuel, add-on controls, and engine replacement. In addition to stationary source engines, the plan addresses DPM emissions from mobile sources such as trucks, buses, construction equipment, locomotives, and ships.

OEHHA Health Risk Assessment Guidelines: In 2003, OEHHA developed and approved its Health Risk Assessment Guidance document (2003 OEHHA Guidelines) and prepared a series of Technical Support Documents, reviewed and approved by the Scientific Review Panel (SRP), that provided new scientific information showing that early-life exposures to air toxics contribute to an increased estimated lifetime risk of developing cancer and other adverse health effects, compared to exposures that occur in adulthood. As a result, OEHHA developed the Revised OEHHA Guidelines in March 2015, which incorporated this new scientific information. The new method utilizes higher estimates of cancer potency during early life exposures. There are also differences in the assumptions on breathing rates and length of residential exposures.

SCAQMD

SCAQMD has regulated criteria air pollutants using either a technology-based or an emissions limit approach. The technology-based approach defines specific control technologies that may be installed to reduce pollutant emissions. The emissions limit approach establishes an emission limit, and allows industry to use any emission control equipment, as long as the emission requirements are met. The regulation of TACs often uses a health risk-based approach, but may also require a regulatory approach similar to criteria pollutants, as explained in the following subsections.

Rules and Regulations: Under SCAQMD's toxic regulatory program there are 26 source-specific rules that target toxic emission reductions that regulate over 10,000 sources such as metal finishing, spraying operations, dry cleaners, film cleaning, gasoline dispensing, and diesel-fueled stationary engines to name a few. In addition, other source-specific rules targeting criteria pollutant reductions also reduce toxic emissions, such as Rule 461 – Gasoline Transfer and Dispensing, which reduces benzene emissions from gasoline dispensing, and Rule 1124 – Aerospace Assembly and Component Manufacturing Operations, which reduces perchloroethylene, trichloroethylene, and methylene chloride emissions from aerospace operations.

New and modified sources of TACs in the SCAQMD are subject to Rule 1401 - New Source Review (NSR) of Toxic Air Contaminants and Rule 212 - Standards for Approving Permits. Rule 212 requires notification of SCAQMD's intent to grant a permit to construct a significant project, defined as a new or modified permit unit located within 1000 feet of a school (a state law requirement under AB 3205), a new or modified permit unit posing a maximum individual cancer risk of one in one million (1×10^6) or greater, or a new or modified facility with criteria pollutant emissions exceeding specified daily maximums. Distribution of notice is required to all addresses within a quarter mile radius, or other area deemed appropriate by SCAQMD. Rule 1401 currently controls emissions of carcinogenic and non-carcinogenic (health effects other than cancer) air contaminants from new, modified and relocated sources by specifying limits on cancer risk and hazard index (explained further in the following discussion), respectively. The rule lists nearly

300 TACs that are evaluated during SCAQMD's permitting process for new, modified, or relocated sources. During the past decade, more than ten compounds have been added or had risk values amended. The addition of DPM from diesel-fueled internal combustion engines as a TAC in March 2008 was the most significant of recent amendments to the rule. Rule 1401.1 – Requirements for New and Relocated Facilities Near Schools sets risk thresholds for new and relocated facilities near schools. The requirements are more stringent than those for other air toxics rules in order to provide additional protection to school children.

Air Toxics Control Plan: On March 17, 2000, the SCAQMD Governing Board approved the Air Toxics Control Plan (2000 ATCP), which was the first comprehensive plan in the nation to guide future toxic rulemaking and programs. The ATCP was developed to lay out SCAQMD's air toxics control program which built upon existing federal, state, and local toxic control programs as well as co-benefits from implementation of SIP measures. The concept for the plan was an outgrowth of the Environmental Justice principles and the Environmental Justice Initiatives adopted by SCAQMD Governing Board on October 10, 1997. Monitoring studies and air toxics regulations that were created from these initiatives emphasized the need for a more systematic approach to reducing TACs. The intent of the plan was to reduce exposure to air toxics in an equitable and cost-effective manner that promotes clean, healthful air in the SCAQMD. The plan proposed control strategies to reduce TACs in the SCAQMD implemented between years 2000 and 2010 through cooperative efforts of SCAQMD, local governments, CARB, and U.S. EPA.

Cumulative Impact Reduction Strategies (CIRS): The CIRS was presented to the SCAQMD Governing Board on September 5, 2003, as part of the White Paper on Regulatory Options for Addressing Cumulative Impacts from Air Pollution Emissions. The resulting 25 cumulative impacts strategies were a key element of the Addendum to March 2000 Final Draft Air Toxics Control Plan for Next Ten Years (2004 Addendum). The strategies included rules, policies, funding, education, and cooperation with other agencies. Some of the key SCAQMD accomplishments related to the cumulative impacts reduction strategies were:

- Rule 1401.1, which set more stringent health risk requirements for new and relocated facilities near schools
- Rule 1470 – Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines, which established DPM emission limits and other requirements for diesel-fueled engines
- Rule 1469.1 – Spraying Operations Using Coatings Containing Chromium, which regulated chrome spraying operations
- Rule 410 – Odor from Transfer Stations and Material Recovery Facilities which addresses odors from transfer stations and material recovery facilities
- Intergovernmental Review comment letters for CEQA documents
- SCAQMD's land use guidance document
- Additional protection in toxics rules for sensitive receptors, such as more stringent requirements for chrome plating operations and diesel engines located near schools

2004 Addendum: The 2004 Addendum was adopted by the SCAQMD Governing Board on April 2, 2004, and served as a status report regarding implementation of the various mobile and stationary source strategies in the 2000 ATCP and introduced new measures to further address air toxics. The main elements of the 2004 Addendum were to address the progress made in the implementation of the 2000 ATCP control strategies; provide a historical perspective of air toxic

emissions and current air toxic levels; incorporate the CIRS approved in 2003 and additional measures identified in the 2003 AQMP; project future air toxic levels to the extent feasible; and summarize future efforts to develop the next ATCP. Significant progress had been made in implementing most of SCAQMD strategies from the 2000 ATCP and the 2004 Addendum. CARB has also made notable progress in mobile source measures via its Diesel Risk Reduction Plan, especially for goods movement related sources, while the U.S. EPA continued to implement their air toxic programs applicable to stationary sources.

Clean Communities Plan: On November 5, 2010, the SCAQMD Governing Board approved the 2010 Clean Communities Plan (CCP). The CCP was an update to the 2000 ATCP and the 2004 Addendum. The objective of the 2010 CCP was to reduce exposure to air toxics and air-related nuisances throughout the SCAQMD, with emphasis on cumulative impacts. The elements of the 2010 CCP are community exposure reduction, community participation, communication and outreach, agency coordination, monitoring and compliance, source-specific programs, and nuisance. The centerpiece of the 2010 CCP is a pilot study through which SCAQMD staff works with community stakeholders to identify and develop solutions community-specific to air quality issues in two communities: (1) the City of San Bernardino; and (2) Boyle Heights and surrounding areas.

Control of TACs under the Air Toxics "Hot Spots" Act: On October 2, 1992, the SCAQMD Governing Board adopted public notification procedures for Phase I and II facilities. These procedures specify that AB 2588 facilities must provide public notice when exceeding the following risk levels:

- Maximum Individual Cancer Risk: greater than 10 in one million (10×10^6)
- Total Hazard Index: greater than 1.0 for TACs except lead, or greater than 0.5 for lead

Public notice is to be provided by letters mailed to all addresses and all parents of children attending school in the impacted area. In addition, facilities must hold a public meeting and provide copies of the facility risk assessment in all school libraries and a public library in the impacted area.

The AB 2588 Toxics “Hot Spots” Program is implemented through Rule 1402 - Control of Toxic Air Contaminants from Existing Sources. SCAQMD continues to review health risk assessments submitted. Notification is required from facilities with a significant risk under the AB 2588 program based on their initial approved health risk assessments and will continue on an ongoing basis as additional and subsequent health risk assessments are reviewed and approved.

There are currently about 361 facilities in SCAQMD’s AB 2588 program. Since 1992 when the state Health and Safety Code incorporated a risk reduction requirement in the program, SCAQMD has reviewed and approved over 335 HRAs; 50 facilities were required to do a public notice and 24 facilities were subject to risk reduction. Currently, over 96 percent of the facilities in the program have cancer risks below ten in a million and over 97 percent have acute and chronic hazard indices of less than one. (SCAQMD, 2015a.)

CEQA Intergovernmental Review Program: SCAQMD staff, through its Intergovernmental Review (IGR), provides comments to lead agencies on air quality analyses and mitigation measures in CEQA documents. The following are some key programs and tools that have been

developed more recently to strengthen air quality analyses, specifically as they relate to exposure of mobile source air toxics:

- SCAQMD's Mobile Source Committee approved the "Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions" (August 2002). This document provides guidance for analyzing cancer risks from DPM from truck idling and movement (e.g., truck stops, warehouse and distribution centers, or transit centers), ship hoteling at ports, and train idling.
- CalEPA and CARB's "Air Quality and Land Use Handbook: A Community Health Perspective" (April 2005), provides recommended siting distances for incompatible land uses.
- Western Riverside Council of Governments' Regional Air Quality Task Force developed a policy document titled "Good Neighbor Guidelines for Siting New and/or Modified Warehouse/Distribution Facilities" (September 2005). This document provides guidance to local government on preventive measures to reduce neighborhood exposure to TACs from warehousing facilities.

Environmental Justice (EJ): Environmental justice has long been a focus of SCAQMD. In 1990, SCAQMD formed an Ethnic Community Advisory Group that was restructured as the Environmental Justice Advisory Group (EJAG) in 2008. EJAG's mission is to advise and assist SCAQMD in protecting and improving public health in SCAQMD's most impacted communities through the reduction and prevention of air pollution.

In 1997, the SCAQMD Governing Board adopted four guiding principles and ten initiatives (http://www.aqmd.gov/ej/history.htm) to ensure environmental equity. Also in 1997, the SCAQMD Governing Board expanded the initiatives to include the "Children's Air Quality Agenda" focusing on the disproportionate impacts of poor air quality on children. Some key initiatives that have been implemented were the Multiple Air Toxics Exposure Studies (MATES, MATES II, MATES III, and MATES IV); the Clean Fleet Rules; CIRS; funding for lower emitting technologies under the Carl Moyer Program; the Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning; a guidance document on Air Quality Issues in School Site Selection; and the 2000 ATCP and its 2004 Addendum. Key initiatives focusing on communities and residents include the Clean Air Congress; the Clean School Bus Program; Asthma and Air Quality Consortium; Brain and Lung Tumor and Air Pollution Foundation; air quality presentations to schools and community and civic groups; and Town Hall meetings. Technological and scientific projects and programs have been a large part of SCAQMD's EJ program since its inception. Over time, the EJ program's focus on public education, outreach, and opportunities for public participation have greatly increased. Public education materials and other resources for the public are available on SCAQMD's website (www.aqmd.gov).

AB 2766 Subvention Funds: AB 2766 subvention funds, money collected by the state as part of vehicle registration and passed through to SCAQMD, is used to fund projects in local cities that reduce motor vehicle air pollutants. The Clean Fuels Program, funded by a surcharge on motor vehicle registrations in SCAQMD, reduces TAC emissions through co-funding projects that develop and demonstrate low-emission clean fuels and advanced technologies, and to promote commercialization and deployment of promising or proven technologies in Southern California.

Carl Moyer Program: Another program that targets diesel emission reductions is the Carl Moyer Program, which provides grants for projects that achieve early or extra emission reductions beyond

what is required by regulations. Examples of eligible projects include cleaner on-road, off-road, marine, locomotive, and stationary agricultural pump engines. Other endeavors of SCAQMD's Technology Advancement Office help to reduce DPM emissions through co-funding research and demonstration projects of clean technologies, such as low-emitting locomotives.

Control of TACs with Risk Reduction Audits and Plans: Senate Bill (SB) 1731, enacted in 1992 and codified in Health and Safety Code Section 44390 et seq., amended AB 2588 to include a requirement for facilities with significant risks to prepare and implement a risk reduction plan that will reduce the risk below a defined significant risk level within specified time limits. SCAQMD Rule 1402 was adopted on April 8, 1994, to implement the requirements of SB 1731. In addition to the TAC rules adopted by SCAQMD under authority of AB 1807 and SB 1731, SCAQMD has adopted source-specific TAC rules, based on the specific level of TAC emitted and the needs of the area. These rules are similar to the state's ATCMs because they are source-specific and only address emissions and risk from specific compounds and operations.

Multiple Air Toxics Exposure Studies

Multiple Air Toxics Exposure Study (MATES): In 1986, SCAQMD conducted the first MATES report to determine the Basin-wide risks associated with major airborne carcinogens. At the time, the state of technology was such that only 20 known air toxic compounds could be analyzed and diesel exhaust particulate did not have an agency accepted carcinogenic health risk value. TACs are determined by U.S. EPA, and by CalEPA, including OEHHA and CARB. For purposes of MATES, the California carcinogenic health risk factors were used. The maximum combined individual health risk for simultaneous exposure to pollutants under the study was estimated to be 600 to 5,000 in one million.

Multiple Air Toxics Exposure Study II (MATES II): At its October 10, 1997 meeting, the SCAQMD Governing Board directed staff to conduct a follow up to the MATES report to quantify the magnitude of population exposure risk from existing sources of selected air toxic contaminants at that time. MATES II included a monitoring program of 40 known air toxic compounds, an updated emissions inventory of TACs (including microinventories around each of the 14 microscale sites), and a modeling effort to characterize health risks from hazardous air pollutants. The estimated Basin-wide carcinogenic health risk from ambient measurements was 1,400 per million people. About 70 percent of the Basin-wide health risk was attributed to DPM emissions; about 20 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde); about 10 percent of Basin-wide health risk was attributed to stationary sources (which include industrial sources and other certain specifically identified commercial businesses such as dry cleaners and print shops.)

Multiple Air Toxics Exposure Study III (MATES III): MATES III was part of the SCAQMD Governing Board's 2003-04 Environmental Justice Workplan approved on September 5, 2003. The MATES III report consisted of several elements including a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize carcinogenic health risk across the Basin. Besides toxics, additional measurements included organic carbon, elemental carbon, and total carbon, as well as, Particulate Matter (PM), including PM2.5. It did not estimate mortality or other health effects from particulate exposures. MATES III revealed a general downward trend in air toxic pollutant concentrations with an estimated Basin-wide lifetime carcinogenic health risk of 1,200 in one million. Mobile sources accounted for 94 percent of the basin-wide lifetime carcinogenic health risk with diesel exhaust particulate contributing to 84

percent of the mobile source Basin-wide lifetime carcinogenic health risk. Non-diesel carcinogenic health risk declined by 50 percent from the MATES II values.

Multiple Air Toxics Exposure Study IV (MATES IV): MATES IV, the current version, includes a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize risk across the Basin. The study focuses on the carcinogenic risk from exposure to air toxics but does not estimate mortality or other health effects from particulate exposures. An additional focus of MATES IV is the inclusion of measurements of ultrafine particle concentrations. MATES IV incorporates the updated health risk assessment methodology from OEHHA. Compared to previous studies of air toxics in the Basin, this study found decreasing air toxics exposure, with the estimated Basin-wide population-weighted risk down by about 57 percent from the analysis done for the MATES III time period. The ambient air toxics data from the ten fixed monitoring locations also demonstrated a similar reduction in air toxic levels and risks. On average, diesel particulate contributes about 68 percent of the total air toxics risk. This is a lower portion of the overall risk compared to the MATES III estimates of about 84 percent.

Health Effects

Carcinogenic Health Risks from TACs: One of the primary health risks of concern due to exposure to TACs is the risk of contracting cancer. The carcinogenic potential of TACs is a particular public health concern because it is currently believed by many scientists that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of causing cancer. It is currently estimated that about one in four deaths in the United States is attributable to cancer. The proportion of cancer deaths attributable to air pollution has not been estimated using epidemiological methods.

Non-Cancer Health Risks from TACs: Unlike carcinogens, for most non-carcinogens it is believed that there is a threshold level of exposure to the compound below which it will not pose a health risk. CalEPA's OEHHA develops Reference Exposure Levels (RELs) for TACs which are health-conservative estimates of the levels of exposure at or below which health effects are not expected. The non-cancer health risk due to exposure to a TAC is assessed by comparing the estimated level of exposure to the REL. The comparison is expressed as the ratio of the estimated exposure level to the REL, called the hazard index (HI).

HAZARDS AND HAZARDOUS MATERIALS

PARs 1146 series and PR 1100 is intended to improve overall air quality; however, it may have direct or indirect hazards associated with the implementation. The reduction of NOx emissions from PARs 1146 series may affect the use, storage, and transport of hazards and hazardous materials, specifically when SCR systems ~~technology is~~ are being used. New (or modifications to existing) air pollution control equipment and related components are expected to be installed at some of the affected facilities such that their operations may increase the quantity of hazardous materials generated by the control equipment and may increase the quantity of ammonia used. It is anticipated some facilities will need to install SCR ~~technology~~ system(s) to meet NOx emission limits and in doing so, may result in the overall increase in the amount of ammonia injected, increase the amount of ammonia stored, create ammonia slip emissions, and increase the amount of spent catalyst.

Hazard concerns are related to the potential for fires, explosions or the release of hazardous materials/substances in the event of an accident or upset conditions. The potential for hazards exist in the production, use, storage, and transportation of hazardous materials. Hazardous materials may be found at industrial production and processing facilities. Some facilities produce hazardous materials as their end product, while others use such materials as an input to their production process. Examples of hazardous materials used as consumer products include gasoline, solvents, and coatings/paints. Hazardous materials are stored at facilities that produce such materials and at facilities where hazardous materials are a part of the production process. Specifically, storage refers to the bulk handling of hazardous materials before and after they are transported to the general geographical area of use. Currently, hazardous materials are transported throughout the Basin in large quantities via all modes of transportation including rail, highway, water, air, and pipeline.

Hazardous Materials Regulations

Incidents of harm to human health and the environment associated with hazardous materials have created a public awareness of the potential for adverse effects from careless handling and/or use of these substances. As a result, a number of federal, state, and local laws have been enacted to regulate the use, storage, transportation, and management of hazardous materials and wastes. The most relevant hazardous materials laws and regulations are summarized in the following subsection of this section.

A number of properties may cause a substance to be hazardous, including toxicity, ignitability, corrosivity, and reactivity. The term "hazardous material" is defined in different ways for different regulatory programs. For the purposes of this SEA, the term "hazardous materials" refers to both hazardous materials and hazardous wastes. A hazardous material is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local regulatory agency or if it has characteristics defined as hazardous by such an agency. The (H&S) Section 25501(k) defines hazardous material as follows:

> "Hazardous material" means any material that because of its quantity, concentrations, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include but are not limited to hazardous substances, hazardous waste, and any material which a handler or the administering agency has a

reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Examples of the types of materials and wastes considered hazardous are hazardous chemicals (e.g., toxic, ignitable, corrosive, and reactive materials), radioactive materials, and medical (infectious) waste. The characteristics of toxicity, ignitability, corrosivity, and reactivity are defined in Title 22, California Code of Regulations (CCR), Section 66261.20-66261.24 and are summarized below:

Toxic Substances: Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability, or even death. For example, such substances can cause disorientation, acute allergic reactions, asphyxiation, skin irritation, or other adverse health effects if human exposure exceeds certain levels. (The level depends on the substances involved and are chemical-specific.) Carcinogens (substances that can cause cancer) are a special class of toxic substances. Examples of toxic substances include benzene (a component of gasoline and a suspected carcinogen) and methylene chloride (a common laboratory solvent and a suspected carcinogen).

Ignitable Substances: Ignitable substances are hazardous because of their ability to burn. Gasoline, hexane, and natural gas are examples of ignitable substances.

Corrosive Materials: Corrosive materials can cause severe burns. Corrosives include strong acids and bases such as sodium hydroxide (lye) or sulfuric acid (battery acid).

Reactive Materials: Reactive materials may cause explosions or generate toxic gases. Explosives, pure sodium or potassium metals (which react violently with water), and cyanides are examples of reactive materials.

Federal Regulations

The U.S. EPA is the primary federal agency charged with protecting human health and with safeguarding the natural environment from pollution into air, water, and land. The U.S. EPA works to develop and enforce regulations that implement environmental laws enacted by Congress. The U.S. EPA is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and Indian tribes the responsibility for issuing permits and for monitoring and enforcing compliance. Since 1970, Congress has enacted numerous environmental laws that pertain to hazardous materials, for the U.S. EPA to implement as well as to other agencies at the federal, state and local level, as described in the following subsections.

Toxics Substances Control Act: The Toxic Substances Control Act (TSCA) was enacted by Congress in 1976 (see 15 U.S.C. §2601 et seq.) and gave the U.S. EPA the authority to protect the public from unreasonable risk of injury to health or the environment by regulating the manufacture, sale, and use of chemicals currently produced or imported into the United States. The TSCA, however, does not address wastes produced as byproducts of manufacturing. The types of chemicals regulated by the act fall into two categories: existing and new. New chemicals are defined as "any chemical substance which is not included in the chemical substance list compiled and published under [TSCA] section 8(b)." This list included all of chemical substances

manufactured or imported into the United States prior to December 1979. Existing chemicals include any chemical currently listed under section 8 (b). The distinction between existing and new chemicals is necessary as the act regulates each category of chemicals in different ways. The U.S. EPA repeatedly screens both new and existing chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. The U.S. EPA can ban the manufacture and import of those chemicals that pose an unreasonable risk.

Emergency Planning and Community Right-to-Know Act: The Emergency Planning and Community Right-to-Know Act (EPCRA) is a federal law adopted by Congress in 1986 that is designed to help communities plan for emergencies involving hazardous substances. EPCRA establishes requirements for federal, state and local governments, Indian tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment. There are four major provisions of EPCRA:

1. Emergency Planning (§§301 – 303) requires local governments to prepare chemical emergency response plans, and to review plans at least annually. These sections also require state governments to oversee and coordinate local planning efforts. Facilities that maintain Extremely Hazardous Substances (EHS) on-site (see 40 Code of Federal Regulations (CFR) Part 355 for the list of EHS chemicals) in quantities greater than corresponding "Threshold Planning Quantities" must cooperate in the preparation of the emergency plan.

2. Emergency Release Notification (§304) requires facilities to immediately report accidental releases of EHS chemicals and hazardous substances in quantities greater than corresponding Reportable Quantities (RQs) as defined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to state and local officials. Information about accidental chemical releases must be made available to the public.

3. Hazardous Chemical Storage Reporting (§§311 – 312) requires facilities that manufacture, process, or store designated hazardous chemicals to make Safety Data Sheets (SDSs, formerly referred to as material safety data sheets or MSDSs) describing the properties and health effects of these chemicals available to state and local officials and local fire departments. These sections also require facilities to report to state and local officials and local fire departments, inventories of all on-site chemicals for which SDSs exist. Lastly, information about chemical inventories at facilities and SDSs must be available to the public.

4. Toxic Chemical Release Inventory (§313) requires facilities to annually complete and submit a Toxic Chemical Release Inventory Form for each Toxic Release Inventory (TRI) chemical that are manufactured or otherwise used above the applicable threshold quantities.

Implementation of EPCRA has been delegated to the State of California. The California Emergency Management Agency requires facilities to develop a Hazardous Materials Business Plan if they handle hazardous materials in quantities equal to or greater than 55 gallons, 500 pounds, or 200 cubic feet of gas or extremely hazardous substances above the threshold planning quantity. The Hazardous Materials Business Plan is provided to state and local emergency response agencies and includes inventories of hazardous materials, an emergency plan, and implements a training program for employees.

Hazardous Materials Transportation Act: The Hazardous Material Transportation Act (HMTA), adopted in 1975 (see 49 U.S.C. §§5101 – 5127), gave the Secretary of Transportation the regulatory and enforcement authority to provide adequate protection against the risks to life and property inherent in the transportation of hazardous material in commerce. The United States Department of Transportation (U.S. DOT) (see 49 CFR Parts 171-180) oversees the movement of hazardous materials at the federal level. The HMTA requires that carriers report accidental releases of hazardous materials to U.S. DOT at the earliest practical moment. Other incidents that must be reported include deaths, injuries requiring hospitalization, and property damage exceeding $50,000. The hazardous material regulations also contain emergency response provisions which include incident reporting requirements. Reports of major incidents go to the National Response Center, which in turn is linked with CHEMTREC, a public service hotline established by the chemical manufacturing industry for emergency responders to obtain information and assistance for emergency incidents involving chemicals and hazardous materials.

Hazardous materials regulations are implemented by the Research and Special Programs Administration (RSPA) branch of the U.S. DOT. The regulations cover the definition and classification of hazardous materials, communication of hazards to workers and the public, packaging and labeling requirements, operational rules for shippers, and training. These regulations apply to interstate, intrastate, and foreign commerce by air, rail, ships, and motor vehicles, and also cover hazardous waste shipments. The Federal Aviation Administration Office of Hazardous Materials Safety is responsible for overseeing the safe handling of hazardous materials aboard aircraft. The Federal Railroad Administration oversees the transportation of hazardous materials by rail. The U.S. Coast Guard regulates the bulk transport of hazardous materials by sea. The Federal Highway Administration (FHWA) is responsible for highway routing of hazardous materials and issuing highway safety permits.

Hazardous Materials and Waste Regulations

Resource Conservation and Recovery Act: The Resource Conservation and Recovery Act (RCRA) of 1976 authorizes the U.S. EPA to control the generation, transportation, treatment, storage, and disposal of hazardous waste. Under RCRA regulations, hazardous wastes must be tracked from the time of generation to the point of disposal. In 1984, RCRA was amended with addition of the Hazardous and Solid Waste Amendments, which authorized increased enforcement by the U.S. EPA, stricter hazardous waste standards, and a comprehensive underground storage tank program. Likewise, the Hazardous and Solid Waste Amendments focused on waste reduction and corrective action for hazardous releases. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Amendments. Individual states may implement their own hazardous waste programs under RCRA, with approval by the U.S. EPA. California has been delegated authority to operate its own hazardous waste management program.

CERCLA: CERCLA, which is often commonly referred to as Superfund, is a federal statute that was enacted in 1980 to address abandoned sites containing hazardous waste and/or contamination. CERCLA was amended in 1986 by the Superfund Amendments and Reauthorization Act, and by the Small Business Liability Relief and Brownfields Revitalization Act of 2002.

CERCLA contains prohibitions and requirements concerning closed and abandoned hazardous waste sites; establishes liability of persons responsible for releases of hazardous waste at these sites; and establishes a trust fund to provide for cleanup when no responsible party can be identified. The trust fund is funded largely by a tax on the chemical and petroleum industries. CERCLA also provides federal jurisdiction to respond directly to releases or impending releases of hazardous substances that may endanger public health or the environment.

CERCLA also enabled the revision of the National Contingency Plan (NCP) which provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the National Priorities List, which identifies hazardous waste sites eligible for long-term remedial action financed under the federal Superfund program.

Prevention of Accidental Releases and Risk Management Programs: Requirements pertaining to the prevention of accidental releases are promulgated in §112 (r) of the CAA Amendments of 1990 [42 U.S.C. §7401 et. seq.]. The objective of these requirements was to prevent the accidental release and to minimize the consequences of any such release of a hazardous substance. Under these provisions, facilities that produce, process, handle or store hazardous substance have a duty to: 1) identify hazards which may result from releases using hazard assessment techniques; 2) design and maintain a safe facility and take steps necessary to prevent releases; and 3) minimize the consequence of accidental releases that occur.

In accordance with the requirements in Section 112 (r), U.S. EPA adopted implementing guidelines in 40 CFR Part 68. Under this part, stationary sources with more than a threshold quantity of a regulated substance shall be evaluated to determine the potential for and impacts of accidental releases from any processes subject to the federal risk management requirements. Under certain conditions, the owner or operator of a stationary source may be required to develop and submit a Risk Management Plan (RMP). RMPs consist of three main elements: a hazard assessment that includes off-site consequences analyses and a five-year accident history, a prevention program, and an emergency response program. At the local level, RMPs are implemented by the local fire departments.

Hazardous Material Worker and Public Safety Requirements

Occupational Safety and Health Administration Regulations: The federal Occupational Safety and Health Administration (OSHA) is an agency of the United States Department of Labor that was created by Congress under the Occupational Safety and Health Act in 1970. OSHA is the agency responsible for assuring worker safety in the handling and use of chemicals in the workplace. Under the authority of the Occupational Safety and Health Act of 1970, OSHA has adopted numerous regulations pertaining to worker safety (see 29 CFR Part 1910). These regulations set standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries. Some OSHA regulations contain standards relating to

hazardous materials handling to protect workers who handle toxic, flammable, reactive, or explosive materials, including workplace conditions, employee protection requirements, first aid, and fire protection, as well as material handling and storage. For example, facilities which use, store, manufacture, handle, process, or move hazardous materials are required to conduct employee safety training, have available and know how to use safety equipment, prepare illness prevention programs, provide hazardous substance exposure warnings, prepare emergency response plans, and prepare a fire prevention plan.

Procedures and standards for safe handling, storage, operation, remediation, and emergency response activities involving hazardous materials and waste are promulgated in 29 CFR Part 1910, Subpart H. Some key subsections in 29 CFR Part 1910, Subpart H are §1910.106 -Flammable Liquids and §1910.120 - Hazardous Waste Operations and Emergency Response. In particular, the Hazardous Waste Operations and Emergency Response regulations contain requirements for worker training programs, medical surveillance for workers engaging in the handling of hazardous materials or wastes, and waste site emergency and remediation planning, for those who are engaged in specific clean-up, corrective action, hazardous material handling, and emergency response activities (see 29 CFR Part 1910 Subpart H, §1910.120 (a)(1)(i-v) and §1926.65 (a)(1)(i-v)).

Process Safety Management: As part of the numerous regulations pertaining to worker safety adopted by OSHA, specific requirements that pertain to Process Safety Management (PSM) of Highly Hazardous Chemicals were adopted in 29 CFR Part 1910 Subpart H, §1910.119 and 8 CCR §5189 to protect workers at facilities that have toxic, flammable, reactive or explosive materials. PSM program elements are aimed at preventing or minimizing the consequences of catastrophic releases of chemicals and include process hazard analyses, formal training programs for employees and contractors, investigation of equipment mechanical integrity, and an emergency response plan. Specifically, the PSM program requires facilities that use, store, manufacture, handle, process, or move hazardous materials to conduct employee safety training; have an inventory of safety equipment relevant to potential hazards; have knowledge on use of the safety equipment; prepare an illness prevention program; provide hazardous substance exposure warnings; prepare an emergency response plan; and prepare a fire prevention plan.

Emergency Action Plan: An Emergency Action Plan (EAP) is a written document required by OSHA standards promulgated in 29 CFR Part 1910, Subpart E, §1910.38 (a) to facilitate and organize a safe employer and employee response during workplace emergencies. An EAP is required by all that are required to have fire extinguishers. At a minimum, an EAP must include the following: 1) a means of reporting fires and other emergencies; 2) evacuation procedures and emergency escape route assignments; 3) procedures to be followed by employees who remain to operate critical plant operations before they evacuate; 4) procedures to account for all employees after an emergency evacuation has been completed; 5) rescue and medical duties for those employees who are to perform them; and 6) names or job titles of persons who can be contacted for further information or explanation of duties under the plan.

National Fire Regulations: The National Fire Codes (NFC), Title 45, published by the National Fire Protection Association (NFPA) contains standards for laboratories using chemicals, which are not requirements, but are generally employed by organizations in order to protect workers. These standards provide basic protection of life and property in laboratory work areas through prevention and control of fires and explosions, and also serve to protect personnel from exposure to non-fire

health hazards.

In addition to the NFC, the NFPA adopted a hazard rating system which is promulgated in NFPA 704 - Standard System for the Identification of the Hazards of Materials for Emergency Response. NFPA 704 is a "standard (that) provides a readily recognized, easily understood system for identifying specific hazards and their severity using spatial, visual, and numerical methods to describe in simple terms the relative hazards of a material. It addresses the health, flammability, instability, and related hazards that may be presented as short-term, acute exposures that are most likely to occur as a result of fire, spill, or similar emergency." In addition, the hazard ratings per NFPA 704 are used by emergency personnel to quickly and easily identify the risks posed by nearby hazardous materials in order to help determine what, if any, specialty equipment should be used, procedures followed, or precautions taken during the first moments of an emergency response. The scale is divided into four color-coded categories, with blue indicating level of health hazard, red indicating the flammability hazard, yellow indicating the chemical reactivity, and white containing special codes for unique hazards such as corrosivity and radioactivity. Each hazard category is rated on a scale from 0 (no hazard; normal substance) to 4 (extreme risk). Table 3-4 summarizes what the codes mean for each hazards category.

In addition to the information in Table 3-4, a number of other physical or chemical properties may cause a substance to be a fire hazard. With respect to determining whether any substance is classified as a fire hazard, SDS lists the NFPA 704 flammability hazard ratings (e.g., NFPA 704). NFPA 704 is a standard that provides a readily recognized, easily understood system for identifying flammability hazards and their severity using spatial, visual, and numerical methods to describe in simple terms the relative flammability hazards of a material.

Table 3-4
NFPA 704 Hazards Rating Code

Hazard Rating Code	Health (Blue)	Flammability (Red)	Reactivity (Yellow)	Special (White)
4 = Extreme	Very short exposure could cause death or major residual injury (extreme hazard).	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily. Flash point below 73°F.	Readily capable of detonation or explosive decomposition at normal temperatures and pressures.	W = Reacts with water in an unusual or dangerous manner.
3 = High	Short exposure could cause serious temporary or moderate residual injury.	Liquids and solids that can be ignited under almost all ambient temperature conditions. Flash point between 73°F and 100°F.	Capable of detonation or explosive decomposition but requires a strong initiating source, must be heated under confinement before initiation, reacts explosively with water, or will detonate if severely shocked.	**OXY** = Oxidizer
2 = Moderate	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury.	Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur. Flash point between 100°F and 200°F.	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water.	**SA** = Simple asphyxiant gas (includes nitrogen, helium, neon, argon, krypton, and xenon).
1 = Slight	Exposure would cause irritation with only minor residual injury.	Must be heated before ignition can occur. Flash point over 200°F.	Normally stable, but can become unstable at elevated temperatures and pressures.	Not applicable
0 = Insignificant	Poses no health hazard, no precautions necessary.	Will not burn.	Normally stable, even under fire exposure conditions, and is not reactive with water.	Not applicable

Although substances can have the same NFPA 704 Flammability Ratings Code, other factors can make each substance's fire hazard very different from each other. For this reason, additional chemical characteristics, such as auto-ignition temperature, boiling point, evaporation rate, flash point, lower explosive limit (LEL), upper explosive limit (UEL), and vapor pressure, are also considered when determining whether a substance is fire hazard. The following is a brief description of each of these chemical characteristics.

Auto-ignition Temperature: The auto-ignition temperature of a substance is the lowest temperature at which it will spontaneously ignite in a normal atmosphere without an external source of ignition, such as a flame or spark.

Boiling Point: The boiling point of a substance is the temperature at which the vapor pressure of the liquid equals the environmental pressure surrounding the liquid. Boiling is a process in which molecules anywhere in the liquid escape, resulting in the formation of

vapor bubbles within the liquid.

Evaporation Rate: Evaporation rate is the rate at which a material will vaporize (evaporate, change from liquid to a vapor) compared to the rate of vaporization of a specific known material. This quantity is a represented as a unit less ratio. For example, a substance with a high evaporation rate will readily form a vapor which can be inhaled or explode, and thus have a higher hazard risk. Evaporation rates generally have an inverse relationship to boiling points (i.e., the higher the boiling point, the lower the rate of evaporation).

Flash Point: Flash point is the lowest temperature at which a volatile liquid can vaporize to form an ignitable mixture in air. Measuring a liquid's flash point requires an ignition source. At the flash point, the vapor may cease to burn when the source of ignition is removed. There are different methods that can be used to determine the flashpoint of a solvent but the most frequently used method is the Tagliabue Closed Cup standard (ASTM D56), also known as the TCC. The flashpoint is determined by a TCC laboratory device which is used to determine the flash point of mobile petroleum liquids with flash point temperatures below 175 degrees Fahrenheit (79.4 degrees Centigrade).

Flash point is a particularly important measure of the fire hazard of a substance. For example, the Consumer Products Safety Commission (CPSC) promulgated Labeling and Banning Requirements for Chemicals and Other Hazardous Substances in 15 U.S.C. §1261 and 16 CFR Part 1500. Per the CPSC, the flammability of a product is defined in 16 CFR Part 1500.3 (c)(6) and is based on flash point. For example, a liquid needs to be labeled as: 1) "Extremely Flammable" if the flash point is below 20 degrees Fahrenheit; 2) "Flammable" if the flash point is above 20 degrees Fahrenheit but less than 100 degrees Fahrenheit; or 3) "Combustible" if the flash point is above 100 degrees Fahrenheit up to and including 150 degrees Fahrenheit.

Lower Explosive Limit (LEL): The lower explosive limit of a gas or a vapor is the limiting concentration (in air) that is needed for the gas to ignite and explode or the lowest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in presence of an ignition source (e.g., arc, flame, or heat). If the concentration of a substance in air is below the LEL, there is not enough fuel to continue an explosion. In other words, concentrations lower than the LEL are "too lean" to burn. For example, methane gas has a LEL of 4.4 percent (at 138 degrees Centigrade) by volume, meaning 4.4 percent of the total volume of the air consists of methane. At 20 degrees Centigrade, the LEL for methane is 5.1 percent by volume. If the atmosphere has less than 5.1 percent methane, an explosion cannot occur even if a source of ignition is present. When the concentration of methane reaches 5.1 percent, an explosion can occur if there is an ignition source.

Upper Explosive Limit (UEL): The upper explosive limit of a gas or a vapor is the highest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in presence of an ignition source (e.g., arc, flame, or heat). Concentrations of a substance in air above the UEL are "too rich" to burn.

Vapor Pressure: Vapor pressure is an indicator of a chemical's tendency to evaporate into gaseous form.

Health Hazards Guidance: In addition to fire impacts, health hazards can also be generated due to exposure of chemicals present in both conventional as well as reformulated products. Using available toxicological information to evaluate potential human health impacts associated with conventional solvents and potential replacement solvents, the toxicity of the conventional solvents can be compared to solvents expected to be used in reformulated products. As a measure of a chemical's potential health hazards, the following values need to be considered: the Threshold Limit Values established by the American Conference of Governmental Industrial Hygiene, OSHA's Permissible Exposure Limits, the Immediately Dangerous to Life and Health levels recommended by the National Institute for Occupational Safety and Health (NIOSH), and health hazards developed by the National Safety Council. The following is a brief description of each of these values.

Threshold Limit Values (TLVs): The TLV of a chemical substance is a level to which it is believed a worker can be exposed day after day for a working lifetime without adverse health effects. The TLV is an estimate based on the known toxicity in humans or animals of a given chemical substance, and the reliability and accuracy of the latest sampling and analytical methods. The TLV for chemical substances is defined as a concentration in air, typically for inhalation or skin exposure. Its units are in parts per million (ppm) for gases and in milligrams per cubic meter (mg/m^3) for particulates. The TLV is a recommended guideline by ACGIH.

Permissible Exposure Limits (PEL): The PEL is a legal limit, usually expressed in ppm, established by OSHA to protect workers against the health effects of exposure to hazardous substances. PELs are regulatory limits on the amount or concentration of a substance in the air. A PEL is usually given as a time-weighted average (TWA), although some are short-term exposure limits (STEL) or ceiling limits. A TWA is the average exposure over a specified period of time, usually eight hours. This means that, for limited periods, a worker may be exposed to concentrations higher than the PEL, so long as the average concentration over eight hours remains lower. A short-term exposure limit is one that addresses the average exposure over a 15 to 30-minute period of maximum exposure during a single work shift. A ceiling limit is one that may not be exceeded for any period of time, and is applied to irritants and other materials that have immediate effects. The OSHA PELs are published in 29 CFR 1910.1000, Table Z1.

Immediately Dangerous to Life and Health (IDLH): IDLH is an acronym defined by NIOSH as exposure to airborne contaminants that is "likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment." IDLH values are often used to guide the selection of breathing apparatus that are made available to workers or firefighters in specific situations.

State Regulations

Hazardous Materials and Waste Regulations

California Hazardous Waste Control Law: The California Hazardous Waste Control Law is administered by CalEPA to regulate hazardous wastes within the State of California. While the California Hazardous Waste Control Law is generally more stringent than RCRA, both the state and federal laws apply in California. The California Department of Toxic Substances Control

(DTSC) is the primary agency in charge of enforcing both the federal and state hazardous materials laws in California. The DTSC regulates hazardous waste, oversees the cleanup of existing contamination, and pursues avenues to reduce hazardous waste produced in California. The DTSC regulates hazardous waste in California under the authority of RCRA, the California Hazardous Waste Control Law, and the H&S. Under the direction of the CalEPA, the DTSC maintains the Cortese List and Envirostor databases of hazardous materials and waste sites as specified under Government Code §65962.5. The Cortese List consists of the following:

1. **Subsection 65962.5. (a)**
   List provided by DTSC that includes:
   a. All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
   b. All land designated as hazardous waste property or border zone property pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
   c. All information received by the Department of Toxic Substances Control pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
   d. All sites listed pursuant to Section 25356 of the Health and Safety Code.
   e. All sites included in the Abandoned Site Assessment Program.
2. **Subsection 65962.5. (b)**
   The State Department of Health lists of all public drinking water wells that contain detectable levels of organic contaminants and that are subject to water analysis pursuant to Section 116395 of the Health and Safety Code.
3. **Subsection 65962.5. (c)**
   The State Water Resources Control Board shall list of all of the following:
   a. All underground storage tanks for which an unauthorized release report is filed pursuant to Section 25295 of the Health and Safety Code.
   b. All solid waste disposal facilities from which there is a migration of hazardous waste and for which a California regional water quality control board has notified the Department of Toxic Substances Control pursuant to subdivision (e) of Section 13273 of the Water Code.
   c. All cease and desist orders issued after January 1, 1986, pursuant to Section 13301 of the Water Code, and all cleanup or abatement orders issued after January 1, 1986, pursuant to Section 13304 of the Water Code, that concern the discharge of wastes that are hazardous materials.
4. **Subsection 65962.5. (d)**
   The appropriate local enforcement agency will list of all solid waste disposal facilities from which there is a known migration of hazardous waste.

The Hazardous Waste Control Law (22 CCR Chapter 11, Appendix X) also lists 791 chemicals and approximately 300 common materials which may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

California Occupational Safety and Health Administration: The California Occupational Safety and Health Administration (CalOSHA) is the primary agency responsible for worker safety

in the handling and use of chemicals in the workplace. The CalOSHA requires the employer to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings. CalOSHA standards are generally more stringent than federal regulations.

Hazardous Materials Release Notification: Many state statutes require emergency notification of a hazardous chemical release, including:

- H&S §25270.7, §25270.8, and §25507;
- California Vehicle Code §23112.5;
- California Public Utilities Code §7673 (General Orders #22-B, 161);
- California Government Code §51018 and §8670.25.5(a);
- California Water Code §13271 and §13272; and
- California Labor Code §6409.1(b)10.

California Accident Release Prevention (CalARP) Program: The California Accident Release Prevention Program (19 CCR Division 2, Chapter 4.5) requires the preparation of RMPs. CalARP requires stationary sources with more than a threshold quantity of a regulated substance to be evaluated to determine the potential for and impacts of accidental releases from any processes on-site (not transport) subject to state risk management requirements. RMPs are documents prepared by the owner or operator of a stationary source containing detailed information including: (1) regulated substances held onsite at the stationary source; (2) offsite consequences of an accidental release of a regulated substance; (3) the accident history at the stationary source; (4) the emergency response program for the stationary source; (5) coordination with local emergency responders; (6) hazard review or process hazard analysis; (7) operating procedures at the stationary source; (8) training of the stationary source's personnel; (9) maintenance and mechanical integrity of the stationary source's physical plant; and (10) incident investigation. The CalARP Program is implemented at the local government level by Certified Unified Program Agencies (CUPAs) also known as Administering Agencies (AAs). Typically, local fire departments are the administering agencies of the CalARP Program because they frequently are the first responders in the event of a release. California is proposing modifications to the CalARP Program along with the state's PSM program in response to an accident at the Chevron Richmond Refinery. The proposed regulations were released for public comment on July 15, 2016 and the public comment period closed on September 15, 2016.

Hazardous Materials Disclosure Program: The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) as promulgated by CalEPA in CCR, Title 27, Chapter 6.11 requires the administrative consolidation of six hazardous materials and waste programs (program elements) under one agency, a CUPA. The Unified Program administered by the State of California consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities for the state's environmental and emergency management programs, which include Hazardous Waste Generator

and On-Site Hazardous Waste Treatment Programs ("Tiered Permitting"); Above ground SPCC Program; Hazardous Materials Release Response Plans and Inventories (business plans); the CalARP Program; the UST Program; and the Uniform Fire Code Plans and Inventory Requirements. The Unified Program is implemented at the local government level by CUPAs.

Hazardous Materials Management Act: The State of California (H&S Division 20, Chapter 6.95) requires any business that handles more than a specified amount of hazardous or extremely hazardous materials, termed a "reportable quantity," to submit a Hazardous Materials Business Plan to its CUPA. Business plans must include an inventory of the types, quantities, and locations of hazardous materials at the facility. Businesses are required to update their business plans at least once every three years and the chemical portion of their plans every year. Also, business plans must include emergency response plans and procedures to be used in the event of a significant or threatened significant release of a hazardous material. These plans need to identify the procedures to follow for immediate notification to all appropriate agencies and personnel of a release, identification of local emergency medical assistance appropriate for potential accident scenarios, contact information for all company emergency coordinators, a listing and location of emergency equipment at the business, an evacuation plan, and a training program for business personnel. The requirements for hazardous materials business plans are specified in the H&S and 19 CCR.

Hazardous Materials Transportation in California: California regulates the transportation of hazardous waste originating or passing through the State in Title 13, CCR. The California Highway Patrol (CHP) and Caltrans have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies. The CHP enforces materials and hazardous waste labeling and packing regulations that prevent leakage and spills of material in transit and provide detailed information to cleanup crews in the event of an incident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP. Caltrans has emergency chemical spill identification teams at locations throughout the state.

California Fire Code: While NFC Standard 45 and NFPA 704 are regarded as nationally recognized standards, the California Fire Code (24 CCR) also contains state standards for the use and storage of hazardous materials and special standards for buildings where hazardous materials are found. Some of these regulations consist of amendments to NFC Standard 45. State Fire Code regulations require emergency pre-fire plans to include training programs in first aid, the use of fire equipment, and methods of evacuation.

Local Regulations

Los Angeles County: The Office of Emergency Management is responsible for organizing and directing the preparedness efforts of the Emergency Management Organization of Los Angeles County. Los Angeles County's policies towards hazardous materials management include enforcing stringent site investigations for factors related to hazards; limiting the development in high hazard areas, such as floodplains, high fire hazard areas, and seismic hazard zones; facilitating safe transportation, use, and storage of hazardous materials; supporting lead paint abatement; remediating Brownfield sites; encouraging the purchase of homes on the FEMA Repeat Hazard list and designating the land as open space; enforcing restrictions on access to important energy sites; limiting development downslope from aqueducts; promoting safe alternatives to chemical-

based products in households; and prohibiting development in floodways. The county has defined effective emergency response management capabilities to include supporting county emergency providers with reaching their response time goals; promoting the participation and coordination of emergency response management between cities and other counties at all levels of government; coordinating with other county and public agency emergency planning and response activities; and encouraging the development of an early warning system for tsunamis, floods and wildfires.

Orange County: Orange County's Hazardous Materials Program Office is responsible for facilitating the coordination of various parts of the County's hazardous materials program; assisting in coordinating county hazardous materials activities with outside agencies and organizations; providing comprehensive, coordinated analysis of hazardous materials issues; and directing the preparation, implementation, and modification of the county's Hazardous Waste Management Plan (HWMP). Orange County is responsible for its own emergency plans concerning a nuclear power plant accident, and the Incident Response Plan is updated regularly.

The regulatory agency responsible for enforcement, as well as inspection of pipelines transporting hazardous materials, is the California State Fire Marshal's Office, Hazardous Liquid Pipeline Division. The Orange County Health Care Agency (OCHCA) has been designated by the Board of Supervisors as the agency to enforce the underground storage tank (UST) program. The OCHCA UST Program regulates approximately 7,000 of the 9,500 underground tanks in Orange County. The program includes conducting regular inspections of underground tanks; oversight of new tank installations; issuance of permits; regulation of repair and closure of tanks; ensuring the mitigation of leaking USTs; pursuing enforcement action; and educating and assisting the industries and general public as to the laws and regulations governing USTs. Under mandate from the California HSC, the Orange County Fire Authority is the designated agency to inventory the distribution of hazardous materials in commercial or industrial occupancies, develop and implement emergency plans, and require businesses that handle hazardous materials to develop emergency plans to deal with these materials.

San Bernardino County: San Bernardino County's HWMP serves as the primary planning document for the management of hazardous waste in San Bernardino County. The HWMP identifies the types and amounts of wastes generated; establishes programs for managing these wastes; identifies an application review process for the siting of specified hazardous waste facilities; identifies mechanisms for reducing the amount of waste generated; and identifies goals, policies, and actions for achieving effective hazardous waste management. One of the county's stated goals is to minimize the generation of hazardous waste and reduce the risk posed by storage, handling, transportation, and disposal of hazardous wastes. In addition, the county will protect its residents and visitors from injury and loss of life and protect property from fires by deploying firefighters and requiring new land developments to prepare site-specific fire protection plans.

Riverside County: Through its membership in the Southern California Hazardous Waste Management Authority (SCHWMA), the County of Riverside has agreed to work on a regional level to solve problems involving hazardous waste. SCHWMA was formed through a joint powers agreement between Santa Barbara, Ventura, San Bernardino, Orange, San Diego, Imperial, and Riverside Counties and the Cities of Los Angeles and San Diego. Working within the concept of "fair share," each SCHWMA county has agreed to take responsibility for the treatment and disposal of hazardous waste in an amount that is at least equal to the amount generated within that county. This responsibility can be met by siting hazardous waste management facilities (transfer,

treatment, and/or repository) capable of processing an amount of waste equal to or larger than the amount generated within the county, or by creating intergovernmental agreements between counties to provide compensation to a county for taking another county's waste, or through a combination of both facility siting and intergovernmental agreements. When and where a facility is to be sited is primarily a function of the private market. However, once an application to site a facility has been received, the county will review the requested facility and its location against a set of established siting criteria to ensure that the location is appropriate and may deny the application based on the findings of this review. The County of Riverside does not presently have any of these facilities within its jurisdiction and, therefore, must rely on intergovernmental agreements to fulfill its fair share responsibility to SCHWMA.

Emergency Response to Hazardous Materials and Waste Incidents

California Emergency Management Agency: The California Emergency Management Agency (Cal EMA) exists to enhance safety and preparedness in California through strong leadership, collaboration, and meaningful partnerships. The goal of Cal EMA is to protect lives and property by effectively preparing for, preventing, responding to, and recovering from all threats, crimes, hazards, and emergencies. Cal EMA under the Fire and Rescue Division coordinates statewide implementation of hazardous materials accident prevention and emergency response programs for all types of hazardous materials incidents and threats. In response to any hazardous materials emergency, Cal EMA is called upon to provide state and local emergency managers with emergency coordination and technical assistance.

Pursuant to the Emergency Services Act, California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government agencies and private persons. Response to hazardous materials incidents is one part of this Emergency Response Plan. The Emergency Response Plan is administered by Cal EMA which coordinates the responses of other agencies. Six mutual aid and Local Emergency Planning Committee (LEPC) regions have been identified for California that are divided into three areas of the state designated as the Coastal (Region II, which includes 16 counties with 151 incorporated cities and a population of about eight million people.), Inland (Region III, Region IV and Region V, which includes 31 counties with 123 incorporated cities and a population of about seven million people), and Southern (Region I and Region VI, which includes 11 counties with 226 incorporated cities and a population of about 22 million people). The SCAQMD jurisdiction covers portions of Region I and Region VI.

In addition, pursuant to the Hazardous Materials Release Response Plans and Inventory Law of 1985, local agencies are required to develop "area plans" for response to releases of hazardous materials and wastes. These emergency response plans depend to a large extent on the business plans submitted by persons who handle hazardous materials. An area plan must include pre-emergency planning of procedures for emergency response, notification, coordination of affected government agencies and responsible parties, training, and follow-up.

Hazardous Materials Incidents

Hazardous materials move through the region by a variety of modes: Truck, rail, air, ship, and pipeline. The movement of hazardous materials implies a degree of risk, depending on the materials being moved, the mode of transport, and numerous other factors (e.g., weather and road conditions). According to the Office of Hazardous Materials Safety (OHMS) in the U.S. DOT,

hazardous materials shipments can be regarded as equivalent to deliveries, but any given shipment may involve one or more movements or trip segments, which may occur by different routes (e.g., rail transport with final delivery by truck). According to the Commodity Flow Survey data[9] there were approximately 2.6 billion tons of hazardous materials shipments in the United States in 2012 (the last year for which data are available). Table 3-5 indicates that trucks move more than 50 percent and pipeline accounts for approximately 24 percent of all hazardous materials shipped from a location in the United States. By contrast, rail accounts for only 4.3 percent of shipments[10].

Table 3-5
Hazardous Material Shipments in the United States in 2012

Mode	Total Commercial Freight (thousand tons)	Hazardous Materials Shipped (thousand tons)	Percent of Total Hazardous Materials Shipped by Mode of Transportation	Percent of Total Commercial Freight Shipped that is Hazardous
Truck	8,060,166	1,531,405	59.4%	19.0%
Rail	1,628,537	110,988	4.3%	6.8%
Water	575,996	283,561	11.0%	49.2%
Pipeline	635,975	626,652	24.3%	98.5%
Other	398,735	27,547	1.1%	6.9%
Total	**11,299,409**	**2,580,153**	**100.0%**	**22.8%**

Source: U.S. DOT[11,12]

The movement of hazardous materials through the U.S. transportation system represents about 22.8 percent of total tonnage for all freight shipments as measured by the Commodity Flow Survey. Comparatively, the total commercial freight moved in 2012 in California by all transportation modes was 718,345 thousand tons[13].

California Hazardous Materials Incident Reporting System: The California Hazardous Materials Incident Reporting System (CHMIRS) is a post incident reporting system to collect data on incidents involving the accidental release of hazardous materials in California. Information on accidental releases of hazardous materials are reported to and maintained by Cal EMA. While information on accidental releases are reported to Cal EMA, Cal EMA no longer conducts statistical evaluations of the releases, e.g., total number of releases per year for the entire State, or data by county. The U.S. DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) provides access to retrieve data from the Incident Reports Database, which also includes non-pipeline incidents, e.g., truck and rail events. Incident data and summary statistics, e.g., release

[9] USDOT, 2015. United States: 2012; 2012 Economic Census and 2012 Commodity Flow Survey. Issued March 2015. Available at http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/ec12tcf-us.pdf

[10] USDOT, 2015. United States: 2012; 2012 Economic Census and 2012 Commodity Flow Survey. Issued March 2015. Available at http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/ec12tcf-us.pdf

[11] USDOT, 2016. Table 1a. Hazardous Material Shipment Characteristics by Mode of Transportation for the United States: 2012. Accessed July 25. 2016. http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/commodity_flow_survey/2012/hazardous_materials/table1a

[12] USDOT, 2016a. Table 1a. Shipment Characteristics by Mode of Transportation for the United States: 2012. Accessed July 25, 2016. http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/ files/publications/commodity_flow_survey/2012/united_states/table1

[13] USDOT, 2016b. Table 3: Weight of Outbound Commodity Flows by State of Origin: 2012. Accessed July 25, 2016. http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/commodity_flow_survey/2012/state_summaries/tables/table3

date, geographical location (state and county) and type of material released, are available online from the Hazmat Incident Database.

Table 3-6 provides a summary of the reported hazardous material incidents for Los Angeles, Orange, Riverside, and San Bernardino counties for 2012 through 2014 from the Hazmat Incident Database[14]. Data presented is for the entire county and not limited to the portion of the county located within the jurisdiction of the SCAQMD.

Table 3-6
Reported Hazardous Materials Incidents for 2012 - 2014

County	2012	2013	2014
Los Angeles	286	337	287
Orange	270	63	88
Riverside	55	43	50
San Bernardino	261	348	351
Total	**872**	**791**	**776**

In 2012, there were a total of 872 incidents reported for Los Angeles, Orange, Riverside and San Bernardino counties. In 2013, there were a total of 791 incidents reported for Los Angeles, Orange, Riverside and San Bernardino counties, and in 2014 a total of 776 incidents for these four counties. Over the three-year period, San Bernardino and Los Angeles counties accounted for the largest number of incidents, followed by Orange and Riverside counties. As noted in Table 3-6, the number of incidents has reduced over the years.

Hazards Associated with Air Pollution Control

The SCAQMD has evaluated the hazards associated with previous AQMPs, proposed SCAQMD rules, and non-SCAQMD projects where the SCAQMD is the Lead Agency pursuant to CEQA. Add-on pollution control technologies, such as SCR, have been previously analyzed for hazards. The use of add-on pollution control equipment may concentrate or utilize hazardous materials. A malfunction or accident when using add-on pollution control equipment could potentially expose people to hazardous materials, explosions, or fires. The SCAQMD has determined that the transport, use, and storage of ammonia, both aqueous and anhydrous, (used in SCR systems) may have significant hazard impacts in the event of an accidental release. Further analyses have indicated that the use of aqueous ammonia (instead of anhydrous ammonia) can usually reduce the hazards associated with ammonia use in SCR systems to less than significant.

Ammonia

Ammonia is the primary hazardous chemical identified with the use of SCR systems ~~technology~~. Ammonia, though not a carcinogen, can have chronic and acute health impacts. Therefore, a potential increase in the use of ammonia may increase the current existing risk setting associated with deliveries (e.g., truck and road accidents) and onsite or offsite spills for each facility that currently uses or will begin to use ammonia. Exposure to a toxic gas cloud is the potential hazard associated with this type of control equipment. A toxic gas cloud is the release of a volatile chemical such as anhydrous ammonia that could form a cloud that migrates off-site, thus exposing

[14] Pipeline and Hazardous Materials Safety Administration (PHMSA), 2015. Incident Reports Database Search. Accessed, November 17, 2015 at https://hazmatonline.phmsa.dot.gov /IncidentReportsSearch/Welcome.aspx

individuals. Anhydrous ammonia is heavier than air such that when released into the atmosphere, it would form a cloud at ground level rather than be dispersed. "Worst-case" conditions tend to arise when very low wind speeds coincide with the accidental release, which can allow the chemicals to accumulate rather than disperse. Though there are facilities that may be affected by the 2016 AQMP control measures that are currently permitted to use anhydrous ammonia, for any new construction, however, current SCAQMD policy no longer allows the use of anhydrous ammonia. Instead, to minimize the hazards associated with ammonia used in the SCR or SNCR process, aqueous ammonia, 19 percent by volume, is typically required as a permit condition associated with the installation of SCR or SNCR equipment for the following reasons: 1) 19 percent aqueous ammonia does not travel as a dense gas like anhydrous ammonia; and 2) 19 percent aqueous ammonia is not on any acutely hazardous materials lists unlike anhydrous ammonia or aqueous ammonia at higher percentages. Also, if released, aqueous ammonia is likely to pool in liquid form and would be captured in a surrounding berm. As such, the release impacts of an aqueous ammonia release are not as great as anhydrous ammonia release.

CHAPTER 4

ENVIRONMENTAL IMPACTS

INTRODUCTION

The CEQA Guidelines require environmental documents to identify significant environmental effects that may result from a proposed project. [CEQA Guidelines Section 15126.2(a)]. Direct and indirect significant effects of a project on the environment should be identified and described, with consideration given to both short- and long-term impacts. The discussion of environmental impacts may include, but is not limited to, the resources involved; physical changes; alterations of ecological systems; health and safety problems caused by physical changes; and other aspects of the resource base, including water, scenic quality, and public services. If significant adverse environmental impacts are identified, the CEQA Guidelines require a discussion of measures that could either avoid or substantially reduce any adverse environmental impacts to the greatest extent feasible. [CEQA Guidelines Section 15126.4].

The categories of environmental impacts to be studied in a CEQA document are established by CEQA (Public Resources Code Section 21000 et seq.), and the CEQA Guidelines, as codified in Title 14 California Code of Regulations Section 15000 *et seq.* Under the CEQA Guidelines, there are approximately 17 environmental categories in which potential adverse impacts from a project are evaluated.

The CEQA Guidelines also indicate that the degree of specificity required in a CEQA document depends on the type of project being proposed. [CEQA Guidelines Section 15146]. The detail of the environmental analysis for certain types of projects cannot be as great as for others. As explained in Chapter 1, the analysis of PARs 1146 series and PR 1100 indicated that the type of CEQA document appropriate for the proposed project is a SEA.

POTENTIAL SIGNIFICANT ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This document is a SEA to the: 1) September 2008 Final EA for Rule 1146; 2) September 2008 Final EA for Rule 1146.1; 3) May 2006 Final EA for Rule 1146.2; and 4) March 2017 Final Program EIR for the 2016 AQMP. The previous environmental analyses in the September 2008 Final EA for Rule 1146.1 and the May 2006 Final EA for Rule 1146.2 contained an environmental checklist and concluded that none of the 17 environmental topic areas would have potentially significant adverse impacts at the time the September 2008 and May 2006 amendments to Rules 1146.1 and 1146.2, respectively, were adopted. However, the previous environmental analysis in the September 2008 Final EA for Rule 1146 concluded that the September 2008 amendments to Rule 1146 would have potentially significant adverse impacts for the environmental topic of air quality and hazards and hazardous materials.

The March 2017 Final Program EIR for the 2016 AQMP determined that the overall implementation of CMB-05 has the potential to generate adverse environmental impacts to seven topic areas – air quality, energy, hazards and hazardous materials, hydrology and water quality, noise, solid and hazardous waste, and transportation. More specifically, the March 2017 Final Program EIR evaluated the impacts from installation and operation of additional control equipment and SCR or SNCR equipment potentially resulting in construction emissions, increased electricity demand, hazards from additional ammonia transport and use, increase in water use and wastewater discharge, changes in noise volume, generation of solid waste from construction and disposal of old equipment and catalysts replacements, as well as changes in traffic patterns and volume.

For the entire 2016 AQMP, the analysis concluded that significant and unavoidable adverse environmental impacts from the project are expected to occur after implementing mitigation measures for the following environmental topic areas: 1) aesthetics from increased glare and from the construction and operation of catenary lines and use of bonnet technology for ships; 2) construction air quality and GHGs; 3) energy (due to increased electricity demand); 4) hazards and hazardous materials due to: (a) increased flammability of solvents; (b) storage, accidental release and transportation of ammonia; (c) storage and transportation of liquefied natural gas (LNG); and (d) proximity to schools; 5) hydrology (water demand); 6) construction noise and vibration; 7) solid construction waste and operational waste from vehicle and equipment scrapping; and, 8) transportation and traffic during construction and during operation on roadways with catenary lines and at the harbors. Since significant adverse environmental impacts were identified, mitigation measures were identified and applied. However, the March 2017 Final Program EIR concluded that the 2016 AQMP would have significant and unavoidable adverse environmental impacts even after mitigation measures were identified and applied. As such, mitigation measures were made a condition of project approval and a Mitigation Monitoring and Reporting Plan was adopted. Findings were made and a Statement of Overriding Considerations was prepared and adopted for this project.

PARs 1146 series ~~and PR 1100~~ propose to~~ respectively~~ establish BARCT limits~~ and an implementation schedule for~~ reducing NOx emissions at RECLAIM facilities with units subject to Rules 1146, 1146.1, and 1146.2. This will be one of the first ~~set of~~ rules that will help transition RECLAIM facilities to a command-and-control regulatory structure. PR 1100 has been~~,~~ specifically crafted to~~,~~ contain~~s~~ the implementation schedule for Rule 1146 and 1146.1 units to meet the NOx emissions limits. Units at RECLAIM facilities subject to Rule 1146 and 1146.1 will be required to meet the applicable NOx concentration limit for a minimum of 75 percent of the cumulative total heat input by January 1, 2021 and 100 percent by January 1, 2022. For PARs 1146 and 1146.1, similar to the September 2008 amendments to Rules 1146 and 1146.1, compliance is expected to be achieved through the installation of SCR systems ~~technology~~ or ultra-low NOx burners. ~~Additionally, P~~permit applications would need to be submitted for units at RECLAIM facilities not currently meeting the applicable NOx concentration limit for units subject to Rules 1146 and 1146.1 before 12 months after the date of rule adoption. Certain units~~ at non-RECLAIM facilities~~ subject to Rules 1146 and 1146.1 would be allowed ~~to defer having~~ to comply with the NOx emission limits during ~~unti~~l burner replacement or 15 years after the date of rule adoption, whichever is earlier. Thermal fluid heaters currently permitted at 20 ppm must meet the NOx emission limit of 12 ppm by January 1, 2022. Additionally, air pollution control equipment on units subject to Rule 1146 that result in ammonia emissions will be subject to a five ppm ammonia limit and will be required to undergo a source test within 12 months of unit operation after the date of rule adoption and annually thereafter. PARs 1146 series and PR 1100 are expected to result in NOx emission reductions of 0.20 ton per day by January 1, 2021 and ~~0.23~~ 0.27 ton per day by 2023. The proposed project emission reductions are expected to improve overall air quality in the District and further the progress towards attaining and maintaining state and NAAQS for ozone, PM10, and PM2.5. However, the implementation of the proposed project could create both direct and indirect air quality and hazards and hazardous materials impacts from those sources that install SCR ~~technology~~ system(s) or ultra-low NOx burners. In the Revised Draft SEA, t~~T~~he construction of air pollution control equipment in order to reduce NOx emissions, was ~~is~~ expected to exceed the SCAQMD's significance threshold for air quality. Based on the analysis, using EPA RMP*Comp the location of the ammonia storage tanks at some facilities and their vicinity to sensitive receptors could potentially have a significant impact from hazards and hazardous

materials. However, after the construction of SCR systems is completed, the operation of the systems would reduce NOx emissions; thus, reducing the significant impact to air quality during overlap of construction and operation phases to less than significant levels. Nonetheless, the implementation of PARs 1146 series and PR 1100 would be expected to have significant adverse hazards and hazardous materials impacts from the storage and use of ammonia to operate SCR systems. The proposed changes contained in PARs 1146 series are considered to contain new information of substantial importance, which was not known and could not have been known at the time the previous CEQA documents for Rules 1146 and 1146.1 (e.g., the September 2008 Final EAs), Rule 1146.2 (e.g., the May 2006 Final EA), and the 2016 AQMP (e.g., the March 2017 Final Program EIR) were certified. Specifically, the units subject to Rules 1146 and 1146.1 at RECLAIM facilities were not discussed in these previously certified CEQA documents. In the Revised Draft SEA, PARs 1146 series and PR 1100 were expected to ~~will~~ create new significant effects to air quality during construction and hazards and hazardous materials that need to be further evaluated in this SEA per CEQA Guidelines Section 15162(a)(3)(A). Thus, only the topics of air quality and hazards and hazardous materials have been analyzed in this SEA. However, after the analysis was completed, within the proximity of sensitive receptors only the topic of hazards and hazardous materials for the storage and use of aqueous ammonia was concluded in the Final SEA to have potentially significant adverse impacts.

The environmental impact analysis for this environmental topic area incorporates a "worst-case" approach. This approach entails the premise that whenever the analysis requires that assumptions be made, those assumptions that result in the greatest adverse impacts are typically chosen. This method ensures that all potential effects of the proposed project are documented for the decision-makers and the public. Accordingly, the following analyses use a conservative "worst-case" approach for analyzing the potentially significant adverse air quality and hazards and hazardous materials impacts associated with the implementation of the PARs 1146 series and PR 1100.

AIR QUALITY IMPACTS

Significance Criteria

The environmental analysis assumes that installation of NOx control technologies (e.g., ultra-low NOx burners and SCR systems) for the affected sources will reduce NOx emissions overall, but construction activities associated with both the installation of new control devices and the modification of existing control devices will create secondary air quality impacts (e.g., emissions), which can adversely affect local and regional air quality. A project may generate emissions both during the period of its construction and through ongoing daily operations. During installation of or modification existing NOx control devices, emissions may be generated by onsite construction equipment and by offsite vehicles used for worker commuting. After construction activities are completed, additional emissions may be generated from the increased electricity use of the SCR systems (as GHGs) and offsite vehicles (as criteria pollutants and GHGs) used for delivering fresh materials (e.g., chemicals, fresh catalyst, etc.) needed for operations and hauling away solid waste for disposal or recycling (e.g., spent catalyst). To determine whether air quality impacts from adopting and implementing PARs 1146 series and PR 1100 are significant, impacts will be evaluated and compared to the following criteria. If impacts exceed any of the significance thresholds in Table 4-1, they will be considered significant. All feasible mitigation measures will be identified and implemented to reduce significant impacts to the maximum extent feasible. PARs 1146 series and PR 1100 will be considered to have significant adverse air quality impacts

if any one of the thresholds in Table 4-1 are equaled or exceeded. In general, the SCAQMD makes significance determinations for construction and operational impacts based on the maximum or peak daily emissions during the construction or operation period, which provides a "worst-case" analysis of the construction and operational emissions. The type of emission reduction projects that may be or expected to be undertaken to comply with PARs 1146 series and 1100 are primarily the installation of SCR systems ~~technology~~ and ultra-low NOx burners on existing boilers, steam generators, and process heaters; thus, this will be analyzed in this SEA.

The physical changes involved with the type of emission control strategies that could be implemented focus on the installation of ultra-low NOx burners and SCR systems ~~technology~~ at existing stationary combustion sources to reduce NOx emissions. To optimize their equipment overall, facility owners or operators may also employ other burner and flue gas configurations that would be considered to improve the efficiency of the combustion process. However, these optimization activities would not require construction activities, per se, that would involve construction equipment and related emissions. In addition, of the differing control equipment likely to be installed or modified, past projects involving SCR systems ~~technology~~ installation have been shown to typically generate the greatest amount of construction emissions for an individual project (i.e., potentially significant) and thus, are considered a conservative "worst-case" assumption for the analysis in this SEA. This is especially true when the installation of SCR systems ~~technology~~ is compared to other control technologies such as ultra-low NOx burners, which have much less environmental impacts when installed and operated. Further, when considering the installation of SCR equipment, SCR systems utilize ammonia which may also require the installation of one or more ammonia storage tanks, depending on each affected facility's storage availability. Since ammonia is a chronic and acutely hazardous TAC, the installation of ammonia storage tanks must also be considered when evaluating the overall construction and operational activities.

Table 4-1
SCAQMD 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 SCAQMD 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	SCAQMD 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 μg/m^3 (construction)[e] & 2.5 μg/m^3 (operation) 1.0 μg/m^3	
$PM_{2.5}$ 24-hour average	10.4 μg/m^3 (construction)[e] & 2.5 μg/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 μg/m^3 (state)	
CO 1-hour average 8-hour average	SCAQMD 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 μg/m^3 (state) 0.15 μg/m^3 (federal)	

[a] Source: SCAQMD CEQA Handbook (SCAQMD, 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 SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[e] Ambient air quality threshold based on SCAQMD Rule 403.

KEY: lbs/day = pounds per day ppm = parts per million μg/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: March 2015

Project-Specific Air Quality Impacts During Construction

Construction-related emissions can be distinguished as either onsite or offsite. Onsite emissions generated during construction principally consist of exhaust emissions (NOx, SOx, CO, VOC, PM2.5 and PM10) from heavy-duty construction equipment operation, fugitive dust (primarily as PM10) from disturbed soil, and VOC emissions from asphaltic paving and painting. Offsite emissions during the construction phase normally consist of exhaust emissions and entrained paved road dust (primarily as PM10) from worker commute trips, material delivery trips, and haul truck material trips to and from the construction site. In general, limited construction emissions from site preparation activities, which may include earthmoving/grading, are anticipated because the sites, typically, have already been graded and paved. Further, operators at each affected facility who construct NOx control equipment that utilize chemicals as part of the NOx control equipment operations, such as a new ammonia or storage tank, may also need to build a containment berm large enough to hold 110 percent of the tank capacity in the event of an accidental release, pursuant to U.S. EPA's spill prevention control and countermeasure regulations.

To estimate the "worst-case" construction- and operational-related emissions associated with installing ultra-low NOx burners or SCR systems in order to comply with the NOx emission limits and transition timing in PARs 1146 series and PR 1100, assumptions were made to estimate combustion emissions from construction emissions onsite, off-site on-road emissions from worker trips and deliveries, on-site fugitive dust emissions, and operational emissions.

The original Draft SEA analyzed the impacts from five facilities operating eight boilers each rated at greater than 75 MMBtu per hour (Group I), and these units are not expected to be able to comply with the NOx emission limits because they are not currently equipped with NOx emission control technology. However, after the release of the original Draft SEA for public review and comment, changes were made to the project description after the comment period ended which altered the universe of facilities and the units that may be affected by the proposed project. As an example, in the previous analysis, one facility (previously known as Facility A) had three boilers which have since been decommissioned and have permits that have been inactivated. A subsequent environmental analysis has been conducted based on new information and changes to the project description since the release of the Draft SEA to determine the environmental impacts and ~~is~~ was included in ~~this~~ the Revised Draft SEA. The analysis in the Revised Draft SEA was based on 32 RECLAIM facilities operating 56 boilers that would be retrofitted with SCR systems. However, after the release of the Revised Draft SEA for public review and comment, the number of boilers dropped to 55, but the number of affected RECLAIM facilities remained the same (32 facilities). By analyzing 56 units instead of 55, the analysis conducted in the Revised Draft SEA presents more impacts than what may actually occur. Thus, the reduced number of affected equipment in this Final SEA do not constitute an increase in the severity of an environmental impact.

Of the RECLAIM facilities that will affected by PARs 1146 series and PR 1100, there are 32~~five~~ facilities operating 55 ~~56eight~~ boilers that are each rated greater than 20~~75~~ MMBtu per hour (Group I and Group II) and these boilers currently cannot meet the NOx emission limits of 5 ppm or 7 ppm, respectively, because they are either not equipped with NOx emission control technology or have older SCR systems ~~technology~~ that are not capable of meeting the NOx emission limits. While facilities that do not have NOx emission control technology may first consider employing ultra-low NOx burners to achieve the NOx emission limits for their boilers, steam generators, and process heaters due to the relative ease of installation, operation, control efficiency, and overall

cost when compared to SCR systems ~~technology~~, retrofitting these larger units with ultra-low NOx burners alone may not meet the requirement to achieve the final 100 percent compliance with the NOx emission limits by January 1, 2022. For this reason, the environmental analysis in this SEA assumes that SCR systems ~~technology~~ or new improved SCR systems ~~technology~~ for boilers with existing SCR systems ~~technology~~, will be installed on the larger units, which is expected to result in the "worst-case" emissions. Thus, for the 32~~five~~ facilities operating 55 ~~56eight~~ boilers, ~~eight~~ 55 ~~56~~ SCR systems are assumed to be installed (e.g., one SCR for each boiler).

Ammonia or urea is necessary to operate SCR systems ~~technology~~, and tanks to store these chemicals would also need to be installed. Since SCR systems utilize ammonia in the NOx reduction process, as many as one aqueous ammonia storage tank per SCR installation ~~(i.e., eight ammonia storage tanks)~~ could potentially be installed to support the new SCR systems. Two of the 55 ~~56~~ affected units at RECLAIM facilities currently have SCR systems ~~technology~~ installed with the associated ammonia storage tanks. This analysis assumes that each facility will install one new SCR and one new aqueous ammonia storage tank (e.g., 55 ~~56~~ new SCR units plus 55 ~~56~~ new ammonia tanks would be installed). However, f~~F~~or any operator installing more than one SCR system at one facility, this analysis assumes that only one large aqueous ammonia storage tank would be installed in lieu of multiple, smaller storage tanks, because it is likely and expected the facilities would want to simplify their delivery schedule. For example, several ~~of the~~ RECLAIM facilities have two or three ~~eight~~ boilers that are expected to utilize new SCR systems ~~technology~~, ~~three boilers are located at one facility~~ so it is possible that the facility operator of these~~is~~ facilities~~y~~ would elect to install one larger aqueous ammonia storage tank, in lieu of two or three smaller tanks, to service the two or three SCR systems ~~units~~ to simplify the ammonia delivery schedule. Also by assuming that one larger storage tank would be installed in lieu of multiple smaller storage tanks the impacts of hazards associated with the use and storage of ammonia would represent the "worst-case". The size of each ammonia tank needed to supply ammonia to each of the 55 ~~56eight~~ SCR systems has been estimated to range between 250 and 10,000 gallons in capacity.

Each facility is expected to have sufficient space to install new NOx control equipment or retrofit existing equipment. However, because installation of larger NOx air pollution control equipment may need to occupy the space of previous equipment, demolition activities were assumed to occur prior to the equipment installation to remove any existing equipment or structures (as applicable), remove the old piping and electrical connections, and break up the old foundation with a demolition hammer. For these reasons, digging, earthmoving, grading, slab pouring, or paving activities are anticipated and were analyzed.

The type of construction-related activities attributable to installing new NOx control equipment or retrofitting existing equipment would consist predominantly of deliveries of steel, piping, wiring, chemicals, catalysts, and other materials, and would also involve maneuvering the materials within the site via a variety of off-road equipment such as a crane, forklift et cetera or on-road equipment such as haul trucks, delivery trucks, and passenger vehicles for construction workers. If a new foundation is not needed, to establish footings or structure supports, some concrete cutting and digging may be necessary in order to re-pour new footings prior to building above the existing foundation. Because the affected equipment are operating at existing facilities, the analysis assumes that no more than one acre of area would need to be disturbed at a single facility at a given time. Construction was assumed to consist of four phases: 1) demolition; 2) site preparation; 3) paving; and, 4) installing the NOx control equipment along with supporting devices and structures.

Based on previous analyses of an SCR system installation, the typical equipment that may be needed to complete each construction phase at a single affected facility is presented in Table 4-2.

Table 4-2
Construction Equipment That May Be Needed to Install One SCR system at One Facility

Construction Phase	Off-Road Equipment Type	Amount	Daily Usage Hours
Building Construction	Cranes	1	6
Building Construction	Forklifts	1	6
Building Construction	Generator Sets	1	8
Building Construction	Tractors/Loaders/Backhoes	1	6
Building Construction	Welders	2	8
Building Construction	Aerial Lifts	1	8
Demolition	Concrete/Industrial Saws	1	8
Demolition	Rubber Tired Dozers	1	8
Demolition	Tractors/Loaders/Backhoes	1	8
Demolition	Cranes	1	8
Paving	Cement and Mortar Mixers	1	6
Paving	Paving Equipment	1	8
Paving	Plate Compactors	1	6
Paving	Tractors/Loaders/Backhoes	1	8
Site Preparation	Rubber Tired Dozers	1	7
Site Preparation	Tractors/Loaders/Backhoes	1	8
Site Preparation	Trenchers	1	8

Construction emissions associated with installing one ~~the eight~~ SCR system~~s~~ at one ~~the five~~ facility~~ies~~ were estimated using the California Emission Estimator Model (CalEEMod), version 2016.3.2. To estimate what the impacts would be for installing one SCR system and associated ammonia storage tank, the following general assumptions were made:

- To provide a "worst-case" analysis, each SCR system and associated ammonia storage tank installation will require its own construction crew and equipment. For any facility with multiple boilers, the installation of SCR systems and associated ammonia storage tanks are assumed to occur in sequential order with the same construction crew and equipment in order to avoid all boilers being offline at the same time.
- The four phases are assumed to occur sequentially during a traditional work week (e.g., five days) and each phase is assumed the following number of days: demolition – five days; site preparation – two days; installation of NOx control equipment – 250 days; and paving – five days.
- During the construction, it is expected for each SCR system for each day of each phase the following number of round-trip trips would occur from the off-road equipment: demolition - 15 trips; site preparation – eight trips; installation of NOx control equipment – 18 trips; and paving – 13 trips. In addition, seven vendor trips are estimated to be needed during the installation of the SCR system~~NOx control equipment~~. It was assumed five hauling trips would occur during the Demolition phase.
- Since each facility will need to meet the applicable NOx concentration limit for a minimum of 75 percent of the cumulative total heat input for all Rules 1146 and 1146.1 units by

January 1, 2021, and 100 percent by January 1, 2022, and taking into account the lead time needed to procure contracts, order equipment and obtain SCAQMD permits, construction is expected to begin in 2019 at the earliest. Further, depending on the facility, construction could last from six months to over one year or more if multiple SCR systems will be installed at one facility. The most SCR systems expected to be installed at one facility is fourthree. In order for the facility with four units to meet the compliance deadline, at least three of the four SCR systems would need to be installed at this facility by January 1, 2021. The amount of NOx emission reductions that is expected to be achieved by installing 75 percent of the SCR systems (e.g., 42) by January 1, 2021 represents approximately 0.15 ton per day or 300 pounds per day.

Table 4-3 presents the peak daily emissions from construction activities to install one SCR at one facility. The implementation of PARs 1146 series and PR 1100 would result inOf the 55 56eight affected units at 32 facilities and each unit is assumed to need an SCR system installed.,- Eighteen facilities have more than one unit and thus require more than oneultiple SCR systems are assumed to be installed at two facilities. For these 18two facilities, however, the installations of SCR systems are assumed towill occur sequentially (e.g., one SCR system at a time) in order to avoid all boilers being offline simultaneously and to maintain operations at each facility. Because tThe proposal provides substantial lead time approximately three years (compliance date of January 1, 2022) in order for facilities to take the necessary actions to achieve compliance, construction of each SCR system at the 32five affected facilities couldis not likely to occur on the same day. The construction would likely be staggered amongst the 32five affected facilities, because of the lead time needed to procure contracts, order equipment, and obtain SCAQMD permits prior to beginning construction. Thus, the analysis assumes that not all 32 facilities would begin construction on the exact same day and maintain the exact same schedule. However, but it is possible that some overlap of the construction phases would occur. Table 4-3 presents the peak daily emissions for the construction of one SCR system at one facility. Appendix B contains the CalEEMod output files for the annual, summer, and winter construction emissions for the construction of one SCR system at one facility.

Table 4-3
Peak Daily Emissions from Construction Activities of One SCR System at One Facility

Peak Daily Construction Emissions	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day	PM10 (lb/day)	PM2.5 (lb/day)
Installation of 1 SCR	2.30	17.49	23.04	0.03	6.48	3.95
Significance Threshold for Construction	75	550	100	150	150	55
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

While unlikely, Although it is possible that there could be overlapping construction activities at more than one facility, but it is impossible to predict with any accuracy which construction phases would overlap at which facilities. The analysis assumes that five facilities will undergo construction and that these construction activities will overlap. For this reason, the analysis conservatively assumes that five SCR systems would be constructed or have overlapping construction phases occurring on a peak day. At the time of the original Draft SEA was released for public review and comment, five facilities were assumed to install eight SCR systems. Table

4-4 presents the peak daily emissions if construction occurs simultaneously at each of the five affected facilities.

Table 4-4
Peak Daily Emissions from Construction Activities of Five SCR Systems

Peak Daily Construction Emissions	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day	PM10 (lb/day)	PM2.5 (lb/day)
Installation of 5 SCR~~s~~ Systems (Unmitigated)	11.51	87.46	115.22	0.15	32.42	19.77
Significance Threshold for Construction	75	550	100	150	150	55
Exceed Significance?	**NO**	**NO**	**YES***	**NO**	**NO**	**NO**

* This conclusion of significance does not take into account the concurrent NOx emission reductions that are expected to occur after each SCR system is constructed and becomes operational.

As shown in Table 4-4, the peak daily construction emissions of five SCR systems being installed at five facilities would exceed the SCAQMD's significance threshold for NOx and thus, result in significant adverse air quality impacts. However, since the amount of NOx emission reductions that is expected to be achieved by installing 75 percent of the SCR systems by January 1, 2021 represents approximately 0.15 ton per day or 300 pounds per day, the peak daily construction emissions of five SCR systems being installed at five facilities would be offset by these concurrent emission reductions such that the SCAQMD's significance threshold for NOx would no longer be exceeded. Thus, the construction air quality impacts from installing five SCR systems on a peak day would be at less than significant levels.

However, in ~~this~~ the Revised Draft SEA, the universe of affected facilities increased and the number of new SCR systems to be installed increased from eight to 55 ~~56~~. To adjust for the increased number of affected facilities and corresponding installation of SCR systems, that could potentially have overlapping construction activities, the analysis was adjusted to ~~assume that~~ illustrate the construction of 16 SCR systems ~~could potentially~~ if they were to occur on the same day. As shown in Table 4-5, the peak daily construction emissions of 16 SCR systems being installed at 16 facilities would exceed the SCAQMD's significance threshold for NOx and PM2.5; thus, resulting in significant adverse air quality impacts. However, given the three-year compliance deadline, different phases of construction, length of time needed to construct a SCR system, and option to replace the boiler instead of constructing an SCR system, it is unlikely all 16 units would be constructed on the same peak day. Further is it unlikely that all 16 units would be constructed on the same day for those facilities requiring multiple SCR system installations since the construction of those systems would occur sequentially, not concurrently.

Table 4-5
Peak Daily Emissions from Construction Activities of 16 SCR Systems

Peak Daily Construction Emissions	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day	PM10 (lb/day)	PM2.5 (lb/day)
Installation of 16 SCR Systems (Unmitigated)	36.80	279.84	368.64	0.48	103.68	63.20
Significance Threshold	75	550	100	150	150	55
Exceed Significance?	**NO**	**NO**	**YES***	**NO**	**NO**	**YES**

* This conclusion of significance does not take into account the concurrent NOx emission reductions that are expected to occur after each SCR system is constructed and becomes operational.

In addition to the installation at RECLAIM facilities of SCR systems for boilers, steam generators, or process heaters rated above 20 ~~75~~ MMBtu per hour (Group I and Group II boilers), the proposed project is expected to result in other facilities installing 93 ~~211~~ ultra-low NOx burners on 93 ~~211~~ boilers, steam generators, or process heaters rated greater than two or less than ~~or equal to~~ 20 ~~75~~ MMBtu per hour (Group III includes Rule 1146 and Rule 1146.1) and thermal fluid heaters in order to meet the applicable NOx emission limit and compliance deadlines. From a construction point of view, the installation of ultra-low NOx burners on these smaller boilers, steam generators and process heaters (i.e., Group II and Group III units), is a relatively straightforward process, especially when compared to the construction activities and equipment needed to retrofit boilers, steam generators, and process heaters rated above 20 ~~75~~ MMBtu per hour with SCR systems. Specifically, operators of affected facilities who choose to replace existing burners with ultra-low NOx burners will first need to pre-order and purchase the appropriate size, style and number of burners, shut down the combustion unit to let it cool, and change out the burners. The burner change out may involve a contractor or vendor to remove the bolts, possibly cut and re-weld metal seals and re-fire the burners for equipment start-up. Burner replacements would most likely entail the use of hand tools. Thus, in general, heavy-duty construction activities or equipment are not anticipated for installing ultra-low NOx burners. Once the ultra-low NOx burners are in place, the combustion equipment can be fired up and can operate with lower NOx emissions. Thus, minimal secondary construction impacts are anticipated from the installation of the majority ultra-low NOx burners. To estimate what the impacts would be for installing ultra-low NOx burners, the following assumptions were made:

- 93 ~~211~~ units will be retrofitted with ultra-low NOx burners, with 75 percent occurring by January 1, 2021 and 100 percent completed by the January 1, 2022.
- To meet the 75 percent compliance date (January 1, 2021), approximately 70 ~~160~~ units would need to be retrofitted with ultra-low NOx burners and at least 35 ~~80~~ would be installed during the first year for (e.g., 2019) and the remainder would be installed during the second year (e.g., 2020). The amount of NOx emission reductions that are expected to be achieved from installing ultra-low NOx burners by January 1, 2021 represents approximately 0.05 ton per day or 100 pounds per day.
- Since up to six months may be needed to assess the equipment, arrange for a vendor or contractor, and permits application; installation of the ultra-low NOx burners and operation will begin in year 2019.
- Per unit, installation of ultra-low NOx burners will take one day.

- For a "worst-case" analysis, 10 units will have ultra-low NOx burners installed within the same day based on similar analysis conducted from the September 2008 Final EA for Rule 1146.
- One contractor/vendor plus one welder per unit will be needed to retrofit the affected equipment with ultra-low NOx burners.

In addition, certain units at non-RECLAIM facilities may defer compliance with the new specified NOx emission limits until the replacement of the unit's burners or 15 years from the date of rule adoption, whichever is earlier. Thermal fluid heaters currently permitted at greater than 20 ppm must meet the NOx emission limit of 12 ppm by January 1, 2022. It is difficult to predict when a unit at a non-RECLAIM facility would incur burner replacement (if sooner than 15 years) and thus, required to meet the new NOx emissions limits, because it is a facility-based decision (e.g., cost, long-term planning, etc.) that is dependent on the status of the unit (e.g., unit operation schedule, unit age, and maintenance of the unit, etc.). Units at non-RECLAIM facilities meet current NOx emission limits. To meet the new NOx emissions limits, units at non-RECLAIM facilities would do so by installing ultra-low NOx burners on units during burner replacement or 15 years from the date of rule adoption, whichever is earlier. Construction emissions for units at non-RECLAIM facilities would be identical to the construction emissions for the affected units at RECLAIM facilities. As stated earlier as a "worst-case" analysis, 10 units would have ultra-low NOx burners installed within the same day based on similar and past analyses. As a conservative estimate, the peak emissions would be in construction Year 2019, because it is the earliest year a unit at a non-RECLAIM facility could be replacing a unit's burner. The lowest emissions from construction would occur if the non-RECLAIM facility installed an ultra-low NOx burner on a unit 15 years later.

Table 4-6~~5~~ summarizes the peak daily construction emissions from retrofitting the affected equipment with ultra-low NOx burners. Appendix B contains the detailed construction estimates and calculations for installing ultra-low NOx burners on the affected equipment.

Table 4-6~~5~~
Peak Daily Construction Emissions from Retrofitting Equipment with Ultra-Low NOx Burners

Peak Construction by Year	VOC (lbs/day)	CO (lbs/day)	NOx (lbs/day)	SOx (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)
2019						
Total for 1 unit in one day	0.17	1.24	0.46	0.003	0.05	0.01
Peak Daily Total for 10 units installed in one day	1.70	12.42	4.56	0.03	0.55	0.13
~~Peak Total for 80 units installed in one year~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~
Significance Threshold	75	550	100	150	150	55
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
2020						
Total for 1 unit in one day	0.16	1.15	0.43	0.0003	0.05	0.01
Peak Daily TOTAL for 10 units installed in one day	1.56	11.52	4.25	0.03	0.52	0.13
~~Peak Total for 80 units installed in one year~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~
Significance Threshold	75	550	100	150	150	55
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
2021						
Total for 1 unit in one day	0.14	1.09	0.40	0.003	0.05	0.01
Peak Daily Total for 10 units installed in one day	1.44	10.85	3.96	0.03	0.49	0.13
~~Peak Total for 51 units installed in one year~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~
Significance Threshold	75	550	100	150	150	55
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

As shown in Table 4-6~~5~~, the peak daily construction emissions of retrofitting the equipment with ultra-low NOx burners would not exceed any of the SCAQMD's significance thresholds for one unit on a peak day as well as for 10 units on a peak day for construction years 2019, 2020, and 2021. Of the three construction years, the highest peak daily emissions occur in 2019.

~~Because of the compliance timing in the proposed project; it is unlikely that the c~~Construction of SCR systems ~~technology~~ will overlap the retrofitting of units~~equipment~~ with ultra-low NOx burners. Table 4-7~~6~~ presents a summary of the peak daily construction emissions from the overlapping installations of five SCR systems and ten ultra-low NOx burners.

Table 4-~~7~~6
Peak Daily Construction Emissions from Overlapping Installations of SCR Systems and Ultra-low NOx Burners

Total Peak Daily Construction Emissions^	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)
Peak Daily Total for Installation of 5 SCR systems (from Table 4-4)	11.51	87.46	115.22	0.15	32.42	19.77
Peak Daily Total for Installation of 10 Ultra-low NOx burners (from Table 4-~~6~~5)	1.70	12.42	4.56	0.03	0.55	0.13
Total for SCR systems and Ultra-Low NOx Burners	13	100	120	0	33	20
Significance Threshold	75	550	100	150	150	55
Exceed Significance?	**NO**	**NO**	**YES***	**NO**	**NO**	**NO**

^Year 2019 was chosen because it represents the highest emissions of the three construction years.
* This conclusion of significance does not take into account the concurrent NOx emission reductions that are expected to occur after each SCR system and ultra-low NOx burners are constructed and become operational.

As shown in Table 4-~~7~~6, the peak daily construction emissions of concurrently installing five SCR systems being installed at five facilities while also retrofitting 10 units with ultra-low NOx burners would also exceed the SCAQMD's significance threshold for NOx and thus, result in significant adverse air quality impacts during construction.

As presented in Tables 4-3, 4-4, 4-6 and 4-7, the construction air quality impacts can range from less than significant for all criteria air pollutants to significant levels for NOx, depending on the number of equipment under construction on a peak day, and whether the construction activities for multiple equipment overlap on a peak day. For example, while the initial construction of one SCR system would result in a temporary increase in construction emissions, the quantity of emissions would not exceed any of the air quality significance thresholds on a peak day and the same is true for the initial construction of one to 10 ultra-low NOx burners on a peak day. However, under the circumstance where the construction of five SCR systems overlap construction of 10 ultra-low NOx burners, the NOx emissions from these overlapping construction activities are shown to exceed the SCAQMD's significance threshold for NOx. However, these significant impacts will be reduced to less than significant levels by implementation of the proposed project, by design, because a concurrent operational air quality benefit would result due to the overall NOx emissions reductions of 0.20 ton per day (405 pounds per day) that are expected to occur by January 1, 2021, or 0.27 ton per day (540 pounds per day) that are expected to occur by January 1, 2023 as the installation of SCR systems and ultra-low NOx burners occur over time. In particular, the amount of NOx emission reductions that is expected to be achieved by installing 75 percent of the SCR systems (e.g., 42) by January 1, 2021 represents approximately 0.15 ton per day or 300 pounds per day. Similarly, the amount of NOx emission reductions that are expected to be achieved from installing 75 percent of the ultra-low NOx burners (e.g., 70) by January 1, 2021 represents approximately 0.05 ton per day or 100 pounds per day.

Thus, as construction is completed for each SCR system or ultra-low NOx burner, there will be immediate, corresponding NOx emission reductions from the operation of each new SCR system or ultra-low NOx burner, and these NOx emission reductions will continue to accumulate and are expected to substantially offset any significant increase of NOx emissions to less than significant levels in the event that there are overlapping construction activities of five SCR systems and 10 ultra-low NOx burners on a peak day. For these reasons, the construction air quality impacts from implementing the proposed project would be reduced to less than significant levels from concurrent NOx emission reductions.

Rule 1146.2 units

Twenty- nine~~eight~~ out of 32 Rule 1146.2 units currently permitted in the RECLAIM program meet the Rule 1146.2 NOx emission limits. Three~~Four~~ of the~~units~~ 32 units do not meet the NOx emission limits and would require retrofit equipment such as an ultra-low NOx burner or replacement by December 31, 2023 under the proposed rule amendment. The current Rule 1146.2 units at~~in~~ RECLAIM facilities are~~is~~ largely underrepresented. However, RECLAIM facilities with Rule 1146.2 units have until December 31, 2023 to retrofit or replace their equipment. Because the process of retrofitting a boiler with a burner replacement kit on smaller, Rule 1146.2, units is identical to the process of installing ultra-low NOx burners on medium to large units, the construction emissions presented in Table 4-6~~5~~ can also be attributed to the process of retrofitting a boiler with a burner replacement kit. As shown in Table 4-6~~5~~, the peak daily construction emissions from retrofitting equipment with ultra-low NOx burners would not exceed any of the SCAQMD's significance thresholds for one unit on a peak day as well as for 10 units on a peak day for construction years 2019, 2020, and 2021. Of the three construction years, the highest peak daily emissions occur in year 2019 and the emissions decrease each subsequent year. Thus, for any burner replacement kits that are installed on Rule 1146.2 units, less than significant air quality impacts would also be expected.

Complete Replacement of Existing Boilers, Heaters, or Steam Generators

While PARs 1146 series does not require equipment replacement, i~~I~~n lieu of installing SCR systems or retrofitting existing equipment with ultra-low NOx burners, facility operators may consider completely replacing their existing boilers, heaters, or steam generators for reasons including, but not limited to age, high maintenance and operating costs, fuel efficiency issues, and/or the lack of replacement parts. The proposed project contains a provision that will allow any facility operator that commits to replacing Rules 1146 and 1146.1 equipment with new equipment ~~that can achieve the applicable NOx emission limit(s) to continue to operate the existing equipment and defer compliance~~ until January 1, 2023 to achieve the applicable NOx emission limit(s). Because of the deferred compliance option, any replacement would not be expected to overlap the construction activities associated with installing SCR systems and ultra-low NOx burners for equipment subject to Rules 1146 and 1146.1.

~~In addition, certain units at non-RECLAIM facilities may defer compliance with the specified NOx emission limits until the replacement of the unit's burners or 15 years from the date of rule adoption, whichever is earlier. Thermal fluid heaters currently permitted at greater than 20 ppm must meet the NOx emission limit of 12 ppm by January 1, 2022. It is impossible to predict when this would occur for the affected units, because it is a facility-based decision (e.g., cost, long-term planning, etc.) that is dependent on the status of the unit (e.g., unit operation schedule, unit age, and maintenance of the unit, etc.).~~

Should a complete replacement occur, this analysis assumes that a worse-case would be if a large boiler (rated at greater than 75 MMBtu per hour) is replaced because of its large overall footprint. The following assumptions were made for the replacement of a large boiler:

- Before dismantling can occur, the existing boiler would need to be shut down and allowed to cool. The dismantling and demolition process is estimated to take 20 days and then it would take approximately 3,000 hours or 75 days to install a new boiler, which includes five days of site preparation, 65 days of building construction, and five days of paving.
- Eight workers would be needed to install the new boiler.
- The following equipment would be needed to replace the boiler: one cement/mortar mixer; one concrete/industrial saw; one crane; one rubber tired dozer; one tractor/loader/backhoe; and one welder. They would be used eight hours a day, except for the crane which is expected to be used two hours per day for removing the existing boiler and moving the replacement boiler into place.
- The footprint of the existing boiler is assumed to be 1,000 square feet and the facility operator is assumed to replace the unit with equipment of the same size and footprint.
- Once the new replacement unit becomes operational, the NOx emissions are expected to be fewer than the existing unit and the fuel usage of the new unit will use eight to 10 percent less fuel than the existing unit from improved efficiency.
- No additional employees are expected to be needed to operate and maintain the new unit. The operation and maintenance are expected to be similar for the new unit.

Construction emissions associated with removing one large boiler and replacing it with a new unit of comparable size were estimated using CalEEMod version 2016.3.2. Appendix B contains the detailed construction estimates for a large boiler replacement. Table 4-8~~7~~ summarizes the peak daily construction emissions from replacing a large boiler with a new unit.

Table 4-8~~7~~
Peak Daily Construction Emissions from Replacing a Large Boiler

Construction Emissions	VOC (lb/day)	CO (lb/day)	NOx (lb/day)	SOx (lb/day	PM10 (lb/day)	PM2.5 (lb/day)
Replacement of One Large Boiler	6.33	44.67	58.31	0.07	8.42	5.77
Significance Threshold	75	550	100	150	150	55
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

As shown in Table 4-8~~7~~, the construction emissions from the replacement of a large boiler (greater than 75 MMBtu per hour) is less than SCAQMD's significance threshold. Any Rule 1146.2 unit operating at a RECLAIM facility would be required to either meet a NOx emission limit of 30 ppm if retrofitted with a burner replacement kit or 20 ppm if the unit is replaced. It is difficult to determine which facilities would choose to replace or retrofit a particular unit since there are a variety of factors to be considered. One factor is the useful life of the equipment since an average boiler is estimated to have a useful life of 25 years; however, some units have been known to run effectively for more than 30 years and many have been in operation for over 40 years. Another

factor is that a larger unit substantial maintenance for the refractory; thus, a facility operator may opt to replace a unit with a smaller unit that is less maintenance-intensive. Some facility operators may also elect to downsize if replacing an old unit with a new unit because the operations have changed over the years or they are seeking to improve operational efficiency. Further, some facility operators may also determine that it is more cost-effective to retrofit a unit rather than replace it. Overall, the decision as whether to replace a unit with a new unit is dependent upon costs, the ability to retrofit the old unit with ultra-low NOx burners, equipment age and size, and the facility's operational needs.

Should a facility operator elect to replace a small boiler (e.g., Rule 1146.2 unit at two MMBtu per hour), in lieu of installing a burner retrofit kit, the construction activities would also be expected to result in fewer emissions than the boiler replacement emissions presented in Table 4-8~~7~~ because the replacement of a smaller unit would require less workers, fewer hours to install, and fewer and smaller heavy-duty equipment. Thus, the construction emissions from replacing a small Rule 1146.2 boiler would also be less than the SCAQMD's significance thresholds.

Construction Mitigation: ~~Except for~~ The analysis shows that the peak daily NOx emissions would ~~, no other criteria pollutant emissions~~ exceed the significant thresholds during construction if there is ~~or more facilities have~~ overlapping construction occurring on a peak day. However, these significant impacts will be reduced to less than significant levels by implementation of the proposed project, by design, because a concurrent operational air quality benefit would result due to the overall NOx emissions reductions. In particular, the incremental amount of NOx emission reductions that is expected to be achieved by installing 75 percent of the SCR systems (e.g., 42) by January 1, 2021 represents approximately 0.15 ton per day or 300 pounds per day. Similarly, the amount of NOx emission reductions that are expected to be achieved from installing 75 percent of the ultra-low NOx burners (e.g., 70) by January 1, 2021 represents approximately 0.05 ton per day or 100 pounds per day. ~~However,~~ Upon full implementation, the proposed project would ~~however~~ result in the overall NOx emissions reductions of 0.20 ~~173~~ ton per day (405 ~~345~~ pounds per day) by January 1, 2021, or ~~0.23~~ 0.27 ton per day (540 ~~460~~ pounds per day) by January 1, 2023. Thus, the analysis indicates that there will be an overall reduction in NOx emissions during construction, because the construction and operational phases will likely overlap. As construction is completed for each SCR system, there will be overall NOx emission reductions from the operation of each SCR system and the same is true for when ultra-low NOx burners are installed. ~~The initial construction of one SCR system would result in an increase in emissions; however, the emissions would not be exceed the significance threshold as seen in Table 4-3. The completion of construction and operation of the first SCR system would result in immediate NOx emission reductions and in effect reduce the peak daily NOx emissions below the significance threshold.~~ Because the net result of concurrent operational NOx emission reductions are offsetting the construction NOx emissions, no significant impacts remain. As such, no construction mitigation is required. Thus, no significant adverse air quality impacts during construction are expected to remain ~~during the construction phase of the SCR systems~~.

Remaining Construction Impacts After Mitigation: The air quality analysis concluded that significant adverse air quality impacts could be created by the proposed project because the construction activities will produce emissions that would exceed the SCAQMD's significant threshold for NOx per day during construction. However, the analysis further indicates that there will be an overall reduction in NOx emission during both construction and operational phases of

the proposed project. Therefore, no significant adverse air quality impacts are expected to remain during the construction of the SCR systems.

Project-Specific Air Quality Impacts During Operation

The incremental amount of NOx emission reductions that is expected to be achieved by installing 75 percent of the SCR systems (e.g., 42) by January 1, 2021 represents approximately 0.15 ton per day or 300 pounds per day. Similarly, the amount of NOx emission reductions that are expected to be achieved from installing 75 percent of the ultra-low NOx burners (e.g., 70) by January 1, 2021 represents approximately 0.05 ton per day or 100 pounds per day. Upon full implementation, t~~T~~he proposed project is expected to result in direct air quality benefits from the reduction of 0.20 ton per day by January 1, 2021 and ~~0.23~~ 0.27 ton per day of NOx emissions by January 1, 2023. Implementation is expected to be achieved by installing ultra-low NOx burners and SCR systems on boilers, steam generators, and process heaters. However, secondary criteria pollutant emissions may be generated as part of operation activities associated with operating and maintaining the air pollution control equipment after it is installed. In particular, the following activities may be sources of secondary criteria pollutant emissions during operation: 1) vehicle trips via heavy-duty for periodic ammonia/urea deliveries for each SCR system installed; 2) vehicle trips via heavy-duty trucks for periodic deliveries of catalyst as well as spent catalyst hauling after the SCR system is installed; and 3) vehicle trips via light-duty trucks for quarterly source testing after each SCR system is installed.

The following assumptions were made about the operation of SCR systems:

- The construction of one ammonia storage tank is assumed to require two one-way truck deliveries of 19 percent aqueous ammonia. Ammonia delivery trucks can deliver approximately 7,000 gallons at any one time.
- Each facility with only one SCR system will have only one ammonia delivery once per month, but the quantity delivered will vary by the size of the storage tank needed. For the facilities that have more than one SCR system that will be installed, it is assumed that the facility will also install one large ammonia storage tank in lieu of multiple smaller storage tanks to save money and space at the facility. ~~(Facility A) that~~ Even with a total of 18 facilities with multiple SCR systems, only one facility would require greater than a 7,000 gallons delivery. At this facility (Facility 6), a 10,000 gallon tank would be required to service all three SCR systems; thus, two ammonia truck deliveries will be needed each month.
- Since the ammonia tanks will be pressurized, no ammonia emissions are expected from filling the storage tanks.
- As a conservative estimate, it is assumed ~~T~~the peak daily trips associated with ammonia/urea deliveries will be one truck per facility ~~per month~~ for all facilities except Facility 6~~A~~ which will have~~be~~ two ammonia delivery trucks ~~per month~~. The delivery distance of one ammonia truck is assumed to be 100 miles round-trip.
- The initial construction of one SCR unit is assumed to require two one-way truck deliveries of catalyst modules. All initial catalyst deliveries are assumed to occur on the same peak day for all the affected facilities. Catalyst modules are expected to be replaced every two to three years. When spent catalyst removal and replacement becomes necessary, two one-

way trucks will be needed to remove the catalyst and two one-way trucks will be needed to deliver the fresh catalyst modules.

- Peak daily trips assume truck trip distances to deliver catalyst would be similar to ammonia and are assumed to be 100 miles round-trip. It is assumed the catalyst delivery vehicles would be similar to the ammonia delivery trucks (heavy-duty).
- No additional employees are anticipated to be needed to operate the new SCR systems because the existing work force per affected facility is expected to be sufficient. As such, no additional emissions from new workers are anticipated from the operation of the new SCR systems.
- ~~Two~~60 RECLAIM facilities installing either SCR systems or ultra-low NOx burners are located within ¼- mile of sensitive receptors (e.g., schools, residences, etc.).
- Facilities with units installing SCR systems would be required to conduct quarterly source testing. It is assumed that each source test would require one gasoline-fueled light duty truck driving approximately 40 miles per day, round trip. As a conservative analysis, each facility has been assumed to conduct one source test on a peak day. Thus, the 32 affected facilities would conduct a source test on the same day.

A summary of the heavy-duty truck trips from ammonia and catalyst deliveries are presented in Table 4-9~~8~~.

Table 4-9~~8~~
Heavy-Duty Truck Trips from Ammonia and Catalyst Deliveries

Heavy-Duty Truck Trips	NH3/Urea Delivery Trips	Catalyst Delivery Trips	Total Trips
Annual	396 ~~72~~	56 ~~8~~	452 ~~80~~
Peak Daily	33 ~~6~~	32 ~~5~~	65 ~~11~~

When taking into account the arrangements that need to be made in order to coordinate with a contractor to conduct the required source tests, and the availability of source test contractors in the District, it is unlikely that all 32 affected facilities will conduct the source tests on the same day. However, to illustrate what the emission effects would be if all 32 facilities conducted the required source testing on the same day; Table 4-10 presents the emissions from 32 light duty trucks employed on a peak day. Although there will be 55 SCR systems that are expected to be installed from the proposed project; it is assumed that a facility would only conduct one source test at a time and in one day. Thus, if all the facilities completed their quarterly source testing for the ammonia emissions limit, a maximum of 224 source tests (and corresponding vehicle round-trips) would occur each year.

Secondary operational emissions from the 32~~five~~ facilities were estimated using EMFAC2017~~4~~ emission factors and are presented in Table 4-10~~9~~. Appendix B contains the detailed emissions calculations from the operational activities from the installation of all of the SCR systems.

Table 4-109
Peak Daily Operational Emissions from all the Facilities ~~Five Facilities~~

Operational Activity	CO (lb/day)	NOx (lb/day)	PM10 (lb/day)	PM2.5 (lb/day)	VOC (lb/day)	SOX (lb/day)
Increased Delivery Trucks (Ammonia and Catalysts)	~~1.55~~ 19.25	~~13.82~~ 30.43	~~78.40~~ 2.18	~~8.18~~ 1.22	~~0.50~~ 4.54	~~0.03~~ 0.12
Source Testing Trucks	5.12	0.43	0.13	0.06	0.54	0.002
TOTAL	**24.37** **~~1.5519.25~~**	**30.86** **~~13.8230.43~~**	**2.31** **~~78.402.18~~**	**1.28** **~~8.181.22~~**	**5.08** **~~0.504.54~~**	**0.12** **~~0.03~~**
Significance Threshold for Operation	550	55	150	55	55	150
Exceed Significance?	**No**	**No**	**No**	**No**	**No**	**No**

As a conservative estimate, Facility 6 ~~A~~ was used as the facility that would have the peak daily number of heavy-duty truck trips that would occur at one year at one facility. If the facility receives two ammonia delivery trucks each month and three catalyst deliveries (assuming each SCR system construction was staggered through the year and would require a catalyst delivery each time a SCR system was completed), the peak daily number of heavy-duty truck trips that may occur in one year at one facility (Facility 6 ~~A~~) is 27. Heavy-duty trucks are prohibited from idling for more than five minutes at any one location as regulated by the Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling[15], but they can move to multiple locations and idle at each location for up to five minutes. Thus, as a conservative analysis, this analysis assumes that the trucks may idle for up to a total of 15 minutes per trip. Therefore, a peak of approximately 6.75 hours of idling may occur at one facility in one year. The CARB emission factor for an idling heavy-duty diesel truck is 1.67 grams per hour of diesel particulate matter (DPM). Therefore, a conservative estimate of 0.025 pound of diesel particulate exhaust per year would be generated at a facility. Based on the Tier III methodology described in the SCAQMD Risk Assessment Procedures for Rules 1401, 1401.1 and 212, Version 8.0 (March 2016), 0.025 pound of DPM per year would generate a health risk of 0.05 in one million, which is less than the significance threshold of an increased probability of 10 cancer cases in one million. Appendix C contains the Tier III risk assessment calculations.

SCR systems reduce NOx emissions by using ammonia, which is considered a TAC. Unreacted ammonia emissions generated from these units are referred to as ammonia slip. Ammonia slip is limited to five ppm through permit conditions for new SCR installations. Based on the November 2015 Final Program Environmental Analysis for Proposed Amended Regulation XX - RECLAIM[16] the concentration at a receptor located 25 meters from a stack would be much less

[15] CARB, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, September 2016. https://www.arb.ca.gov/msprog/truck-idling/13ccr2485_09022016.pdf

[16] SCAQMD, Final Program Environmental Assessment for Proposed Amended Regulation XX -RECLAIM, November 2015. http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2015/regxxfinalpeaplusappendices.pdf

than one percent of the concentration at the release from the exit of the stack. Thus, the peak concentration of ammonia at a receptor located 25 meters from a stack is calculated by assuming a dispersion of one percent. While ammonia does not have an OEHHA approved cancer potency value, it does have non-carcinogenic chronic (200 microgram (µg) per cubic meter) and acute (3,200 µg per cubic meter) reference exposure levels (RELs). Table 4-11~~10~~ summarizes the calculated non-carcinogenic chronic and acute hazard indices for ammonia and compared these values to the respective significance thresholds; both were shown to be less than significant.

Table 4-11~~10~~
Health Risk from the Facilities Using Ammonia

Ammonia Slip Concentration at the Exit of the Stack (ppm)	**Peak Concentration at a Receptor 25 m from the Stack** ($\mu g/m^3$)	**Acute REL** ($\mu g/m^3$)	**Chronic REL** ($\mu g/m^3$)	**Acute Hazard Index**	**Chronic Hazard Index**
5	35	3,200	200	**0.01**	**0.17**
		Significance Threshold		**1.0**	**1.0**
		Exceed Significance?		**NO**	**NO**

Even if multiple SCR systems are installed at one facility, the locations of all the stacks would generally not be situated in the same place within the affected facility's property. For a facility with space limitations and multiple SCR installations, the exhaust would likely be routed to one stack which would still be limited to five ppm ammonia slip. As such, even with multiple SCR system installations, the acute and chronic hazard indices would not be expected to exceed the significance threshold.

PM Impacts from Ammonia Usage

In a SCR system the ammonia is injected into the flue gas stream and reacts with NOx to form elemental nitrogen (N2) and water in the cleaned exhaust gas. A small amount of unreacted ammonia (ammonia slip) may pass through. The SCAQMD through permit conditions limits ammonia slip to five ppm. In the November 2015 Final Program EA for NOx RECLAIM[17], SCAQMD staff conducted a series of regional simulations to determine the impacts of reducing NOx while increasing the potential for creating ammonia slip due to increased use of ammonia needed for the operation of SCR controls. In the analysis, 14 tons per day of NOx emission reductions at RECLAIM facilities were estimated while ammonia slip emissions from the same facilities would increase by 1.63 tons per day. The simulations were run for the 2021 draft baseline emissions inventory to estimate what the impacts would be at full implementation of the 14 tons per day decrease in NOx emissions. The effect of decreasing 14 tons per day of NOx would result in a decrease of annual PM2.5 of approximately 0.7 µg per cubic meter. However, since the usage of ammonia is necessary to achieve the NOx emission reductions (via SCR systems ~~technology~~), the ammonia usage would cause a concurrent increase in annual PM2.5 of approximately 0.6 µg

[17] SCAQMD, Final Program Environmental Assessment for Proposed Amended Regulation XX -RECLAIM, November 2015. http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2015/regxxfinalpeaplusappendices.pdf

per cubic meter. Thus, increasing the amount of ammonia slip would result in a net average 0.1 µg per cubic meter decrease in annual PM2.5. Further, the simulations showed that there would be no change in ozone levels compared to what would occur if there was no increase in ammonia slip. The overall decrease in annual PM2.5 would occur provided that all 14 tons per day of NOx emissions would be reduced, which in turn would reduce PM2.5 emissions overall, even if some PM2.5 emissions are generated from ammonia slip. In summary, the impacts to regional PM2.5 and ozone due to increased ammonia slip in these simulations was concluded to not create a significant adverse impact. Because this proposed project would have substantially less ammonia slip emissions than what was analyzed in the regional simulations. Thus, the impacts to regional PM2.5 and ozone due to increased ammonia slip from the proposed project would not create a significant impact.

Odor Impacts

For the installation of new SCR systems, under normal operating and permitted conditions, ammonia slip emissions will be limited to five ppm in accordance with BACT. Because exhaust gases are hot, any ammonia slip emissions from operating a SCR would be quite buoyant and would rapidly rise to higher altitudes without any possibility of lingering at ground level. The odor threshold of ammonia is one to five ppm, but because of the buoyancy of ammonia emissions combined with an average prevailing wind velocity of six miles per hour in the Basin, it is unlikely that ammonia slip emissions would exceed the odor threshold. In addition, during construction, there will be odors associated with the operation of diesel-fueled construction equipment used to install the SCR systems. All diesel-fueled vehicles that may be utilized during operation activities at the facilities will be required to have a low sulfur content (e.g. 15 ppm by weight or less in accordance with SCAQMD Rule 431.2 - Sulfur Content of Liquid Fuels. The use of diesel-fueled trucks as part of operation activities will not be allowed to idle longer than fifteen minutes onsite, so odors would not be expected. Further, because of the relatively small number of pieces of diesel-fueled equipment operating at any one affected site and because construction will only be short-term, odor impacts are not expected to be significant.

Greenhouse Gas 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) (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[18].

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-time frame. As a result, the SCAQMD'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. GHG emission impacts from implementing the proposed project were calculated at the project-specific level during construction and operation. For example, installation of NOx control equipment has the potential to increase the use of electricity, fuel, and water and the generation of wastewater which will in turn increase CO2 emissions.

The SCAQMD convened a "Greenhouse Gas CEQA Significance Threshold Working Group" to consider a variety of benchmarks and potential significance thresholds to evaluate GHG impacts. On December 5, 2008, the SCAQMD adopted an interim CEQA GHG Significance Threshold for projects where SCAQMD is the lead agency (SCAQMD, 2008). This interim threshold is set at 10,000 metric tons of CO2 equivalent emissions (MTCO2eq) per year. The SCAQMD prepared a "Draft Guidance Document – Interim CEQA GHG Significance Thresholds" that outlined the approved tiered approach to determine GHG significance of projects (SCAQMD, 2008, pg. 3-10). The first two tiers involve: 1) exempting the project because of potential reductions of GHG emissions allowed under CEQA; and, 2) demonstrating that the project's GHG emissions are consistent with a local general plan. Tier 3 proposes a limit of 10,000 MTCO2eq per year as the incremental increase representing a significance threshold for projects where SCAQMD is the lead agency (SCAQMD, 2008, pg. 3-11). Tier 4 (performance standards) is yet to be developed. Tier 5 allows offsets that would reduce the GHG impacts to below the Tier 3 brightline threshold. Projects with incremental increases below this threshold will not be cumulatively considerable.

As indicated in Chapter 3, combustion processes generate GHG emissions in addition to criteria pollutants. The following analysis mainly focuses on directly emitted CO2 because this is the primary GHG pollutant emitted during the combustion process and is the GHG pollutant for which emission factors are most readily available. CO2 emissions were estimated from CalEEMod for the SCR systems and EMFAC2014 for the ultra-low NOx burners.

Installation of NOx control equipment as part of implementing the proposed project is expected to generate construction-related CO2 emissions. In addition, based on the type and size of equipment affected by the proposed project, CO2 emissions from the operation of the NOx control equipment are likely to increase from current levels due to using electricity, fuel and water and generating more wastewater. The proposed project will also result in an increase of GHG operational

[18] 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

emissions produced from additional truck hauling and deliveries necessary to accommodate the additional solid waste generation and increased use of chemicals and supplies.

For the purposes of addressing the potential GHG impacts of the proposed project, the overall impacts of CO2e emissions from the project were estimated and evaluated from the earliest possible initial implementation of the proposed project with construction beginning in 2019. Once the proposed project is fully implemented, the potential NOx emission reductions would continue through the end of the useful life of the equipment. The analysis estimated CO2e emissions from all sources subject to the proposed project (construction and operation) from the beginning of the proposed project (2019) to the end of the project (January 1, 2022). The beginning of the proposed project was assumed to be no sooner than 2019, since installing NOx control equipment takes considerable advance planning and engineering. The incremental amount of NOx emission reductions that is expected to be achieved by installing 75 percent of the SCR systems (e.g., 42) by January 1, 2021 represents approximately 0.15 ton per day or 300 pounds per day. Similarly, the amount of NOx emission reductions that are expected to be achieved from installing 75 percent of the ultra-low NOx burners (e.g., 70) by January 1, 2021 represents approximately 0.05 ton per day or 100 pounds per day. Upon full implementation, t~~T~~he proposed project is expected to achieve 0.20 ton per day by January 1, 2021 and ~~0.23~~ 0.27 ton per day of the NOx emission reduction, such that any installed or modified NOx controls could be constructed and operational by December 31, 2023. Thus, once construction is complete and the equipment is operational, CO2e emissions will remain constant.

Table 4-12~~11~~ summarizes the GHG emissions during the construction of the ultra-low NOx burners. The peak total for 35 ~~80~~ units installing ultra-low NOx burners in one year is approximately five~~12~~ amortized metric tons per year (MT/year). The significance threshold is not exceeded for the construction of ultra-low NOx burners.

Table 4-12~~11~~
GHG Emissions During Construction of Ultra-Low NOx Burners

Peak Construction by Year	CO2 (lbs/day)	CO2 (lbs/yr)	CO2 (MT/yr)
2019			
Total for 1 unit in one day	329.54	n/a	n/a
Peak Daily Total for 10 units installed in one day	3295.39	n/a	n/a
Peak Total for 35~~80~~ units installed in one year	n/a	11,533.85 ~~26363.08~~	5.23 ~~11.96~~
Significance Threshold	n/a	n/a	10,000
Exceed Significance?	**n/a**	**n/a**	**NO**

As summarized in Table 4-13~~12~~, GHG emissions from the installation of SCR systems and ultra-low NOx burners were quantified by applying the same assumptions used to quantify the criteria pollutant emissions. The only exception is that the construction GHG emissions were amortized over a 30-year project life in accordance with the guidance provided in the Interim CEQA GHG

Significance Threshold for Stationary Sources, Rules and Plans[19] that was adopted by the SCAQMD Governing Board in December 2008.

Approximately 522 ~~75~~ amortized[20] MT/year of GHGs (as carbon dioxide equivalent emissions or CO2e) from the 55 ~~56~~ ~~eight~~ SCR systems and five ~~12~~ amortized MT/year from the ultra-low NOx burners would be generated from construction that may occur at the affected facilities in response to implementing the proposed project. Similarly, approximately 434~~40~~ ~~nine~~ MT/year of GHG emissions would be generated from operation-related activities (e.g., truck trips) that may occur at the facilities in response to implementing the proposed project. In total, 570~~567~~ ~~96~~ MT/year of GHG emissions would be generated by construction and operation activities from the proposed project. The total amount of GHG emissions that may be generated from operation activities at all affected non-refinery facilities is less than the GHG significance threshold of 10,000 MT/year. Table 4-13~~12~~ summarizes the GHG emissions from PARs 1146 series and PR 1100.

Table 4-13~~12~~
GHG Emissions from the Proposed Project

Activity	CO2e (MT/year[a])
Construction[b]	527 ~~87~~
Operation	434~~0 9~~
Total Project Emissions	570 ~~567~~ ~~96~~
Significance Threshold	10,000
Exceed Significance?	**No**

Note:
a. 1 metric ton =2,205 pounds
b. GHGs from short-term construction activities are amortized over 30 years
c. After the release of the Revised Draft SEA, the number of SCR systems to be installed has reduced from 56 to 55.

It is important to note that none of the affected facilities individually exceed the industrial GHG significance threshold of 10,000 MT/day. As shown in Tables 4-12~~11~~ and 4-13~~12~~, the proposed project is expected to generate construction-related CO2 emissions, and specifically~~as shown~~ in Table 4-13~~12,~~ the operational phase of the proposed project is also expected to generate additional GHG emissions. When added together, however, the GHGs do not exceed the significance threshold; thus, no adverse significant GHG cumulative impacts are expected from the implementing the proposed project.

[19] Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans, http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf?sfvrsn=2

[20] To amortize GHGs from temporary construction activities over a 30-year period (*est. life of the project/ equipment*), the amount of CO2e emissions during construction are calculated and then divided by 30.

HAZARDS AND HAZARDOUS MATERIALS IMPACTS

Significance Criteria

The impacts associated with hazards and hazardous materials 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.

PROJECT-SPECIFIC IMPACTS - HAZARD ANALYSIS:

The hazards and hazardous materials analysis for the proposed project focuses on the transport, storage, and handling of aqueous ammonia used in the SCR system process. To minimize the hazards associated with using aqueous ammonia, it is the policy of the SCAQMD to require the use of 19 percent by volume aqueous ammonia in air pollution control equipment for the following reasons: 1) 19 percent aqueous ammonia does not travel as a dense gas like anhydrous ammonia; and 2) 19 percent aqueous ammonia is not on any acutely hazardous materials lists unlike anhydrous ammonia or aqueous ammonia at higher percentages. As such, SCAQMD staff does not issue permits for the use of anhydrous ammonia or aqueous ammonia in concentrations higher than 19 percent by volume for use in SCR systems. As a result, this analysis focuses on the use of 19 percent by volume aqueous ammonia. The only exception to this assumption is the scenario analyzed under the "Ammonia Gas Release" subsection.

Some~~Two~~ of the affected facilities are located within 1,000 feet or one-quarter mile of a sensitive receptor, including individuals at hospitals, nursing facilities, daycare centers, schools, and elderly intensive care facilities, as well as residential and off-site occupational areas. Therefore, the potential for adversely significant impacts from hazardous emissions onsite or the handling of acutely hazardous materials, substances and wastes on sensitive receptors is expected from the proposed project as further explained in the following discussion.

The facilities affected by the proposed project are expected to be located within urbanized industrial or commercial/mixed use areas. Some are located within two miles of an airport as noted in Appendix D. Some sites affected by the proposed project may also be identified on lists compiled by the California DTSC per Government Code Section 65962.5. They are also identified in Appendix D. The proposed project 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.

The analysis of hazard impacts can rely on information from past similar projects (i.e., installing new, or retrofitting existing equipment with an SCR system to comply with SCAQMD rules and regulations and installation of associated ammonia storage tanks) where the SCAQMD was the

lead agency responsible for preparing an environmental analysis pursuant to CEQA. To the extent that future projects to install SCR and associated ammonia storage equipment conform to the ammonia hazard analysis in this SEA, no further hazard analysis may be necessary. If site-specific characteristics are involved with future SCR projects that are outside the scope of this analysis, further ammonia hazards analysis may be warranted.

The onsite storage and handling of the ammonia creates the possibility of an accidental spill and release of aqueous ammonia, which could evaporate and present a potential offsite public and sensitive receptor exposure. Since ammonia is not typically considered to be a flammable compound, other types of heat-related hazard impacts such as fires, explosions, boiling liquid – expanding vapor explosion (BLEVE) are not expected to occur and, therefore, will not be evaluated as part of this hazards analysis. To further evaluate the potential for significant adverse environmental impacts due to an accidental release of aqueous ammonia, various scenarios were evaluated that could occur during the onsite storage, transportation, and transfer of ammonia. These scenarios and their consequences are discussed in detail below.

Hazard Safety Regulations

In spite of implementing modifications to comply with the proposed project, operators of each affected facility must comply or continue to comply with various regulations, including OSHA regulations (29 CFR Part 1910) that require the preparation of a fire prevention plan, and 20 CFR Part 1910 and CCR Title 8 that require prevention programs to protect workers who handle toxic, flammable, reactive, or explosive materials. In addition, Section 112 (r) of the Federal Clean Air Act Amendments of 1990 [42 USC 7401 et. Seq.] and Article 2, Chapter 6.95 of the California Health and Safety Code require facilities that handle listed regulated substances to develop RMPs to prevent accidental releases of these substances. If any of the affected facilities has already prepared an RMP, it may need to be revised to incorporate the changes associated with the proposed project. The Hazardous Materials Transportation Act is the federal legislation that regulates transportation of hazardous materials.

Because operators of affected facilities are required to comply with all applicable design codes and regulations, conform to National Fire Protection Association standards, and conform to policies and procedures concerning leak detection containment and fire protection, no significant adverse compliance impacts are expected.

Impacts on Water Quality

A spill of any hazardous material such as aqueous ammonia that is used and stored at any of the affected facilities could occur under upset conditions such as an earthquake, tank rupture, or tank overflow. Spills could also occur from corrosion of containers, piping and process equipment; and leaks from seals or gaskets at pumps and flanges. A major earthquake would be a potential cause of a large spill. Other causes could include human or mechanical error. Construction of the vessels and foundations in accordance with the Uniform Building Code Zone 4 requirements helps structures to resist major earthquakes without collapse, but may result in some structural and non-structural damage following a major earthquake. Any facility with storage tanks on-site are currently required to have emergency spill containment equipment and would implement spill control measures in the event of an earthquake. Storage tanks typically have secondary containment such as a berm which would be capable of containing 110 percent of the contents of the storage tanks. Therefore, should a rupture occur, the contents of the tank would be collected within the containment system and pumped to an appropriate storage tank.

Spills at the affected facilities would generally be collected within containment areas. Large spills outside of containment areas at the affected facilities are expected to be captured by the process water system where they could be collected and controlled. Spilled material would be collected and pumped to an appropriate tank or sent off-site if the materials cannot be used on-site. Because of the containment system design, spills are not expected to migrate from the spill site and as such, potential adverse water quality hazard impacts are considered to be less than significant.

Transportation Release

It is expected that the affected facilities utilizing SCR systems ~~technology~~ will receive ammonia from a local ammonia supplier located in the greater Los Angeles area. Deliveries of aqueous ammonia would be made by tanker truck via public roads. The maximum capacity of an ammonia tanker truck is approximately 7,000 gallons. The projections for future ammonia use and storage as calculated relative to the quantity of NOx emission reductions needed to meet the NOx emission limits for PARs 1146 series and PR 1100 are shown in Appendix E. The "worst-case" assumption for delivery frequency from a supplier would be to deliver two ammonia tanker trucks on the same day to fill one 10,000-gallon tank of ammonia at a facility (Facility 6~~A~~). The "worst-case" for PARs 1146 series and PR 1100 involve a lower number of deliveries of ammonia on any given day (Scenario 1) or a lesser amount of ammonia (Scenario 2) than what is analyzed in the following Transportation Release Scenarios. For both scenarios, the potential impacts from transportation release are expected to be less than significant. Regulations for the transport of hazardous materials by public highway are described in 49 CFR §§ 173 and 177.

Transportation Release Scenario 1:

To evaluate the hazard impacts from an accidental release of ammonia during ammonia transport, this analysis uses as a surrogate the project at the ConocoPhillips Carson Refinery in which SCR system was installed on boiler #10 and an associated 10,000 gallon ammonia storage tank was constructed (Final Negative Declaration for: ConocoPhillips Los Angeles Refinery Carson Plant SCR Unit Project, SCH. No. 2004011066, SCAQMD 2004). This project required approximately six additional ammonia truck transport trips per month. Although truck transport of aqueous ammonia and other hazardous materials is regulated for safety by the U.S. Department of Transportation, there is a possibility that a tanker truck could be involved in an accident that would cause its contents to spill. The factors that enter into accident statistics include distance traveled and type of vehicle or transportation system. Factors affecting automobiles and truck transportation accidents include the type of roadway, presence of road hazards, vehicle type, maintenance and physical condition, driver training, and weather. A common reference frequently used in measuring risk of an accident is the number of accidents per million miles traveled. Complicating the assessment of risk is the fact that some accidents can cause significant damage without injury or fatality.

Every time hazardous materials are moved from the site of generation, opportunities are provided for an accidental (unintentional) release. A study conducted by the EPA indicates that the expected number of hazardous materials spills per mile shipped ranges from one in 100 million to one in one million, depending on the type of road and transport vehicle used. The U.S. EPA analyzed accident and traffic volume data from New Jersey, California, and Texas, using the Resource Conservation and Recovery Act Risk/Cost Analysis Model and calculated the accident involvement rates presented in Table 4-14~~13~~. This information was summarized from the Los Angeles County Hazardous Waste Management Plan (Los Angeles County, 1988).

In the study completed by the U.S. EPA, cylinders, cans, glass, plastic, fiber boxes, tanks, metal drum/parts, and open metal containers were identified as usual container types. For each container type, the expected fractional release en route was calculated. The study concluded that the release rate for tank trucks is much lower than for any other container type (Los Angeles County, 1988).

Table 4-1~~4~~3
Truck Accident Rates for Cargo on Highways

Highway Type	Accidents Per 1,000,000 miles
Interstate	0.13
U.S. and State Highways	0.45
Urban Roadways	0.73
Composite*	0.28

Source: Environmental Protection Agency, 1984.
*Note: Average number for transport on interstates, highways, and urban roadways.

The accident rates developed based on transportation in California were used to predict the accident rate associated with trucks transporting aqueous ammonia to the facility. Assuming an average truck accident rate of 0.28 accidents per million miles traveled (Los Angeles County, 1988), the estimated accident rate associated with transporting aqueous ammonia for the ConocoPhillips project is 0.00101, or about one accident every 992 years.

The actual occurrence of an accidental release of a hazardous material cannot be predicted. The location of an accident or whether sensitive populations would be present in the immediate vicinity also cannot be identified. In general, the shortest and most direct route that takes the least amount of time would have the least risk of an accident. Hazardous material transporters do not routinely avoid populated areas along their routes, although they generally use approved truck routes that take population densities and sensitive populations into account.

The hazards associated with the transport of regulated hazardous materials (CCR Title 19, Division 2, Chapter 4.5 or the California Accidental Release Prevention Program requirements), including aqueous ammonia, would include the potential exposure of numerous individuals in the event of an accident that would lead to a spill. Factors such as amount transported, wind speed, ambient temperatures, route traveled, distance to sensitive receptors are considered when determining the consequence of a hazardous material spill.

In the unlikely event that the tanker truck would rupture and release the entire 7,000 gallons of aqueous ammonia, the ammonia solution would have to pool and spread out over a flat surface in order to create sufficient evaporation to produce a significant vapor cloud. For a road accident, the roads are usually graded and channeled to prevent water accumulation and a spill would be channeled to a low spot or drainage system, which would limit the surface area of the spill and the subsequent evaporative emissions. Additionally, the roadside surfaces may not be paved and may absorb some of the spill. In a typical release scenario, because of the characteristics of most roadways, the pooling effect on an impervious surface would not typically occur. As a result, the spilled ammonia would not be expected to evaporate into a toxic cloud at concentrations that could significantly adversely affect residences or other sensitive receptors in the area of the spill.

Based on the low probability of an ammonia tanker truck accident with a major release and the potential for exposure to low concentrations, if any, the conclusion of this analysis is that potential impacts due to accidental release of ammonia during this transportation scenario are less than significant.

Transportation Release Scenario 2:
This transportation release scenario uses as a surrogate analysis a project at the BP Carson refinery in which SCR system was retrofitted onto an existing fluid catalytic cracking unit (FCCU) and an associated 12,660 gallon ammonia storage tank was constructed (Final Negative Declaration for: BP Carson Refinery Fluid Catalytic Cracking Unit NOx Reduction Project: SCH No. 2002021068; SCAQMD, 2002). The following summarizes the ammonia transport analysis for the BP Carson Refinery FCCU project.

The temperature of the ammonia released was estimated as follows. For a delivery truck traveling from a non-desert area and taking into consideration the convective heat transfer from the tanker as it travels at highway speeds, the bulk temperature should be typical of the originating location (July average temperatures for Los Angeles, with no convective heat losses, would typically be 69 degrees Fahrenheit (°F)). To be conservative for purpose of this analysis, the tanker bulk temperature was assumed to be 77 °F.

The proposed project was estimated to require approximately 35 tanker truck deliveries of aqueous ammonia during the first year of operation (two deliveries after construction to fill the tank plus one delivery every 11 days to replenish the tank during operations). Truck accident rates are approximately one in 8.7-million miles (ENSR, 1994). Based upon the projected 35 ammonia deliveries the first year, and a distance of 30 miles from the supplier to the facility, the number of truck-miles associated with the transport of aqueous ammonia is 1,050 truck-miles per year. The expected number of truck accidents associated with the proposed BP Carson project is therefore approximately once every 8,300 years. The likelihood of any release in a transportation accident is 1 in 10, and that of a large release in a transportation accident is 1 in 40 (ENSR, 1994). The likelihood of a major transportation release after the project is constructed is therefore approximately once per 330,000 years (8,300 times 40). The probability of a transportation accident that would pose a significant risk to the public is therefore insignificant.

In the unlikely event that a major release occurred during a tanker truck accident, the ammonia solution would have to pool and spread out over a flat surface in order to create sufficient evaporation to produce a significant vapor cloud. Roads are usually graded and channeled to prevent water accumulation, and a spill would be channeled to a low spot or drainage system, which would limit the surface area of the spill and the subsequent toxic emissions. Additionally, the roadside surfaces may not be paved and may absorb some of the spill. Without this pooling effect on an impervious surface, the spilled ammonia would not evaporate into a toxic cloud and impact residences or other sensitive receptors in the area of the spill. Therefore, potential impacts due to accidental release of ammonia during this transportation scenario are less than significant.

Ammonia Tank Rupture
To analyze the effects of aqueous ammonia as a result of an accidental release due to tank rupture, a Consequence Analysis using the EPA RMP*Comp (Version 1.07) is typically performed. SCAQMD staff estimated that the largest aqueous ammonia tank that would be installed as a result

of implementing PARs 1146 series would be 10,000 gallons at one facility. The affected facilities were estimated to need anywhere from 250 to 10,0002,000-gallon tanks. TwoTwenty-eight facilities- would install a SCR system and thus need an ammonia storage tank(Facility A and E) are located within a ¼-mile of sensitive receptors. Of the 32 RECLAIM facilities that would install a SCR system, one facilityFacility A would require the installation of fourthree SCR systems, four facilities would require the installation of three SCR systems, 13 facilities would require the installation of two SCR systems per facility, and the rest would only install one SCR system per facility. and Facility E would require two SCR systems. It was assumed that these facilities would each store one large aqueous ammonia storage tank to service all of their SCR systems.

Table 4-15
Number of SCR Systems and Affected Facilities

	Number of SCR Systems to be Installed at Each Facility	Number of Affected Facilities
	4	1
	3	4
	2	13
	1	14
Total	***56****	***32***

* After the release of the Revised Draft SEA, the number of SCR systems to be installed has reduced from 56 to 55.

Although it is SCAQMD policy to reduce potential hazards associated with ammonia by requiring a permit condition that limits the aqueous ammonia concentration to 19 percent, the CalARP model only has the capability of evaluating the hazard potential of 20 percent aqueous ammonia. Therefore, the potential adverse impacts from aqueous ammonia were evaluated based on the 20 percent aqueous ammonia. Further, since it is assumed that an aqueous ammonia tank servicing one or more SCR systems would need to be relatively near to the existing equipment, the toxic endpoint for aqueous ammonia from a catastrophic failure of a storage tank would significantly adversely affect the sensitive receptors within 0.1 mile of the existing equipment.

A hazard analysis is dependent on knowing the exact location of the hazard within the site (e.g., location of the ammonia storage tank(s)), meteorological conditions, location of the receptor, et cetera, a site-specific hazard analysis is difficult to conduct without this information. Since SCAQMD staff does not currently know the exact location of the ammonia storage tanks that would be installed in the future, to estimate a worst-case analysis, the following assumptions were made for Facility A and E:

- Location of tanks: Within same building as existing boilers; building located at edge of property line, near (i.e., less than ¼-mile) existing residences or sensitive receptors
- Quantity Released of Aqueous Ammonia: 10,000 gallons at Facility A; and 2,000 gallons at Facility E
- Liquid Temperature: 77 °F
- Mitigation Measures: None

Appendix E shows t~~T~~he estimated distance to the toxic endpoint for each facility using the estimated tank size needed for enough aqueous ammonia to reduce the facility's emissions to the NOx limits. ~~: 1) Facility A is 0.6 miles or 3,168 feet; and 2) Facility E is 0.2 miles or 1,056 feet. Since the~~Thirteen RECLAIM facilities have sensitive receptors that are located directly across or adjacent to the facilities within the toxic endpoint distance;~~,~~ thus, the hazards and hazardous materials impacts due to tank rupture will be potentially significant. In addition, if mitigation measures (e.g.,~~such as~~ a secondary containment (dikes and/or berms), installation of grating-covered trench around the perimeter, and tertiary containment)~~an enclosure~~ were to occur, the toxic endpoint distance for ~~both Facilities A and E~~some facilities would be less than 0.1 miles or 528 feet and the hazards and hazardous materials impacts would continue to be potentially significant due to the vicinity of the sensitive receptors relative to the location of the affected equipment. Therefore, the proposed project has the potential to generate significant adverse hazard impacts as a result of the potential for accidental releases of aqueous ammonia.

If significant adverse environmental impacts are identified in a CEQA document, the CEQA document shall describe feasible measures that could minimize the impacts of the proposed project.

PROJECT-SPECIFIC IMPACTS – CONCLUSION: Based on the preceding description of hazards and hazardous materials impacts, the proposed project is not expected to generate significant adverse impacts related to the transport of ammonia. However, because some of the affected facilities ~~(Facilities A and E)~~ are located within ¼-mile of a sensitive receptor, implementation of the proposed project is expected to generate significant adverse impacts related to the potential for a rupture of an aqueous ammonia storage tank. The overall conclusion is that hazards and hazardous materials impacts for the proposed project are significant.

PROJECT-SPECIFIC MITIGATION MEASURES:

Facilities retrofitting units with SCR systems and the accompanying ammonia storage tank will need to submit permit applications to modify their equipment. Thus, SCAQMD staff will conduct a CEQA evaluation of the facility-specific project to determine if the project is covered by the analysis in this Final ~~Revised Draft~~ SEA. If significant adverse environmental impacts are identified in a CEQA document, the CEQA document shall describe feasible measures that could minimize the significant adverse impacts (CEQA Guidelines Section 15126.4). Therefore, feasible mitigation measures to reduce the risk of an offsite consequence to nearby sensitive receptors are necessary.

The following mitigation measures are required for any facility whose operators choose to install a new aqueous ammonia storage tank and the offsite consequence analysis indicates that sensitive receptors will be located within the toxic endpoint distance. In addition, these mitigation measures will be included in a mitigation monitoring and reporting plan as part of issuing SCAQMD permits to construct for the facility-specific project. These mitigation measures will be enforceable by SCAQMD personnel.

HZ-1 Require the use of aqueous ammonia at concentrations less than~~20~~ or equal to 19 percent by volume for all facilities regulated by Rules 1146, 1146.1, or 1146.2.

HZ-2 Install safety devices, including but not limited to: continuous tank level monitors (e.g., high and low level), temperature and pressure monitors, leak monitoring and detection system, alarms, check valves, and emergency block valves.

HZ-3 Install secondary containment such as dikes and/or berms to capture 110 percent or more of the storage tank volume in the event of a spill.

HZ-4 Install a grating-covered trench around the perimeter of the delivery bay to passively contain potential spills from the tanker truck during the transfer of aqueous ammonia from the delivery truck to the storage tank.

HZ-5 Equip the truck loading/unloading area with an underground gravity drain that flows to a large on-site retention basin to provide sufficient ammonia dilution to the extent that no hazards impact is possible in the event of an accidental release during transfer of aqueous ammonia.

HZ-6 Install tertiary containment that is capable of evacuating 110 percent or more of the storage tank volume from the secondary containment area.

Implementing Mitigation Measures HZ-1 through HZ-6 would be expected to prevent a catastrophic release of ammonia from leaving the facility property and exposing offsite sensitive receptors; however, as an abundance of caution, due to the anticipated number of affected facilities and without detailed information specific to each facility's layout and plan of action for compliance, the overall conclusion is that hazards and hazardous materials impacts for the proposed project are significant.

~~The following mitigation measures are recommended.~~
~~It is SCAQMD policy to require the use of 19 percent aqueous ammonia instead of a higher aqueous ammonia concentration or anhydrous ammonia to reduce adverse impacts from SCR units.~~
~~Install secondary containment (e.g., berms), valves that fail shut, emergency release valves and barriers around the aqueous ammonia storage tanks. These design measures can be used to prevent physical damage to storage tanks or limit the release of aqueous ammonia storage tanks. These techniques are also typically required by local fire departments.~~
~~Conduct integrity testing of aqueous ammonia storage tanks to assist in preventing failure from structural problems.~~
~~Build a containment system to be used during off-loading operations.~~

REMAINING IMPACTS: Although the aforementioned mitigation measures, if employed, would reduce the hazards and hazardous materials impacts from aqueous ammonia, they are not expected to reduce impacts to less than significant. Therefore, the remaining hazardous and hazardous materials impacts from exposure to the ERPG 2 level of 0.14 mg/l of aqueous ammonia due to tank rupture are considered to be significant after mitigation.

CUMULATIVE IMPACTS: As noted in previous discussions, the accidental release of aqueous ammonia during transport is not expected to result in exposures to ammonia exceeding the ERPG 2 level. However, because the sensitive receptors are closer than 0.1 mile ~~to Facilities A and E~~for several facilities, an accidental release of ammonia onsite, either during unloading from a truck or

an accidental release in the event of storage tank failure is considered significant. Mitigation measures were identified, but it was concluded that they could not reduce hazard impacts from project-specific releases of ammonia to less than significant.

Adverse impacts from an accidental release of aqueous ammonia are localized impacts (i.e., the impacts are isolated to the area around the affected facility). There are twoNone of the affected facilities that have been identified as potentiallyare installing SCR systems and ammonia storage tanks in accordance with the proposed project are located within one mile of each other. The worst-case aqueous ammonia toxic endpoint is less than or equal to 0.1 mile. for Facilities A and E. Since twonone of the facilities that would install SCR system(s) are within one mile of each other, someno receptors cwould be affected by accidents at multiple facilities depending on the location of the accident. However, to the extent that affected facilities are located near other facilities that have hazardous materials risks, the cumulative adverse hazard impacts from this project could contribute to existing nearby hazard risks from other projects. Therefore, cumulative hazard risks from implementing the proposed project are considered to be significant.

CUMULATIVE IMPACT MITIGATION: Because the project-specific hazards and hazardous materials impacts are considered to be cumulatively considerable for ammonia storage, cumulative mitigation measures for hazards and hazardous materials impacts for ammonia storage are required. However, since no mitigation measures have been identified over and above the extensive safety regulations that currently apply to the storage of ammonia, no feasible cumulative mitigation measures for ammonia storage have been identified that would reduce cumulative impacts from hazards and hazardous materials to less than significant. Therefore, cumulative hazards and hazardous materials impacts remain significant; however, because no additional mitigation measures were identified no cumulative mitigation measures for hazards and hazardous materials impacts for ammonia use and storage are required.

CUMULATIVE ENVIRONMENTAL IMPACTS

CEQA Guidelines Section 15130(a) requires a discussion of cumulative impacts if a project may have an effect that is potentially cumulatively considerable, as defined in CEQA Guidelines Section 15065(a)(3). The preceding analysis concluded the cumulative secondary impacts associated with the NOx emissions limits and compliance dates as contained in PARs 1146 series and PR 1100 will have the potential for creating significant adverse air quality impacts during construction for NOx, because the SCAQMD's significance threshold for NOx will be exceeded (see Tables 4-4 and 4-76). It should be noted, however, that even though the NOx emissions during construction have been shown to exceed the significance threshold, because the proposed project reduces NOx emissions at greater levels than the increases during construction, the net effect of the proposed project will result in overall emission reductions of NOx. In addition, the construction impacts will be temporary (for approximately one year and the overall NOx emissions will be reduced during the construction and operation overlap. To achieve NOx emission reductions in the proposed project, SCR systems would need to be constructed and ultra-low NOx burners would need to be installed. Further, because of the proposed project's overall NOx emission reductions, the temporary emission increases in NOx during construction will not interfere with the air quality progress and attainment demonstration projected in the 2016 AQMP. Based on regional modeling analyses performed for the 2016 AQMP, implementing control measures contained in the 2016 AQMP, in addition to the air quality benefits of the existing rules, is anticipated to bring the District into attainment with all national and most state ambient air quality standards. In particular, the federal annual PM2.5 standards are predicted to be achieved

in 2023 with implementation of the proposed ozone strategy and the California annual PM2.5 standard will be achieved in 2025. The 2016 AQMP is also expected to achieve the ozone 8-hour standard by 2023.

Per CEQA Guidelines Section 15130(e), previously approved land use documents, including, but not limited to, general plans, specific plants, regional transportation plans, plans for the reduction of greenhouse gas emissions, and local coastal plans may be used in a cumulative impact analysis. A pertinent discussion of cumulative impacts contained in one or more previously certified EIRs may be incorporated by reference pursuant to the provisions for tiering and program EIRs. No further cumulative impacts analysis is required when a project is consistent with a general, specific, master, or comparable programmatic plan where the lead agency determines that the regional or areawide cumulative impacts of the proposed project have already been adequately addressed, as defined in CEQA Guidelines Section 15152(f), in a certified EIR for that plan. Further, if a cumulative impact was adequately addressed in a prior EIR for a community plan, zoning action, or general plan, and the project is consistent with that plan or action, then an EIR for such a project should not further analyze that cumulative impact, as provided in CEQA Guidelines Section 15183(j).

As a result, even if the proposed project would have significant increases in NOx emissions during construction, full implementation of the proposed project would achieve NOx emission reductions capable of offsetting the construction NOx emissions. Also, implementation of other control measures in the 2016 AQMP will provide human health benefits by reducing population exposures to existing NOx emissions. Therefore, cumulative air quality impacts from the proposed project, previous amendments, and all other AQMP control measures considered together, are not expected to be significant because implementation of all 2016 AQMP control measures is expected to result in net emission reductions and overall air quality improvement. This determination is consistent with the conclusion in the 2016 AQMP Final Program EIR that cumulative air quality impacts from all AQMP control measures are not expected to be significant[21]. Therefore, there will be no significant cumulative adverse operational air quality impacts from implementing the proposed project.

In addition, there is a potential for creating significant adverse hazards and hazardous materials impacts from the catastrophic failure of an ammonia storage tank, which has been based on the toxic endpoint (using EPA RMP*Comp) and the proximity of some facilities ~~A and E~~ to nearby sensitive receptors. Because the project-specific hazards and hazardous materials impacts for ammonia deliveries would potentially create significant impacts, they are considered to be cumulatively considerable pursuant to CEQA Guidelines Section15064 (h)(1) and therefore, generate significant adverse cumulative hazards and hazardous materials impacts. However, for ammonia use and storage, the project-specific hazards and hazardous materials impacts do not exceed any applicable significance thresholds; thus, they are not considered to be cumulatively considerable pursuant to CEQA Guidelines Section 15064 (h)(1) and therefore, do not generate significant adverse cumulative hazards and hazardous materials impacts.

[21] SCAQMD, Final Program Environmental Impact Report for the 2016 Air Quality Management Plan, March 2017; see Attachment D, Chapter 5, pp. 5-7 to 5-9. http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2017/2017-mar3-035.pdf.

POTENTIONAL ENVIRONMENTAL IMPACTS FOUND NOT TO BE SIGNIFICANT

Because this SEA is a subsequent CEQA document to the September 2008 Final EAs for Rules 1146 and 1146.1, the May 2006 Final EA for Rule 1146.2, and the March 2017 Final Program EIR for the 2016 AQMP, this SEA relies on the conclusions reached in these documents as evidence for environmental areas where impacts were found not to be significant. All of these previous CEQA documents reviewed approximately 17 environmental topic areas and analyzed whether the respective projects would create potentially significant adverse impacts. While the analyses in the September 2008 Final EA for 1146.1 and May 2006 Final EA for Rule 1146.2 identified no significant adverse environmental impacts for any environmental topic area, the analysis in the September 2008 Final EA for Rule 1146 identified two environmental topic areas as having significant adverse environmental impacts: 1) air quality; and 2) hazards and hazardous materials.

Also, the analysis in the March 2017 Final Program EIR for the 2016 AQMP concluded that significant and unavoidable adverse environmental impacts from the project are expected to occur after implementing mitigation measures for the following environmental topic areas: 1) aesthetics from increased glare and from the construction and operation of catenary lines and use of bonnet technology for ships; 2) construction air quality and GHGs; 3) energy (due to increased electricity demand); 4) hazards and hazardous materials due to: (a) increased flammability of solvents; (b) storage, accidental release and transportation of ammonia; (c) storage and transportation of liquefied natural gas (LNG); and (d) proximity to schools; 5) hydrology (water demand); 6) construction noise and vibration; 7) solid construction waste and operational waste from vehicle and equipment scrapping; and, 8) transportation and traffic during construction and during operation on roadways with catenary lines and at the harbors. It is important to note, however, that for these environmental topic areas, not all of the conclusions of significance are applicable to this currently proposed project, PARs 1146 series and PR 1100. Table 4-16~~14~~ summarizes the eight significant and unavoidable adverse environmental impacts identified in the March 2017 Final Program EIR and identifies which apply to the proposed project, PARs 1146 series and PR 1100.

Table 4-16~~14~~
Applicability of Significant Impacts in March 2017 Final Program EIR to Proposed Project

Conclusion of Significant Impacts in March 2017 Final Program EIR	Applicable to/Significant for the Proposed Project?	Explanation
Aesthetics from increased glare and from the construction and operation of catenary lines and use of bonnet technology for ships	No	Neither catenary lines nor the use of bonnet technology for ships are applicable to boilers, process heaters, steam generators and water heaters and the corresponding NOx emission controls (e.g., ultra-low NOx burners and SCR systems ~~technology~~). Therefore, this conclusion is not applicable to the proposed project.
Construction air quality and GHGs	Yes	This conclusion is applicable to the proposed project. The impacts for these environmental topics areas are analyzed in this SEA (see pp. 4-6 to 4-17 for construction air quality and pp. 4-22 to 4-25 for GHGs).
Energy due to increased electricity demand	No	While the use of SCR systems ~~technology~~ for 55 ~~eight~~ boilers will require some electricity to operate, the conclusions in the September 2008 Final EAs for Rules 1146 and 1146.1 have demonstrated that the amount of electricity that would be needed to operate SCR systems ~~technology~~ would be less than significant. Similarly, the conclusions in the September 2008 Final EAs for Rules 1146 and 1146.1, and the March 2006 Final EA for Rule 1146.2 have also demonstrated that the amount of electricity that would be needed to replace burners with ultra-low NOx burners would also be less than significant.
Hazards and hazardous materials due the increased flammability of solvents	No	Boilers, process heaters, steam generators and water heaters, and the corresponding NOx emission controls (e.g., ultra-low NOx burners and SCR systems ~~technology~~) do not utilize solvents for their operation. Therefore, this conclusion is not applicable to the proposed project.
Hazards and hazardous materials due to the storage, accidental release and transportation of ammonia	Yes	This conclusion is applicable to the proposed project because SCR systems ~~technology~~ utilize ammonia. The impacts for this environmental topic area are analyzed in this SEA (see pp. 4-26 to 4-34). The conclusion of significance in this SEA was made for the storage and use of aqueous ammonia, but not for the transportation of aqueous ammonia.
Hazards and hazardous materials due to the storage and transportation of LNG	No	Boilers, process heaters, steam generators and water heaters, and the corresponding NOx emission controls (e.g., ultra-low NOx burners and SCR systems) do not utilize LNG for their operation. Therefore, this conclusion is not applicable to the proposed project.

Table 4-1614 (concluded)
Applicability of Significant Impacts in March 2017 Final Program EIR to Proposed Project

Conclusion of Significant Impacts in March 2017 Final Program EIR	Applicable to/Significant for the Proposed Project?	Explanation
Hazards and hazardous materials due to proximity to schools	Yes	This conclusion is applicable to the proposed project because some of the affected facilities that will install SCR systems technology or ultra-low NOx burners are near schools. The impacts for this environmental topic area are analyzed in this SEA (see pp. 4-26 to 4-34)
Hydrology (water demand)	No	Boilers, process heaters, steam generators and water heaters, and the corresponding NOx emission controls (e.g., ultra-low NOx burners and SCR systems technology) do not utilize water for their operation. Therefore, this conclusion is not applicable to the proposed project.
Construction noise and vibration	No	While the construction activities associated with installing SCR systems technology for 55 eight boilers may create some noise and vibration, the conclusions in the September 2008 Final EAs for Rules 1146 and 1146.1 have demonstrated that the amount of electricity that would be needed to operate SCR systems would be less than significant. Similarly, the conclusions in the September 2008 Final EAs for Rules 1146 and 1146.1, and the March 2006 Final EA for Rule 1146.2 have also demonstrated that the construction noise and vibration that may occur while replacing burners with ultra-low NOx burners would also be less than significant.
Solid construction waste and operational waste from vehicle and equipment scrapping	No	Vehicle scrapping is not applicable to boilers, process heaters, steam generators and water heaters and the corresponding NOx emission controls (e.g., ultra-low NOx burners and SCR systems technology). Therefore, this conclusion is not applicable to the proposed project.
Transportation and traffic during construction and during operation on roadways with catenary lines and at the harbors	No	Catenary lines and the associated transportation and traffic impacts on roadways and at the are harbors are applicable to boilers, process heaters, steam generators and water heaters and the corresponding NOx emission controls (e.g., ultra-low NOx burners and SCR systems technology). Therefore, this conclusion is not applicable to the proposed project.

PAR 1146 is expected to have: 1) significant effects that were not discussed in the previous September 2008 Final EA for Rule 1146 and March 2017 Final Program EIR for the 2016 AQMP (CEQA Guidelines Section 15162(a)(3)(A)); and 2) significant effects that were previously examined that will be substantially more severe than what was discussed in the September 2008 Final EA for Rule 1146 and the March 2017 Final Program EIR for the 2016 AQMP (CEQA Guidelines Section 15162(a)(3)(B)). Similarly, PAR 1146.1 is also expected to have significant effects that were not discussed in the previous September 2008 Final EA for Rule 1146.1 and March 2017 Final Program EIR for the 2016 AQMP (CEQA Guidelines Section 15162(a)(3)(A)). However, PAR 1146.2 is not expected to create new significant effects that were not discussed in the previous May 2006 Final EA for Rule 1146.2 and the March 2017 Final Program EIR for the 2016 AQMP.

By preparing a SEA for the proposed project, since the topics of air quality and hazards and hazardous materials are the only environmental topic areas that would be affected by PARs 1146 series and PR 1100, no other environmental topic areas have been evaluated in this SEA. Thus, the conclusions reached in this Final~~Revised Draft~~ SEA are consistent with the conclusions reached in the previously certified CEQA documents (e.g., the September 2008 Final EAs for Rules 1146 and 1146.1, the May 2006 Final EA for Rule 1146.2, and the March 2017 Final Program EIR for the 2016 AQMP) that aside from the topic~~s air quality during construction and~~ of hazards and hazardous materials for the storage and use of aqueous ammonia, there would be no other significant adverse effects from the implementation of the proposed project. Thus, the proposed project would have no significant or less than significant direct or indirect adverse effects on the following environmental topic areas:

- aesthetics
- air quality and greenhouse gases~~ during operation~~
- agriculture and forestry resources
- biological resources
- cultural resources
- energy
- geology and soils
- hydrology and water quality
- land use and planning
- mineral resources
- noise
- population and housing
- public services
- recreation
- solid and hazardous waste
- transportation and traffic

The September 2008 Final EAs for Rules 1146 and 1146.1, the May 2006 Final EA for Rule 1146.2, and the March 2017 Final Program EIR for the 2016 AQMP can be found using the links referenced in Chapter 2.

SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

CEQA Guidelines Section 15126(b) requires an environmental analysis to consider "any significant environmental effects which cannot be avoided if the proposed project is implemented." This SEA identified the topic~~s~~ of ~~air quality during construction and~~ hazards and hazardous materials for the storage and use of aqueous ammonia as the environmental topic area~~s~~ that may have~~ing~~ potentially significant adverse environmental affects if the proposed project is implemented.

SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA Guidelines Section 15126(c) requires an environmental analysis to consider "any significant irreversible environmental changes which would be involved if the proposed action should be implemented." This SEA identified the topic of ~~air quality during construction and~~ hazards and hazardous materials for the storage and use of aqueous ammonia as the environmental area~~s~~ with potentially significant adverse impacts if the proposed project is implemented. The initial conclusion in the Revised Draft SEA of significant adverse air quality impacts during construction was concluded in this Final SEA to be fully ~~will be mostly~~ offset by the overall operational NOx emission reductions. As a result, even though the proposed project would have significant air quality impacts during construction, the proposed project overall will achieve substantial NOx emission reductions to offset the construction emissions and will provide human health benefits as a result. Implementation of other control measures in the 2016 AQMP will also provide human health benefits by reducing population exposures to existing NOx emissions. For these aforementioned reasons, the proposed project would not result in irreversible environmental changes or irretrievable commitment of resources for the topic of air quality.

Significant adverse impacts to hazards and hazardous materials from the storage and use of ammonia cannot be mitigated to less than significant levels; thus, they may be considered irreversible because facility operators that install new SCR systems for reducing NOx emissions are likely to operate these systems for the lifetime of the equipment.

POTENTIAL GROWTH-INDUCING IMPACTS

CEQA Guidelines Section 15126(d) requires an environmental analysis to consider the "growth-inducing impact of the proposed action." Implementing the proposed project will not, by itself, have any direct or indirect growth-inducing impacts on businesses in the SCAQMD's jurisdiction because it is not expected to foster economic or population growth or the construction of additional housing and primarily affects existing facilities.

RELATIONSHIP BETWEEN SHORT-TERM AND LONG-TERM ENVIRONMENTAL GOALS

CEQA documents are required to explain and make findings about the relationship between short-term uses and long-term productivity. [CEQA Guidelines Section 15065(a)(2)]. An important

consideration when analyzing the effects of a proposed project is whether it will result in short-term environmental benefits to the detriment of achieving long-term goals or maximizing productivity of these resources. Implementing the proposed project is not expected to achieve short-term goals at the expense of long-term environmental productivity or goal achievement. PARs 1146 series and PR 1100 will begin transitioning units at RECLAIM facilities subject to Rules 1146, 1146.1, and 1146.2 to a command-and-control regulatory structure. The primary objective of this project is to ensure all Rules 1146 and 1146.1 units meet NOx emission limits and BARCT level equivalency. PR 1100 will provide the implementation schedule for PAR 1146 and 1146.1 and eventually include other future rules for equipment exiting RECLAIM. PARs 1146 series and PR 1100 implement control measure CMB-05 from the 2016 AQMP. NOx, is a precursor to the formation of ozone and PM2.5, so even if the proposed project is implemented and there will be some NOx emissions during construction and operation, there will also be ~~an~~ overall NOx emission~~s~~ reduction<u>s</u> ~~occurring in 2022 and these~~ <u>which</u> will continue to help attain federal and state air quality standards which are expected to enhance short- and long-term environmental productivity in the region. Implementing the proposed project does not narrow the range of beneficial uses of the environment. Of the potential environmental impacts discussed in Chapter 4, only those related ~~to air quality during construction and~~ to hazards and hazardous materials for ammonia storage are concluded to have potentially significant adverse effects.

CHAPTER 5

ALTERNATIVES

INTRODUCTION

This Final~~Revised Draft~~ SEA provides a discussion of alternatives to the proposed project as required by CEQA. Alternatives include measures for attaining objectives of the proposed project and provide a means for evaluating the comparative merits of each alternative. A 'no project' alternative must also be evaluated. The range of alternatives must be sufficient to permit a reasoned choice, but need not include every conceivable project alternative. CEQA Guidelines Section 15126.6(c) specifically notes that the range of alternatives required in a CEQA document is governed by a 'rule of reason' and only necessitates that the CEQA document set forth those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision making and meaningful public participation. A CEQA document need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. SCAQMD Rule 110 (the rule which implements the SCAQMD's certified regulatory program) does not impose any greater requirements for a discussion of project alternatives in a SEA than is required for an EIR under CEQA.

METHODOLOGY FOR DEVELOPING PROJECT ALTERNATIVES

The alternatives typically included in CEQA documents for proposed SCAQMD rules, regulations, or plans are developed by breaking down the project into distinct components (e.g., emission limits, compliance dates, applicability, exemptions, pollutant control strategies, etc.) and varying the specifics of one or more of the components. Different compliance approaches that generally achieve the objectives of the project may also be considered as project alternatives.

Alternatives to the proposed project were crafted by varying how the NOx emission limits and the timing of compliance. Of the amendments proposed to Rules 1146, 1146.1, and 1146.2, only the components that pertain to complying with the NOx emission factors could entail physical modifications to the affected equipment and that these physical modifications could create potential adverse significant impacts. As such, in addition to the no project alternative, four alternatives were developed by identifying and modifying major components of the proposed project. Specifically, the primary components of the proposed alternatives that have been modified are the source categories that may be affected, and the manner and timing in which compliance with the NOx emission factors may be achieved.

Typically for projects with potentially significant adverse environmental impacts, the existing setting is established at the time the Notice of Preparation/Initial Study (NOP/IS) is circulated for public review. However, this SEA is a subsequent to multiple CEQA documents that were certified at different times and not all of the previous CEQA documents were concluded to have potentially significant adverse impacts. As previously explained, the proposed project is a revision to the previously approved projects that were analyzed in the September 2008 Final EAs for Rules 1146 and 1146.1, May 2006 Final EA for Rule 1146.2, and the March 2017 Final Program EIR for the 2016 AQMP.

The September 2008 Final EA for Rule 1146 concluded that significant adverse air quality and hazards and hazardous materials impacts would occur. However, all other environmental topic areas analyzed in the September 2008 Final EA for Rule 1146 were shown to have less than significant or no significant impacts. Both the September 2008 Final EA for Rule 1146.1 and the May 2006 Final EA for Rule 1146.2 concluded that no significant adverse environmental impacts would occur not from the respective projects. The March 2017 Final Program EIR for the 2016

AQMP determined that the overall implementation of CMB-05 has the potential to generate adverse environmental impacts to seven topic areas – air quality, energy, hazards and hazardous materials, hydrology and water quality, noise, solid and hazardous waste and transportation.

CEQA Guidelines Section 15125(a) recognizes that a baseline may be established at times other than when the NOP/IS circulated to the public by stating (emphasis added), "This environmental setting ***will normally*** constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." Chapter 3 summarizes the existing setting/baseline for control measure CMB-05 from the 2016 AQMP as well as the current version of Rules 1146, 1146.1, and 1146.2.

DESCRIPTION OF ALTERNATIVES

The analysis of the proposed project determined that, of the amendments proposed, only the components that pertain to the implementation of SCR systems to meet certain NOx emission limits could have potential significant adverse air quality impacts during construction. The analysis also identified potential significant adverse hazards and hazardous materials impacts for ammonia storage and use. In particular, two of the affected facilities were shown to reach the toxic endpoint distance for aqueous ammonia from a catastrophic failure of a storage tank that would significantly adversely affect the sensitive receptors within 0.1 mile of the existing equipment. As such, alternatives were developed by identifying and modifying major components of the proposed project. The rationale for selecting and modifying specific components of the proposed project to generate feasible alternatives for the analysis is based on CEQA's requirement to present "realistic" alternatives; that is, alternatives that can actually be implemented.

Five alternatives to the proposed project have been developed and summarized in Table 5-1, as follows: Alternative A - No Project, Alternative B - Compliance Deadline Extension, Alternative C - 100% of Units by January 1, 2021, Alternative D - All Ultra-Low NOx Burners, and Alternative E – NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits ~~Lowering Limit for ≥ 40 and < 75 MMBtu/hr~~. The primary components of the proposed alternatives that have been modified are the source categories that may be affected, and the manner and timing in which compliance with the NOx emission limits may be achieved. Unless otherwise specifically noted, all other components of the project alternatives are identical to the components of the proposed project.

The Governing Board may choose to adopt any portion or all of any alternative presented in the Final SEA with appropriate findings as required by CEQA. The Governing Board is able to adopt any portion or all of any of the alternatives presented because the impacts of each alternative will be fully disclosed to the public and the public will have the opportunity to comment on the alternatives and impacts generated by each alternative. No w~~W~~ritten suggestions on potential project alternatives were received during the comment period for the Revised Draft SEA ~~will be considered when preparing the Final SEA and will be included as an appendix of the Final SEA~~.

The following subsections provide a brief description of the alternatives.

Proposed Project (NOx Emission Limits and Compliance Deadlines):

PARs 1146 series and PR 1100 will begin transitioning units at RECLAIM facilities subject to Rules 1146, 1146.1, and 1146.2 to a command-and-control regulatory structure. The primary objective of the proposed project is to ensure all ~~RECLAIM~~ facilities with Rules

1146 and 1146.1 units meet NOx emission limits and BARCT level equivalency. PARs 1146 series would: 1) expand the applicability to include units at NOx RECLAIM facilities; 2) require RECLAIM facilities to submit a permit application for each unit that does not currently meet the NOx concentration limits in Rules 1146 and 1146.1; 3) extend the compliance date for RECLAIM facilities replacing Rule 1146 or 1146.1 units and require a permit application submittal for unit(s) being replaced; 4) require RECLAIM facilities with Rule 1146.2 units to meet applicable NOx emission limits by December 31, 2023, unless a more stringent BARCT limit is subsequently adopted; 5) limit ammonia emissions on new or modified units with applicable air pollution control equipment and require quarterly ~~annual~~ ammonia source testing (if four consecutive quarterly source tests demonstrate compliance, an annual source test may be conducted); ~~and~~ 6) require certain units at non-RECLAIM facilities to meet new NOx emission limits according to the compliance schedules specified in Rules 1146 and 1146.1; and 7) allow units at municipal sanitation service facilities to maintain existing NOx emission limits until a Regulation XI Rule is adopted or amended. PR 1100 is an administrative rule which establishes the compliance schedule for RECLAIM facilities with Rule 1146 and/or 1146.1 units. ~~. 1) expand the applicability to include units that were not previously required to comply with Rules 1146/1146.1 because they were in the NOx RECLAIM program; 2) require RECLAIM facilities to submit a permit application for each unit that does not currently meet the NOx concentration limits in Rules 1146/1146.1; 3) require the affected equipment to meet the applicable NOx concentration limit for all Rule 1146/1146.1 units for a minimum of 75 percent of the total heat input by January 1, 2021 and 100 percent of the total heat input by January 1, 2022; 4) require RECLAIM facilities replacing Rule 1146/1146.1 units to notify the Executive Officer which unit(s) will be replaced; and 5) require RECLAIM facilities with Rule 1146.2 units to meet the rule's NOx emission limits by December 31, 2023 if a more stringent BARCT limit is not applicable. PR 1100 will provide the implementation schedule for PARs 1146 series and eventually include other future rules for equipment exiting RECLAIM.~~ PARs 1146 series and PR 1100 implement control measure CMB-05 from the 2016 Final AQMP.

Alternative A: No Project (Current Rule)

Alternative A, the no project alternative, means that the current version of Rules 1146, 1146.1, and 1146.2 that were amended in November 2013, and April 2006, respectively, would remain in effect and there would be no transitioning out of the NOx RECLAIM program. Under the current version of Rules 1146 and 1146.1, units at RECLAIM facilities would not have to comply with the NOx emission limits in Tables 1146-1 and 1146.1-1, respectively. Under this alternative, no NOx emission reductions will be achieved and the units subject to Rules 1146 and 1146.1 at RECLAIM facilities would not meet BARCT level equivalency. However, the December 2015 amendments to the NOx RECLAIM program evaluated BARCT level equivalency for combustion units that would have otherwise that would have been subject to Rules 1146, 1146.1, and 1146.2 had they not been in the RECLAIM program. Furthermore, the environmental impacts for the December 2015 amendments were evaluated in the Final Program EA that was certified in December 2015[22]. Under this alternative, units subject to Rules 1146, 1146.1, and 1146.2 at RECLAIM facilities would not begin the transition to a command-and-control regulatory

[22] SCAQMD, Final Program Environmental Assessment for Proposed Amended Regulation XX -RECLAIM, November 2015. http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2015/regxxfinalpeaplusappendices.pdf

structure. In addition, under this alternative the implementation schedule in PR 1100 would also not take effect.

Alternative B: Compliance Deadline Extension

Under Alternative B, the requirements would be equivalent to the proposed project, but the compliance deadline for meeting the NOx emissions limits would be extended ~~shortened~~ by one year for all ~~25 percent of~~ units. At a facility, 75 percent of the units subject to Rules 1146 and 1146.1 would need to meet the applicable NOx emission limit by January 1, 2022 and 100 percent would need to achieve compliance by January 1, 2023. In addition, the facilities would have one additional year to submit permit applications. The extension of the compliance deadline for units subject to Rules 1146 and 1146.1 is less stringent than the proposed project.

Alternative C: 100% of Units by January 1, 2021

Under Alternative C, the NOx emission limits would remain the same as the proposed project, but facilities would need to meet 100 percent compliance one year earlier than the proposed project, by January 1, 2021. The earlier compliance date would apply to 25 percent of the units subject to Rules 1146 and 1146.1. The earlier compliance date under Alternative C is more stringent than the proposed project.

Alternative D: All Ultra-Low NOx Burners

Under Alternative D, the NOx emission limit would be less stringent for Group I (Rule 1146) units than the proposed project, but it would have the same compliance deadline as the proposed project. Under Alternative D, the Group I units would need to meet a NOx emission limit of nine ppm (or 0.011 pound per MMBtu) instead of five ppm (or 0.0062 pound per MMBtu). The Group II and III units (Rule 1146) and fire-tube boilers rated between two and five MMBtu (Rule 1146.1) units would need to meet nine ppm (or 0.011 pound per MMBtu) instead of the proposed five ppm or seven ppm (or 0.00085 pound per MMBtu). The NOx emission limit for thermal fluid heaters would also remain at 30 ppm (or 0.037 pound per MMBtu) instead of 12 ppm (0.015 pound per MMBtu). Thus, the thermal fluid heaters would not meet BARCT NOx emissions equivalency. All other requirements in the proposed project would remain the same for Alternative D. Overall, Alternative D would be less stringent than the proposed project.

Alternative E: NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits~~Lowering Limit for ≥ 40 and < 75 MMBtu per hour~~

Under Alternative E, only NOx RECLAIM facilities would be affected. ~~The~~the NOx emission limit would be less~~more~~ stringent than the proposed project for the following units with: a rated heat input of greater than or equal to ~~4~~20 and less than 75 MMBtu per hour (Group II); a rated heat input of greater than or equal to two but less than 20 MMBtu per hour (Rules 1146 and 1146.1) for fire-tube boilers; and thermal fluid heaters. Alternative E would require~~include a subset of~~ Group II ~~units~~and Group III units~~-~~ to meet nine ppm (or 0.011 pounds per MMBtu) instead of five ppm (or 0.0062 pound per MMBtu) for Group II units with an existing NOx limit greater than 12 ppm and seven ppm (or 0.0085

pound per MMBtu) for Group II units with an existing NOx limit less than 12 ppm and Group III fire-tube boilers~~that would be subject to the five ppm NOx emission limits as Group I units~~.

In addition, under Alternative E, any units with a rated heat input greater than two but less than five MMBtu per hour would need to meet nine ppm. In the proposed project, units with a rated heat input greater than two but less than five MMBtu per hour are required to meet seven ppm for fire-tube boilers and water-tube boilers would need to meet nine ppm. In addition, under Alternative E, thermal fluid heaters would remain at the current NOx emission limit of 30 ppm (or 0.037 pound per MMBtu). All other requirements in the proposed project would remain the same for Alternative E. Overall, Alternative E would be less ~~more~~ stringent than the proposed project.

Table 5-1
Summary of the Proposed Project and Alternatives

Rule No.	Group No.	Heat Input or Equipment Type	Fuel Type	Proposed Project		Alternative A: No Project	Alternative B: Compliance Deadline Extension	Alternative C: 100% of units by January 1, 2021
1146	-	≥ 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.036 lb/MMBtu	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2021 and 100% by January 1, 2022, unless unit replacement by January 1, 2023 **(If the unit is located at a non-RECLAIM facility compliance can be deferred until burner replacement or within 15 years of the date of rule adoption, whichever is earlier, unless the unit is a thermal fluid heater currently permitted at >20 ppm (these units must meet 12 ppm by January 1, 2022))*	See Rule 2002 Emission Factor, Table 1 and 3** *(Only emission factors relevant to Rules 1146 and 1146.1 have been extracted from Rule 2002 Emission Factors Tables 1 and 3 and are shown in Table 1-3)*	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2022 and 100% by January 1, 2023	100% of units by January 1, 2021
1146	-	≥ 5 MMBtu/hr	Non-Gaseous Fuels	40 ppm				
1146	-	≥ 5 MMBtu/hr	Landfill Gas	25 ppm				
1146	-	≥ 5 MMBtu/hr	Digester Gas	15 ppm				
1146	I	≥ 75 MMBtu/hr	Natural Gas	5 ppm or 0.0062 lb/MMBtu				
1146	II	≥ 20 and < 75 MMBtu/hr (All others)~~with an existing NOx limit >12 ppm~~	Gaseous Fuel (excluding Landfill or Digester Gas)	5 ppm or 0.0062 lb/MMBtu				
1146	II	≥ 20 and < 75 MMBtu/hr (Fire-tube boilers with an existing NOx limit ~~≤~~≤9~~12~~ ppm and >5 ppm	Gaseous Fuel (excluding Landfill or Digester Gas)	7 ppm or 0.0085 lb/MMBtu				
1146	II	≥ 20 and < 75 MMBtu/hr (All others with a previous NOx limit ≤12 ppm and >5 ppm)	Gaseous Fuel (excluding Landfill or Digester Gas)	9 ppm or 0.011 lb/MMBtu				
1146	III	≥ 5 and < 20 MMBtu/hr (Fire-tube boilers, ~~only~~ excluding units with a previous NOx limit >9 and ≤ 12 ppm)	Gaseous Fuel (excluding Landfill or Digester Gas)	7 ppm or 0.0085 lb/MMBtu				
1146	III	≥ 5 and < 20 MMBtu/hr (excluding Fire-tube boilers)	Gaseous Fuel (excluding Landfill or Digester Gas)	9 ppm or 0.011 lb/MMBtu				
1146	III	Atmospheric Unit (≤ 10 MMBtu/hr)	Natural Gas	12 ppm or 0.015 lb/MMBtu				
1146	-	Low Fuel Usage (≤ 90,000 therms/year)	Any Fuel	12 ppm, 15 years after the date of rule adoption or when 50 percent or more of the unit's burners are replaced, whichever is earlier				
1146	-	≥ 5 MMBtu/hr Thermal Fluid Heaters	Natural Gas	12 ppm or 0.015 lb/MMBtu				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.037 lb/MMBtu				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Landfill Gas	25 ppm				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Digester Gas	15 ppm				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Atmospheric Units)	Natural Gas	12 ppm or 0.015 lb/MMBtu				

Table 5-1: Summary of the Proposed Project and Alternatives (continued~~Concluded~~)

Rule No.	Group No.	Heat Input or Equipment Type	Fuel Type	Proposed Project		Alternative A: No Project	Alternative B: Compliance Deadline Extension	Alternative C: 100% of units by January 1, 2021
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (excluding Fire-tube boilers, Atmospheric Units and Thermal Fluid Heaters)	Natural Gas	9 ppm or 0.011 lb/MMBtu	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2021 and 100% by January 1, 2022, unless unit replacement by January 1, 2023 ~~*~~*(If the unit is located at a non-RECLAIM facility compliance can be deferred until burner replacement or within 15 years of the date of rule adoption, whichever is earlier, unless the unit is a thermal fluid heater currently permitted at >20 ppm (these units must meet 12 ppm by January 1, 2022))*	See Rule 2002 Emission Factor, Table 1 and 3~~**~~ *(Only emission factors relevant to Rules 1146 and 1146.1 have been extracted from Rule 2002 Emission Factors Tables 1 and 3 and are shown in Table 1-3)*	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2022 and 100% by January 1, 2023	100% of units by January 1, 2021
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Any Fire-Tube Boilers excluding units with a previous NOx limit >9 and < 12 ppm)	Natural Gas	7 ppm or 0.0085 lb/MMBtu				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Thermal Fluid Heaters)	Natural Gas	12 ppm or 0.015 lb/MMBtu				
1146.1	-	Low Fuel Usage (< 18,000 therms/year)	Any Fuel	12 ppm, 15 years after the date of rule adoption or when 50 percent or more of the unit's burners are replaced, whichever is earlier				
1146.2	-	< 2 MMBtu/hr	Natural Gas	30 ppm, unless a more stringent limit is applicable, by December 31, 2023		-	No Change	No Change
1100	-	Rule 1146 and 1146.1 Units only	-	Permit application submittal by 12 months within date of rule adoption and compliance with implementation schedule		-	Compliance deadline would be extended by one year	Compliance deadline would be shortened by one year for 25% of units

Table 5-1: Summary of the Proposed Project and Alternatives (continued)

Rule No.	Group No.	Heat Input or Equipment Type	Fuel Type	Proposed Project		Alternative D: All Ultra-Low NOx Burners	Alternative E: NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits
1146	-	≥ 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.036 lb/MMBtu	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2021 and 100% by January 1, 2022, unless unit replacement by January 1, 2023 *(If the unit is located at a non-RECLAIM facility compliance can be deferred until burner replacement or within 15 years of the date of rule adoption, whichever is earlier, unless the unit is a thermal fluid heater currently permitted at >20 ppm (these units must meet 12 ppm by January 1, 2022))*	No Change	No Change
1146	-	≥ 5 MMBtu/hr	Non-Gaseous Fuels	40 ppm		No Change	No Change
1146	-	≥ 5 MMBtu/hr	Landfill Gas	25 ppm		No Change	No Change
1146	-	≥ 5 MMBtu/hr	Digester Gas	15 ppm		No Change	No Change
1146	I	≥ 75 MMBtu/hr	Natural Gas	5 ppm or 0.0062 lb/MMBtu		9 ppm or 0.011 lb/MMBtu	No Change
1146	II	≥ 20 and < 75 MMBtu/hr (All others)~~with an existing NOx limit >12 ppm~~	Gaseous Fuel (excluding Landfill or Digester Gas)	5 ppm or 0.0062 lb/MMBtu		9 ppm or 0.011 lb/MMBtu	9 ppm or 0.011 lb/MMBtu
1146	II	≥ 20 and < 75 MMBtu/hr with an existing NOx limit ≤12 ppm and >5 ppm)	Gaseous Fuel (excluding Landfill or Digester Gas)	7 ppm or 0.0085 lb/MMBtu			
1146	II	≥ 20 and < 75 MMBtu/hr (All others with a previous NOx limit <12 ppm and >5 ppm)	Gaseous Fuel (excluding Landfill or Digester Gas)	9 ppm or 0.011 lb/MMBtu			
1146	III	≥ 5 and < 20 MMBtu/hr (Fire-tube boilers only excluding units with a previous NOx limit >9 and ≤ 12 ppm))	Gaseous Fuel (excluding Landfill or Digester Gas)	7 ppm or 0.0085 lb/MMBtu			
1146	III	Atmospheric Unit (≤ 10 MMBtu/hr)	Natural Gas	12 ppm or 0.015 lb/MMBtu		No Change	No Change
1146	-	Low Fuel Usage (≤ 90,000 therms/year)	Any Fuel	12 ppm, 15 years after the date of rule adoption or when 50 percent or more of the unit's burners are replaced, whichever is earlier		No Change	No Change
1146	-	≥ 5 MMBtu/hr Thermal Fluid Heaters	Natural Gas	12 ppm or 0.015 lb/MMBtu		30 ppm or 0.037 lb/MMBtu	30 ppm or 0.037 lb/MMBtu
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.037 lb/MMBtu		No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Landfill Gas	25 ppm		No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Digester Gas	15 ppm		No Change	No Change

Table 5-1: Summary of the Proposed Project and Alternatives (concluded)

Rule No.	Group No.	Heat Input or Equipment Type	Fuel Type	Proposed Project		Alternative D: All Ultra-Low NOx Burners	Alternative E: NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Atmospheric Units)	Natural Gas	12 ppm or 0.015 lb/MMBtu	75% of the cumulative total heat input capacity of all Rules 1146 and 1146.1 units at the facility by January 1, 2021 and 100% by January 1, 2022, unless unit replacement by January 1, 2023 **If the unit is located at a non-RECLAIM facility compliance can be deferred until burner replacement or within 15 years of the date of rule adoption, whichever is earlier, unless the unit is a thermal fluid heater currently permitted at >20 ppm (these units must meet 12 ppm by January 1, 2022)*	No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (excluding Fire-tube boilers, Atmospheric Units and Thermal Fluid Heaters~~, but including at Schools/Universities~~)	Natural Gas	9 ppm or 0.011 lb/MMBtu		No Change	9 ppm or 0.011 lb/MMBtu~~No Change~~
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Any Fire-Tube Boilers, excluding units with a previous NOx limit >9 and ≤ 12 ppm)	Natural Gas	7 ppm or 0.0085 lb/MMBtu		9 ppm or 0.011 lb/MMBtu	
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Thermal Fluid Heaters)	Natural Gas	12 ppm or 0.015 lb/MMBtu		30 ppm or 0.037 lb/MMBtu	30 ppm or 0.037 lb/MMBtu
1146.1	-	Low Fuel Usage (≤ 18,000 therms/year)	Any Fuel	12 ppm, 15 years after the date of rule adoption or when 50 percent or more of the unit's burners are replaced, whichever is earlier~~30 ppm by January 1, 2022 or burner replacement, whichever occurs later~~		No Change	No Change
1146.2	-	≤ 2 MMBtu/hr	Natural Gas	30 ppm, unless a more stringent limit is applicable, by December 31, 2023		No Change	No Change
1100	-	Rule 1146 and 1146.1 Units only	-	Permit application submittal by 12 months within date of rule adoption and compliance with implementation schedule		No Change	No Change

Rule No.	Group No.	Heat Input or Equipment Type	Fuel Type	Proposed Project (for NOx RECLAIM facilities transitioning to command-and-control regulatory structure)		Alternative A: No Project	Alternative B: Compliance Deadline Extension	Alternative C: 100% of units by January 1, 2021
1146	-	≥ 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.036 lb/MMBtu	75% of units by January 1, 2021 and 100% by January 1, 2022, unless unit replacement by January 1, 2023	See Rule 2002 Emission Factor, Table 1 and 3*	75% of units by January 1, 2022 and 100% by January 1, 2023	100% of units by January 1, 2021
1146	-	≥ 5 MMBtu/hr	Non-Gaseous Fuels	40 ppm				
1146	-	≥ 5 MMBtu/hr	Landfill Gas	25 ppm				
1146	-	≥ 5 MMBtu/hr	Digester Gas	15 ppm				
1146	I	≥ 75 MMBtu/hr (excluding Thermal Fluid Heaters)	Natural Gas	5 ppm or 0.0062 lb/MMBtu				
1146	II	≥ 20 and < 75 MMBtu/hr (excluding Thermal Fluid Heaters)	Gaseous Fuel (excluding Landfill or Digester Gas)	9 ppm or 0.011 lb/MMBtu				
1146	III	≥ 5 and < 20 MMBtu/hr (excluding Thermal Fluid Heaters, but including Units at Schools and Universities rated ≥ 5 MMBtu/hr)	Gaseous Fuel (excluding Landfill or Digester Gas)					
1146	III	Atmospheric Unit (≤ 10 MMBtu/hr)	Natural Gas	12 ppm or 0.015 lb/MMBtu				
1146	-	Low Fuel Usage (≤ 90,000 therms/year)	Any Fuel	30 ppm by January 1, 2022 or burner replacement, whichever occurs later				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.037 lb/MMBtu				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Landfill Gas	25 ppm				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Digester Gas	15 ppm				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Atmospheric Units)	Natural Gas	12 ppm or 0.015 lb/MMBtu				
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (excluding Atmospheric Units and Thermal Fluid Heaters, but including at Schools/Universities)	Natural Gas	9 ppm or 0.011 lb/MMBtu				
1146.1	-	Low Fuel Usage (≤ 18,000 therms/year)	Any Fuel	30 ppm by January 1, 2022 or burner replacement, whichever occurs later				
1146.2	-	≤ 2 MMBtu/hr	Natural Gas	30 ppm, unless a more stringent limit is applicable, by December 31, 2023		-	No Change	No Change
1100	-	Rule 1146 and 1146.1 Units only	-	Permit application submittal by 12 months within date of rule adoption and compliance with implementation schedule		-	Compliance deadline would be extended by one year	Compliance deadline would be shortened by one year for 25% of units

*Note: Only emission factors relevant to Rules 1146 and 1146.1 have been extracted from Rule 2002 Emission Factor Tables 1 and 3 and are shown in Table 1-3.

Rule No.	**Group No.**	**Heat Input or Equipment Type**	**Fuel Type**	**Proposed Project** (for NOx RECLAIM facilities transitioning to command-and-control regulatory structure)		**Alternative D:** All Ultra-Low NOx Burners	**Alternative E:** Lowering Limit for ≥ 40 and < 75 MMBtu/hr
1146	-	≥ 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.036 lb/MMBtu	75% of units by January 1, 2021 and 100% by January 1, 2022, unless unit replacement by January 1, 2023	No Change	No Change
1146	-	≥ 5 MMBtu/hr	Non-Gaseous Fuels	40 ppm		No Change	No Change
1146	-	≥ 5 MMBtu/hr	Landfill Gas	25 ppm		No Change	No Change
1146	-	≥ 5 MMBtu/hr	Digester Gas	15 ppm		No Change	No Change
1146	I	≥ 75 MMBtu/hr (excluding Thermal Fluid Heaters)	Natural Gas	5 ppm or 0.0062 lb/MMBtu		9 ppm or 0.011 lb/MMBtu; 75% of units by January 1, 2021 and 100% by January 1, 2022	No Change
1146	II	≥ 20 and < 75 MMBtu/hr (excluding Thermal Fluid Heaters)	Gaseous Fuel (excluding Landfill or Digester Gas)	9 ppm or 0.011 lb/MMBtu		No Change	5 ppm for units > 40 MMBtu/hr
1146	III	≥ 5 and < 20 MMBtu/hr (excluding Thermal Fluid Heaters, but including Units at Schools and Universities rated ≥ 5 MMBtu/hr)	Gaseous Fuel (excluding Landfill or Digester Gas)			No Change	No Change
1146	III	Atmospheric Unit (≤ 10 MMBtu/hr)	Natural Gas	12 ppm or 0.015 lb/MMBtu		No Change	No Change
1146	-	Low Fuel Usage (≤ 90,000 therms/year)	Any Fuel	30 ppm by January 1, 2022 or burner replacement, whichever occurs later		No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Gaseous Fuel (excluding Landfill or Digester Gas)	30 ppm or 0.037 lb/MMBtu		No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Landfill Gas	25 ppm		No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr	Digester Gas	15 ppm		No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (Atmospheric Units)	Natural Gas	12 ppm or 0.015 lb/MMBtu		No Change	No Change
1146.1	-	> 2 MMBtu/hr and < 5 MMBtu/hr (excluding Atmospheric Units and Thermal Fluid Heaters, but including at Schools/Universities)	Natural Gas	9 ppm or 0.011 lb/MMBtu		No Change	No Change
1146.1	-	Low Fuel Usage (≤ 18,000 therms/year)	Any Fuel	30 ppm by January 1, 2022 or burner replacement, whichever occurs later		No Change	No Change
1146.2	-	≤ 2 MMBtu/hr	Natural Gas	30 ppm, unless a more stringent limit is applicable, by December 31, 2023		No Change	No Change

~~1100~~	~~-~~	~~Rule 1146 and 1146.1 Units only~~	~~-~~	~~Permit application submittal by 12 months within date of rule adoption and compliance with implementation schedule~~	~~No Change~~	~~No Change~~

~~***Note: Only emission factors relevant to Rules 1146 and 1146.1 have been extracted from Rule 2002 Emission Factor Tables 1 and 3 and are shown in Table 1-3.~~

COMPARISON OF ALTERNATIVES

The following sections describe the potentially significant adverse air quality and hazards and hazardous materials impacts that may occur for each project alternative. Potentially significant adverse operational air quality impacts are quantified where sufficient data are available. A comparison of the environmental impacts for each project alternative is provided in Table 5-2. No other environmental topics other than air quality during construction and hazards and hazardous materials were determined to be significantly adversely affected by implementing any project alternative.

Pursuant to the requirements in CEQA Guidelines Section 15126.6(b) to mitigate or avoid the significant effects that a project may have on the environment, a comparison of the potential impacts to air quality and hazards and hazardous materials from each of the project alternatives for the individual rule components that comprise the proposed project is provided in Table 5-2. Secondary impacts from the proposed project were identified as having significant adverse impacts for air quality from the construction of the SCR systems and for hazards and hazardous materials from storage of ammonia (accidental rupture). The proposed project is considered to provide the best balance between emission reductions and the adverse environmental impacts due to construction activities and the storage of ammonia (accidental rupture) while meeting the objectives of the project. Therefore, the proposed project is preferred over the project alternatives.

Pursuant to CEQA Guidelines Section 15126.6(d), a CEQA document "shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed." Accordingly, Table 5-2 provides a matrix displaying the major characteristics and significant environmental effects of the proposed project and each alternative.

Table 5-2
Comparison of Adverse Environmental Impacts of the Proposed Project and Alternatives

Category	**Proposed Project**	**Alternative A:** No Project	**Alternative B:** Compliance Deadline Extension	**Alternative C:** 100% of Units by January 1, 2021	**Alternative D:** All Ultra-Low NOx Burners	**Alternative E:** NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits
Air Quality	Expected to result in NOx emission reductions of 0.20 ton per day by January 1, 2021 and 0.27 ton per day by January 1, 2023. Affected RECLAIM facilities will transition to a command-and-control regulatory structure. Certain non-RECLAIM facilities will meet NOx emission limits during replacement or within 15 years of the date of rule adoption, whichever is earlier. Thermal fluid heaters currently permitted at >20 ppm must meet 12 ppm by January 1, 2022. All units will meet BARCT NOx emissions equivalency from the implementation of command-and control regulatory structure.	No new NOx emission reductions will be achieved. RECLAIM facilities would not transition to a command-and control regulatory structure and all (including some non-RECLAIM) units would not meet BARCT level equivalency.	Expected to result in equivalent NOx emissions reductions as the proposed project except the reductions would be delayed by one year. Affected RECLAIM facilities will transition to a command-and-control regulatory structure and all (including some non-RECLAIM) units will meet BARCT level equivalency.	Expected to result in equivalent NOx emissions reductions as the proposed project, but emissions would be achieved sooner (by January 1, 2021). Affected RECLAIM facilities will transition to a command-and-control regulatory structure and all units (including some non-RECLAIM) will meet BARCT level equivalency.	Expected to result in lesser NOx emission reductions than the proposed project. Affected RECLAIM facilities would transition to a command-and-control regulatory structure. Some facilities would not meet BARCT level equivalency.	Expected to result in less NOx emissions reductions than the proposed project. Affected RECLAIM facilities would transition to a command-and control regulatory structure, but units would not reach BARCT level equivalency.
Signifi-cance of Air Quality Impacts	Less than Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx during construction due to overlapping construction of SCR systems and ultra-low NOx burners, but these significant impacts will be reduced to less than significant levels because a concurrent operational air quality benefit would result due to the project's overall NOx emission reductions.	Not Significant: This would not result in an exceedance of SCAQMD's regional air quality CEQA significance threshold for NOx. The SCAQMD will not achieve any emissions reductions; thus, attainment for the SCAQMD for ozone is unlikely to occur.	Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx during construction due to overlapping construction of SCR systems and ultra-low NOx burners. While a concurrent operational air quality benefit would result due to the project's overall NOx emission reductions, ~~and these significantce is equivalent to the amount in the proposed project but with a~~ the delay in the operational benefit is may not fully reduce the overlapping construction emissions to less than significant levels.	Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx during construction due to the overlapping construction of SCR systems and ultra-low NOx burners, but these significant~~ce~~ impacts will be reduced to less than significant levels because a concurrent operational air quality benefit would result due to the project's overall NOx emission reductions This alternative is equivalent in benefit to the amount in the proposed project but achieves the operational benefits sooner which may cause peak daily construction emissions to be greater than the proposed project.	Less than ~~Not~~ Significant: This would result in an amount that is less significant than the proposed project and would not exceed SCAQMD's regional air quality CEQA significance threshold for NOx.	Less than Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx during construction~~. D~~ due to the overlapping construction of ~~additional~~ SCR systems and ultra-low NOx burners, but these significant impacts will be reduced to less than significant levels because a concurrent operational air quality benefit would result. However, to meet the current NOx emission limits, the impacts are at an amount that is less ~~more~~ significant than the proposed project and NOx emissions reductions would be less than the proposed project.~~but with more operational benefits.~~

Table 5-2
Comparison of Adverse Environmental Impacts of the Proposed Project and Alternatives (Concluded)

Category	**Proposed Project**	**Alternative A:** No Project	**Alternative B:** Compliance Deadline Extension	**Alternative C:** 100% of Units by January 1, 2021	**Alternative D:** All Ultra-Low NOx Burners	**Alternative E:** NOx RECLAIM Facilities Transitioning to Command-and-Control Regulatory Structure at Current Limits
Significance of Hazards and Hazardous Materials Impacts	Significant: To operate, SCR systems require ammonia. Ammonia is considered a hazardous material. At 32 facilities, the estimated distance of the toxic endpoint from the catastrophic failure of an aqueous ammonia storage tank to sensitive receptors would result in significant impacts.	Not Significant: The construction of SCR systems would not be necessary; thus, the storage of aqueous ammonia would be eliminated. No hazards or hazardous materials impacts would occur.	Significant: The operation of an SCR system requires the use of ammonia; thus, facilities would need to store ammonia on-site. Depending on the vicinity of the ammonia storage tank(s) to sensitive receptors, during catastrophic failure sensitive receptors could be within the toxic endpoint distance. The number of affected facilities would be the same as the proposed project. The level of significance in this alternative is equivalent to the amount in the proposed project.	Significant: The operation of an SCR system requires the use of ammonia; thus, facilities would need to store ammonia on-site. Depending on the vicinity of the ammonia storage tank(s) to sensitive receptors, during catastrophic failure sensitive receptors could be within the toxic endpoint distance. The number of affected facilities would be the same as the proposed project. The level of significance in this alternative is equivalent to the amount in the proposed project.	Less than ~~Not~~ Significant: The construction of SCR systems would not be necessary; thus, the storage of aqueous ammonia would be eliminated. All facilities with affected units would need to retrofit with ultra-low NOx burners; thus, no hazards or hazardous materials impacts would occur.	Significant: The operation of an SCR system requires the use of ammonia; thus, facilities would need to store ammonia on-site. Less stringent NOx emission limits would result in fewer affected facilities constructing SCR systems; thus, a fewer number of ammonia storage tanks would be needed. However, depending on the vicinity of the ammonia storage tank(s) to sensitive receptors, during catastrophic failure sensitive receptors could be within the toxic endpoint distance and thus still result in significant impacts, but at an equivalent amount of the proposed project. It is estimated four facilities would be affected from this alternative.

Category	Proposed Project	Alternative A: No Project	Alternative B: Compliance Deadline Extension	Alternative C: 100% of Units by January 1, 2021	Alternative D: All Ultra-Low-NOx Burners	Alternative E: Lowering Limit for ≥ 40 and < 75 MMBtu/hr
Air Quality	Expected to result in NOx emission reductions of 0.23 ton per day by January 1, 2023. Affected RECLAIM facilities will transition to a command-and-control regulatory structure and all units will meet BARCT level equivalency.	No new NOx emission reductions will be achieved. RECLAIM facilities would not transition to a command-and control regulatory structure and all units would not meet BARCT level equivalency.	Expected to result in equivalent NOx emissions reductions as the proposed project except the reductions would be delayed by one year. Affected RECLAIM facilities will transition to a command-and-control regulatory structure and all units will meet BARCT level equivalency.	Expected to result in equivalent NOx emissions reductions as the proposed project, but emissions would be achieved sooner (by January 1, 2021). Affected RECLAIM facilities will transition to a command-and-control regulatory structure and all units will meet BARCT level equivalency.	Expected to result in lesser NOx emission reductions than the proposed project. Affected RECLAIM facilities would transition to a command-and-control regulatory structure. Some facilities would not meet BARCT level equivalency.	Expected to result in more NOx emissions reductions than the proposed project. Affected RECLAIM facilities would transition to a command-and control regulatory structure and units will be equal to or more stringent than BARCT.
Significance of Air Quality Impacts	Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx due to the construction of SCR systems.	Not Significant: This would not result in an exceedance of SCAQMD's regional air quality CEQA significance threshold for NOx. The SCAQMD will not achieve any emissions reductions; thus, attainment for the SCAQMD for ozone is unlikely to occur.	Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx due to the construction of SCR systems and the significance is equivalent to the amount in the proposed project but with a delay in the operational benefit.	Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx due to the construction of SCR systems and the significance is equivalent to the amount in the proposed project but achieves the operational benefits sooner.	Not Significant: This would result in an amount that is less significant than the proposed project and would not exceed SCAQMD's regional air quality CEQA significance threshold for NOx.	Significant: Exceeds the SCAQMD's regional air quality significance threshold for NOx. Due to the construction of additional SCR systems to meet the NOx emission limits, the impacts are at an amount that is more significant than the proposed project but with more operational benefits.
Significance of Hazards and Hazardous Materials Impacts	Significant: To operate, SCR systems require ammonia. Ammonia is considered a hazardous material. At two facilities, the estimated distance of the toxic endpoint from the catastrophic failure of an aqueous ammonia storage tank to sensitive receptors would result in significant impacts.	Not Significant: The construction of SCR systems would not be necessary; thus, the storage of aqueous ammonia would be eliminated. No hazards or hazardous materials impacts would occur.	Significant: The operation of an SCR system requires the use of ammonia; thus, facilities would need to store ammonia on-site. Depending on the vicinity of the ammonia storage tank(s) to sensitive receptors, during catastrophic failure sensitive receptors could be within the toxic endpoint. The significance in this alternative is equivalent to the amount in the proposed project.	Significant: The operation of an SCR system requires the use of ammonia; thus, facilities would need to store ammonia on-site. Depending on the vicinity of the ammonia storage tank(s) to sensitive receptors, during catastrophic failure sensitive receptors could be within the toxic endpoint. The significance in this alternative is equivalent to the amount in the proposed project.	Not Significant: The construction of SCR systems would not be necessary; thus, the storage of aqueous ammonia would be eliminated. No hazards or hazardous materials impacts would occur.	Significant: The operation of an SCR system requires the use of ammonia; thus, facilities would need to store ammonia on-site. Depending on the vicinity of the ammonia storage tank(s) to sensitive receptors, during catastrophic failure sensitive receptors could be within the toxic endpoint. Additional facilities would be subject to the lower NOx emission limit. As a result, the construction of more SCR systems and ammonia storage tanks would occur. The significance is greater than the amount in the proposed project.

ALTERNATIVES REJECTED AS INFEASIBLE

In accordance with CEQA Guidelines Section 15126.6 (c), a CEQA document should identify any alternatives that were considered by the lead agency, but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. CEQA Guidelines Section 15126.6 (c) also states that among the factors that may be used to eliminate alternatives from detailed consideration in a CEQA document are: 1) failure to meet most of the basic project objectives; 2) infeasibility; or, 3) inability to avoid significant environmental impacts.

As noted in the Introduction, the range of feasible alternatives to the proposed project is limited by the nature of the proposed project and associated legal requirements. Similarly, the range of alternatives considered, but rejected as infeasible is also relatively limited.

The following discussion identifies Alternative A, the No Project Alternative, as being rejected due its failure to meet most of the basic project objectives.

CEQA documents typically assume that the adoption of a No Project alternative would result in no further action on the part of the project proponent or lead agency. For example, in the case of a proposed land use project such as a housing development, adopting the No Project alternative terminates further consideration of that housing development or any housing development alternative identified in the associated CEQA document. In that case, the existing setting would typically remain unchanged.

The concept of taking no further action (and thereby leaving the existing setting intact) by adopting a No Project alternative does not readily apply to implementation of a control measure that has been adopted and legally mandated in the 2016 AQMP. The federal and state Clean Air Acts require the SCAQMD to implement the AQMP in order to attain all state and national ambient air quality standards. More importantly, a No Project alternative in the case of the proposed project is not a legally viable alternative because it violates a state law requirement in Health and Safety Code Section 40440 that regulations mandate the use of BARCT for existing sources and for the subset of RECLAIM facilities subject to the requirements of ABs 617 and 398.

"The 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, *as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services*…" It should be noted that, except for air quality, there would be no further incremental impacts on the existing environment if no further action is taken. Although there are other existing rules that may have future compliance dates for NOx emission reductions, potential adverse impacts from these rules have already been evaluated in the Final Program EIR for the 2016 AQMP and their subsequent rule-specific CEQA documents. While air quality would continue to improve to a certain extent, it is unlikely that all state or federal ozone standards would be achieved as required by the federal and California CAAs. It is possible that the federal 24-hour PM2.5 standard may be achieved; however, it is unlikely that further progress would be made towards achieving the state PM2.5 standard as required by the California CAA.

LOWEST TOXIC ALTERNATIVE

In accordance with SCAQMD's policy document Environmental Justice Program Enhancements for FY 2002-03, Enhancement II-1 recommends for all SCAQMD CEQA documents which are required to include an alternatives analysis, the alternative analysis shall also include and identify a feasible project alternative with the lowest air toxics emissions. In other words, for any major equipment or process type under the scope of the proposed project that creates a significant environmental impact, at least one alternative, where feasible, shall be considered from a "least harmful" perspective with regard to hazardous or toxic air pollutants.

As explained in the hazards and hazardous materials discussion in Chapter 4, implementation of the proposed project may alter the hazards and hazardous materials associated with the existing facilities affected by the proposed project. Air pollution control equipment (e.g., SCR systems) are expected to be installed at affected facilities such that their operations may increase the quantity of ammonia (a hazardous material) used in the control equipment. The main NOx reduction technologies considered for the proposed project are based on employing SCR systems and ultra-low NOx burners. The analysis shows that of the possible NOx controls, only the use of SCR systems may increase the use of toxic materials (e.g., aqueous ammonia).

To identify a lowest toxic alternative with respect to the proposed project, a lowest toxic alternative would be if NOx control technologies are employed that use the least amount of hazardous or toxic materials. For the proposed project, ultra-low NOx burners are the least toxic technology when compared to SCR systems. Of the five alternatives, only Alternative A – the No Project alternative and Alternative D – All Ultra-Low NOx Burners, do not assume that SCR systems and ammonia will be utilized. Thus, hazardous materials would not be needed if either of these alternatives are implemented.

Under Alternative A, the No Project alternative, no NOx emission limits would be imposed on Rules 1146/1146.1/1146.2 units and no NOx control equipment (e.g., SCR systems or ultra-low NOx burners) would be installed. Further, no significant adverse impacts from construction and operating NOx control equipment would be expected to occur. Since no construction or operation activities associated with new or modified control equipment would occur under Alternative A, no new impacts to the environment, including the topic of hazards and hazardous materials would be expected. Thus, no increased use in the amount of hazardous or toxic materials would occur if Alternative A is implemented. While Alternative A results in no toxic emissions when compared to the proposed project, it is not the environmentally superior alternative because it results in no NOx benefits and does not meet the project objectives.

Under Alternative D, no SCR systems would be installed and only ultra-low NOx burners would be installed. Further, no significant adverse impacts from construction and operating NOx control equipment would be expected to occur. Since no SCR systems would be installed under Alternative D, no hazards and hazardous materials impacts would be expected. Thus, from a hazard and air toxics perspective, when compared to the proposed project and the other alternatives under consideration, if implemented, Alternative D is considered to be the lowest toxic alternative.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Pursuant to CEQA Guidelines Section 15126.6(e)(2), if the environmentally superior alternative is the "no project" alternative, the CEQA document shall also identify an alternate environmentally superior alternative from among the other alternatives.

If Alternative A is implemented, PARs 1146 series and PR 1100 would not be adopted; thus, the proposed project's objectives would not be achieved and no NOx emissions reductions would occur such that the corresponding health benefits that result from NOx emission reductions would also not occur. If Alternative A is implemented, the baseline of NOx emissions currently generated by the affected units will remain unchanged. Currently, the Basin is in non-attainment for ozone and cannot achieve attainment unless NOx emissions reductions occur. In addition, implementing Alternative A means that RECLAIM facilities with units subject to Rules 1146, 1146.1, and 1146.2 would not transition to a command-and-control regulatory structure or some units would not achieve BARCT level equivalency. Units at non-RECLAIM facilities would also not meet BARCT level equivalency. Alternative A would result in no significant air quality or hazards and hazardous materials impacts; however, this alternative would not achieve the project objectives.

If Alternative B is implemented, the compliance deadline would be extended by one year. The same NOx emissions reductions would be achieved as the proposed project; however, the NOx emission reductions would be achieved one year later (e.g., a delay in the operational benefits). If Alternative B is implemented the air quality impacts during construction would occur up to one year later depending when facility operators decide to install SCR systems on their affected equipment. Once the SCR systems are installed and operational, the hazards and hazardous materials impacts would be the same. Like the proposed project, Alternative B is implemented, the project objectives would be achieved and equivalent significant adverse environmental impacts for the topics of air quality during construction and hazards and hazardous materials due to ammonia storage and use during operation would occur.

If Alternative C is implemented, the desired NOx emissions reductions would be achieved sooner (100 percent by January 1, 2021) than the proposed project. The earlier compliance date would apply to 25 percent of the units subject to Rules 1146 and 1146.1. For this reason, Alternative C provides equivalent NOx emission reductions on an expedited schedule when compared to the proposed project which will in turn allow for the corresponding benefits to air quality and public health to occur earlier. Of the significant adverse impacts from air quality during construction and hazards and hazardous materials that would be generated under Alternative C, the impacts would be greater than the proposed project, because of the compressed schedule; however, the project objectives would be achieved.

If Alternative D is implemented, all units subject to Rules 1146 and 1146.1 would be required to install ultra-low NOx burners to meet NOx emission limits of nine ppm (or 0.011 pound per MMBtu) by the same compliance date as the proposed project (75 percent of units by January 1, 2021 and 100 percent of units by January 1, 2022). Alternative D would result in fewer NOx emissions reductions than the proposed project without achieving BARCT NOx emissions equivalency. Thus, Alternative D would result in reduced benefits to public health and air quality and would not achieve all of the project objectives. If Alternative D is implemented, no SCR systems would be installed and no ammonia would be needed such that there would be less than significant air quality impacts during construction and the significant adverse hazards and hazardous materials impacts due to ammonia use would also be eliminated. For these reasons,

Alternative D is considered to be the environmentally superior alternative. However, the project's objectives would not be achieved.

If Alternative E is implemented, units with a rated heat input of greater than or equal to 75~~40~~ MMBtu per hour would be required to meet a five ppm NOx emission limit. Alternative E would require Group II and Group III units to meet nine ppm (or 0.011 pounds per MMBtu) instead of five ppm (or 0.0062 pound per MMBtu) for Group II units with an existing NOx limit greater than 12 ppm and seven ppm (or 0.0085 pound per MMBtu) for Group II units with an existing NOx limit less than 12 ppm and Group III fire-tube boilers. Under Alternative E, any units with a rated heat input greater than two but less than five MMBtu per hour would need to meet nine ppm. In the proposed project, units with a rated heat input greater than two but less than five MMBtu per hour are required to meet seven ppm for fire-tube boilers and water-tube boilers would need to meet nine ppm. In addition, under Alternative E, thermal fluid heaters would remain at the current NOx emission limit of 30 ppm (or 0.037 pound per MMBtu). Under Alternative E, the affected units will have the same compliance deadline as the proposed project (e.g., 75 percent of units by January 1, 2021 and 100 percent compliance by January 1, 2022). ~~To achieve a five ppm NOx emission limit, the subset of Group II units (with a rated heat input of greater than or equal to 40 MMBtu, but less than 75 MMBtu) would need to have SCR systems.~~ Because less SCR systems would be need to be installed to meet NOx emissions limits, Alternative E is less stringent than the proposed project. However, t~~T~~he installation of additional SCR systems would result in less than significant impacts to air quality during construction and significant adverse impacts t~~o air quality during construction and~~ hazards and hazardous materials for ammonia. If Alternative E is implemented, the air quality impacts are expected to be less~~greater~~ on a peak day than the proposed project, because ~~of the installation of~~ fewer additional SCR systems will be installed. The impacts from the hazards and hazardous materials for ammonia may be equivalent or less~~greater~~ than the proposed project depending on the location and size of the ammonia storage tanks required by the construction of the additional SCR system and the proximity to sensitive receptors. Because less~~more~~ units would have SCR systems installed and in turn would result in fewer ~~less allow for greater~~ NOx emission reductions than ~~would otherwise occur if the same units only had the burners replaced with ultra-low NOx burners~~ under the proposed project, Alternative E would be less ~~more~~ stringent than the proposed project. Alternative E would not~~also~~ achieve all of the project objectives and still~~while~~ create~~ing~~ significant adverse impacts to air quality during construction ~~than the proposed project~~ and possibly for hazards and hazardous materials for ammonia storage and use.

In summary, of the five alternatives, Alternative D would be considered the environmentally superior alternative.

CONCLUSION

Of the five alternatives analyzed, Alternative A would generate the least severe and fewest number of environmental impacts compared to the proposed project. However, of the project alternatives, Alternative A would achieve the fewest of the project objectives and would have the fewest NOx emission reduction benefits.

Thus, from a hazard and air toxics perspective, when compared to the other alternatives under consideration, if implemented, Alternative D is considered to be the lowest toxic alternative and the environmentally superior alternative. However, Alternative D does not achieve the same amount of NOx emission reductions that would result if the proposed project is implemented.

Thus, when comparing the environmental effects of the project alternatives with the proposed project and evaluating the effectiveness of achieving the project objectives of the proposed project versus the project alternatives, the proposed project provides the best balance in achieving the project objectives while minimizing the significant adverse environmental impacts to air quality during construction and hazards and hazardous materials.

APPENDICES

APPENDIX A

PARs 1146 SERIES AND PR 1100

In order to save space and avoid repetition, please refer to the latest versions of PARs 1146 series and PR 1100 located elsewhere in the Governing Board Package (meeting date December 7, 2018). The versions of PARs 1146 series and PR 1100 that were circulated with the Revised Draft SEA which was released on September 27, 2018 for a 45-day public review and comment period ending on November 13, 2018 was identified in Appendix A as follows:

PAR 1146 was identified as version "PAR September 18, 2018"
PAR 1146.1 was identified as version "PAR September 18, 2018"
PAR 1146.2 was identified as version "PAR September 18, 2018"
PR 1100 was identified as version "PR September 18, 2018"

Original hard copies of the Revised Draft EA, which include the draft version of the proposed amended rule listed above, can be obtained through the SCAQMD Public Information Center at the Diamond Bar headquarters or by contacting Fabian Wesson, Public Advisor at the SCAQMD's Public Information Center by phone at (909) 396-2039 or by email at PICrequests@aqmd.gov.

APPENDIX B

ASSUMPTIONS AND CALCULATIONS

APPENDIX B-1

CalEEMod Files and Assumptions – Construction Emissions (SCR system)

CalEEMod Files and Assumptions – Construction Emissions

Construction of a SCR System (Annual)

PAR 1146 series SCR - South Coast AQMD Air District, Annual

PAR 1146 series SCR

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

PAR 1146 series SCR - South Coast AQMD Air District, Annual

Project Characteristics -

Land Use - User Defined Industrial

Construction Phase - SCR: Demolition: 10 days; Site Preparation: 2 days; Building Construction: 250 days; Paving: 5 days

Off-road Equipment - No Arch. Coating

Off-road Equipment - Cranes (1): 6 hours per day; Forklifts (1): 6 hours per day; Generator Sets (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 6 hours per day; Welders (2): 8 hours per day; Aerial Lifts (1): 8 hours per day

Off-road Equipment - Concrete/Industrial Saws (1): 8 hours per day; Rubber Tired Dozers (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Cranes (1): 8 hours per day

Off-road Equipment - Cement and Mortar Mixers (1): 6 hours per day; Paving Equipment (1): 8 hours per day; Plate Compactors (1): 6 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day

Off-road Equipment - Rubber Tired Dozers (1): 7 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Trenchers (1): 8 hours per day

Demolition - 1 acre = 43,560 square feet

Trips and VMT - Demolition: 15 Worker Trips, 0 Vendor Trips, 5 Hauling Trips
Site Preparation: 8 Work Trips, 0 Vendor Trips, 0 Hauling Trips
Building Construction: 18 Worker Trips, 7 Vendor Trips, 0 Hauling Trips
Paving: 13 Worker Trips, 0 Vendor Trips, 0 Hauling Trips

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	250.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	2.00
tblConstructionPhase	PhaseEndDate	2/21/2018	1/3/2020
tblConstructionPhase	PhaseEndDate	2/21/2018	1/14/2019
tblConstructionPhase	PhaseEndDate	2/21/2018	1/10/2020
tblConstructionPhase	PhaseEndDate	2/21/2018	1/16/2019
tblConstructionPhase	PhaseStartDate	2/22/2018	1/20/2019
tblConstructionPhase	PhaseStartDate	2/22/2018	1/1/2019
tblConstructionPhase	PhaseStartDate	2/22/2018	1/4/2020

PAR 1146 series SCR - South Coast AQMD Air District, Annual

tblConstructionPhase	PhaseStartDate	2/22/2018	1/15/2019
tblGrading	AcresOfGrading	1.00	0.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	132.00	131.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	78.00	81.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType	Pavers	Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	1.00	8.00

PAR 1146 series SCR - South Coast AQMD Air District, Annual

tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	198.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	7.00
tblTripsAndVMT	WorkerTripNumber	0.00	18.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	13.00
tblTripsAndVMT	WorkerTripNumber	10.00	8.00

2.0 Emissions Summary

PAR 1146 series SCR - South Coast AQMD Air District, Annual

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					
2019	0.2650	2.0945	1.7949	3.2300e-003	0.0575	0.1102	0.1677	0.0145	0.1057	0.1202	0.0000	278.3107	278.3107	0.0508	0.0000	279.5795
2020	5.1400e-003	0.0445	0.0448	8.0000e-005	7.2000e-004	2.3300e-003	3.0500e-003	1.9000e-004	2.1900e-003	2.3800e-003	0.0000	6.6282	6.6282	1.5500e-003	0.0000	6.6669
Maximum	**0.2650**	**2.0945**	**1.7949**	**3.2300e-003**	**0.0575**	**0.1102**	**0.1677**	**0.0145**	**0.1057**	**0.1202**	**0.0000**	**278.3107**	**278.3107**	**0.0508**	**0.0000**	**279.5795**

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					
2019	0.2650	2.0945	1.7949	3.2300e-003	0.0575	0.1102	0.1677	0.0145	0.1057	0.1202	0.0000	278.3104	278.3104	0.0508	0.0000	279.5792
2020	5.1400e-003	0.0445	0.0448	8.0000e-005	7.2000e-004	2.3300e-003	3.0500e-003	1.9000e-004	2.1900e-003	2.3800e-003	0.0000	6.6282	6.6282	1.5500e-003	0.0000	6.6669
Maximum	**0.2650**	**2.0945**	**1.7949**	**3.2300e-003**	**0.0575**	**0.1102**	**0.1677**	**0.0145**	**0.1057**	**0.1202**	**0.0000**	**278.3104**	**278.3104**	**0.0508**	**0.0000**	**279.5792**

	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**

PAR 1146 series SCR - South Coast AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
4	11-22-2018	2-21-2019	0.3551	0.3551
5	2-22-2019	5-21-2019	0.5678	0.5678
6	5-22-2019	8-21-2019	0.5867	0.5867
7	8-22-2019	11-21-2019	0.5870	0.5870
8	11-22-2019	2-21-2020	0.2979	0.2979
		Highest	0.5870	0.5870

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						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**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						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**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	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

PAR 1146 series SCR - South Coast AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/14/2019	5	10	
2	Site Preparation	Site Preparation	1/15/2019	1/16/2019	5	2	
3	Building Construction	Building Construction	1/20/2019	1/3/2020	5	250	
4	Paving	Paving	1/4/2020	1/10/2020	5	5	

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: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

PAR 1146 series SCR - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Paving	Paving Equipment	1	8.00	131	0.36
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Paving	Plate Compactors	1	6.00	8	0.43
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Welders	2	8.00	46	0.45
Building Construction	Aerial Lifts	1	8.00	63	0.31
Demolition	Cranes	1	8.00	226	0.29
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Trenchers	1	8.00	81	0.50
Building Construction	Tractors/Loaders/Backhoes	1	6.00	98	0.37
Site Preparation	Graders	1	8.00	187	0.41
Paving	Cement and Mortar Mixers	1	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	8.00	98	0.37

Trips and VMT

PAR 1146 series SCR - South Coast AQMD Air District, Annual

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
Building Construction	7	18.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	4	15.00	0.00	5.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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					0.0214	0.0000	0.0214	3.2500e-003	0.0000	3.2500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.1142	0.0840	1.2000e-004		5.7200e-003	5.7200e-003		5.3500e-003	5.3500e-003	0.0000	10.6175	10.6175	2.7000e-003	0.0000	10.6849
Total	**0.0111**	**0.1142**	**0.0840**	**1.2000e-004**	**0.0214**	**5.7200e-003**	**0.0272**	**3.2500e-003**	**5.3500e-003**	**8.6000e-003**	**0.0000**	**10.6175**	**10.6175**	**2.7000e-003**	**0.0000**	**10.6849**

PAR 1146 series SCR - South Coast AQMD Air District, Annual

3.2 Demolition - 2019

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	2.0000e-005	7.5000e-004	1.4000e-004	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1906	0.1906	1.0000e-005	0.0000	0.1909
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	3.6000e-004	2.9000e-004	3.1300e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7645	0.7645	2.0000e-005	0.0000	0.7651
Total	**3.8000e-004**	**1.0400e-003**	**3.2700e-003**	**1.0000e-005**	**8.6000e-004**	**1.0000e-005**	**8.8000e-004**	**2.3000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.9551**	**0.9551**	**3.0000e-005**	**0.0000**	**0.9560**

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					0.0214	0.0000	0.0214	3.2500e-003	0.0000	3.2500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.1142	0.0840	1.2000e-004		5.7200e-003	5.7200e-003		5.3500e-003	5.3500e-003	0.0000	10.6174	10.6174	2.7000e-003	0.0000	10.6849
Total	**0.0111**	**0.1142**	**0.0840**	**1.2000e-004**	**0.0214**	**5.7200e-003**	**0.0272**	**3.2500e-003**	**5.3500e-003**	**8.6000e-003**	**0.0000**	**10.6174**	**10.6174**	**2.7000e-003**	**0.0000**	**10.6849**

PAR 1146 series SCR - South Coast AQMD Air District, Annual

3.2 Demolition - 2019

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	2.0000e-005	7.5000e-004	1.4000e-004	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1906	0.1906	1.0000e-005	0.0000	0.1909
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	3.6000e-004	2.9000e-004	3.1300e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7645	0.7645	2.0000e-005	0.0000	0.7651
Total	**3.8000e-004**	**1.0400e-003**	**3.2700e-003**	**1.0000e-005**	**8.6000e-004**	**1.0000e-005**	**8.8000e-004**	**2.3000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.9551**	**0.9551**	**3.0000e-005**	**0.0000**	**0.9560**

3.3 Site Preparation - 2019

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					5.2700e-003	0.0000	5.2700e-003	2.9000e-003	0.0000	2.9000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0800e-003	0.0227	0.0144	2.0000e-005		1.1200e-003	1.1200e-003		1.0300e-003	1.0300e-003	0.0000	1.8948	1.8948	6.0000e-004	0.0000	1.9098
Total	**2.0800e-003**	**0.0227**	**0.0144**	**2.0000e-005**	**5.2700e-003**	**1.1200e-003**	**6.3900e-003**	**2.9000e-003**	**1.0300e-003**	**3.9300e-003**	**0.0000**	**1.8948**	**1.8948**	**6.0000e-004**	**0.0000**	**1.9098**

PAR 1146 series SCR - South Coast AQMD Air District, Annual

3.3 Site Preparation - 2019

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	4.0000e-005	3.0000e-005	3.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0815	0.0815	0.0000	0.0000	0.0816
Total	**4.0000e-005**	**3.0000e-005**	**3.3000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0815**	**0.0815**	**0.0000**	**0.0000**	**0.0816**

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					5.2700e-003	0.0000	5.2700e-003	2.9000e-003	0.0000	2.9000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0800e-003	0.0227	0.0144	2.0000e-005		1.1200e-003	1.1200e-003		1.0300e-003	1.0300e-003	0.0000	1.8948	1.8948	6.0000e-004	0.0000	1.9098
Total	**2.0800e-003**	**0.0227**	**0.0144**	**2.0000e-005**	**5.2700e-003**	**1.1200e-003**	**6.3900e-003**	**2.9000e-003**	**1.0300e-003**	**3.9300e-003**	**0.0000**	**1.8948**	**1.8948**	**6.0000e-004**	**0.0000**	**1.9098**

PAR 1146 series SCR - South Coast AQMD Air District, Annual

3.3 Site Preparation - 2019

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	4.0000e-005	3.0000e-005	3.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0815	0.0815	0.0000	0.0000	0.0816
Total	**4.0000e-005**	**3.0000e-005**	**3.3000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0815**	**0.0815**	**0.0000**	**0.0000**	**0.0816**

3.4 Building Construction - 2019

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	0.2373	1.8472	1.5750	2.6100e-003		0.1025	0.1025		0.0985	0.0985	0.0000	220.7004	220.7004	0.0452	0.0000	221.8311
Total	**0.2373**	**1.8472**	**1.5750**	**2.6100e-003**		**0.1025**	**0.1025**		**0.0985**	**0.0985**	**0.0000**	**220.7004**	**220.7004**	**0.0452**	**0.0000**	**221.8311**

PAR 1146 series SCR - South Coast AQMD Air District, Annual

3.4 Building Construction - 2019

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	3.4000e-003	0.1008	0.0253	2.2000e-004	5.4500e-003	6.6000e-004	6.1100e-003	1.5700e-003	6.3000e-004	2.2000e-003	0.0000	21.4025	21.4025	1.4800e-003	0.0000	21.4395
Worker	0.0107	8.5300e-003	0.0927	2.5000e-004	0.0244	1.9000e-004	0.0246	6.4800e-003	1.8000e-004	6.6600e-003	0.0000	22.6589	22.6589	7.1000e-004	0.0000	22.6766
Total	**0.0141**	**0.1093**	**0.1180**	**4.7000e-004**	**0.0298**	**8.5000e-004**	**0.0307**	**8.0500e-003**	**8.1000e-004**	**8.8600e-003**	**0.0000**	**44.0614**	**44.0614**	**2.1900e-003**	**0.0000**	**44.1161**

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	0.2373	1.8472	1.5750	2.6100e-003		0.1025	0.1025		0.0985	0.0985	0.0000	220.7002	220.7002	0.0452	0.0000	221.8308
Total	**0.2373**	**1.8472**	**1.5750**	**2.6100e-003**		**0.1025**	**0.1025**		**0.0985**	**0.0985**	**0.0000**	**220.7002**	**220.7002**	**0.0452**	**0.0000**	**221.8308**

PAR 1146 series SCR - South Coast AQMD Air District, Annual

3.4 Building Construction - 2019

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	3.4000e-003	0.1008	0.0253	2.2000e-004	5.4500e-003	6.6000e-004	6.1100e-003	1.5700e-003	6.3000e-004	2.2000e-003	0.0000	21.4025	21.4025	1.4800e-003	0.0000	21.4395
Worker	0.0107	8.5300e-003	0.0927	2.5000e-004	0.0244	1.9000e-004	0.0246	6.4800e-003	1.8000e-004	6.6600e-003	0.0000	22.6589	22.6589	7.1000e-004	0.0000	22.6766
Total	**0.0141**	**0.1093**	**0.1180**	**4.7000e-004**	**0.0298**	**8.5000e-004**	**0.0307**	**8.0500e-003**	**8.1000e-004**	**8.8600e-003**	**0.0000**	**44.0614**	**44.0614**	**2.1900e-003**	**0.0000**	**44.1161**

3.4 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	2.5800e-003	0.0207	0.0188	3.0000e-005		1.0800e-003	1.0800e-003		1.0400e-003	1.0400e-003	0.0000	2.6529	2.6529	5.3000e-004	0.0000	2.6662
Total	**2.5800e-003**	**0.0207**	**0.0188**	**3.0000e-005**		**1.0800e-003**	**1.0800e-003**		**1.0400e-003**	**1.0400e-003**	**0.0000**	**2.6529**	**2.6529**	**5.3000e-004**	**0.0000**	**2.6662**

PAR 1146 series SCR - South Coast AQMD Air District, Annual

3.4 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	4.0000e-005	1.1200e-003	2.8000e-004	0.0000	7.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2583	0.2583	2.0000e-005	0.0000	0.2587
Worker	1.2000e-004	9.0000e-005	1.0200e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2669
Total	**1.6000e-004**	**1.2100e-003**	**1.3000e-003**	**0.0000**	**3.7000e-004**	**1.0000e-005**	**3.7000e-004**	**1.0000e-004**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.5249**	**0.5249**	**3.0000e-005**	**0.0000**	**0.5255**

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	2.5800e-003	0.0207	0.0188	3.0000e-005		1.0800e-003	1.0800e-003		1.0400e-003	1.0400e-003	0.0000	2.6529	2.6529	5.3000e-004	0.0000	2.6662
Total	**2.5800e-003**	**0.0207**	**0.0188**	**3.0000e-005**		**1.0800e-003**	**1.0800e-003**		**1.0400e-003**	**1.0400e-003**	**0.0000**	**2.6529**	**2.6529**	**5.3000e-004**	**0.0000**	**2.6662**

PAR 1146 series SCR - South Coast AQMD Air District, Annual

3.4 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	4.0000e-005	1.1200e-003	2.8000e-004	0.0000	7.0000e-005	1.0000e-005	7.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2583	0.2583	2.0000e-005	0.0000	0.2587
Worker	1.2000e-004	9.0000e-005	1.0200e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2669
Total	**1.6000e-004**	**1.2100e-003**	**1.3000e-003**	**0.0000**	**3.7000e-004**	**1.0000e-005**	**3.7000e-004**	**1.0000e-004**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.5249**	**0.5249**	**3.0000e-005**	**0.0000**	**0.5255**

3.5 Paving - 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	2.2600e-003	0.0225	0.0235	4.0000e-005		1.2400e-003	1.2400e-003		1.1400e-003	1.1400e-003	0.0000	3.1294	3.1294	9.8000e-004	0.0000	3.1539
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2600e-003**	**0.0225**	**0.0235**	**4.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**3.1294**	**3.1294**	**9.8000e-004**	**0.0000**	**3.1539**

3.5 Paving - 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	1.5000e-004	1.1000e-004	1.2300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3210	0.3210	1.0000e-005	0.0000	0.3212
Total	**1.5000e-004**	**1.1000e-004**	**1.2300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3210**	**0.3210**	**1.0000e-005**	**0.0000**	**0.3212**

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	2.2600e-003	0.0225	0.0235	4.0000e-005		1.2400e-003	1.2400e-003		1.1400e-003	1.1400e-003	0.0000	3.1294	3.1294	9.8000e-004	0.0000	3.1539
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2600e-003**	**0.0225**	**0.0235**	**4.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**3.1294**	**3.1294**	**9.8000e-004**	**0.0000**	**3.1539**

3.5 Paving - 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	1.5000e-004	1.1000e-004	1.2300e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3210	0.3210	1.0000e-005	0.0000	0.3212
Total	**1.5000e-004**	**1.1000e-004**	**1.2300e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3210**	**0.3210**	**1.0000e-005**	**0.0000**	**0.3212**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

PAR 1146 series SCR - South Coast AQMD Air District, Annual

	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

PAR 1146 series SCR - South Coast AQMD Air District, Annual

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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					
User Defined Industrial	0	0.0000	0.0000	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**

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	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

CalEEMod Files and Assumptions – Construction Emissions

Construction of a SCR System (Summer)

PAR 1146 series SCR - South Coast AQMD Air District, Summer

PAR 1146 series SCR

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

PAR 1146 series SCR - South Coast AQMD Air District, Summer

Project Characteristics -

Land Use - User Defined Industrial

Construction Phase - SCR: Demolition: 10 days; Site Preparation: 2 days; Building Construction: 250 days; Paving: 5 days

Off-road Equipment - No Arch. Coating

Off-road Equipment - Cranes (1): 6 hours per day; Forklifts (1): 6 hours per day; Generator Sets (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 6 hours per day; Welders (2): 8 hours per day; Aerial Lifts (1): 8 hours per day

Off-road Equipment - Concrete/Industrial Saws (1): 8 hours per day; Rubber Tired Dozers (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Cranes (1): 8 hours per day

Off-road Equipment - Cement and Mortar Mixers (1): 6 hours per day; Paving Equipment (1): 8 hours per day; Plate Compactors (1): 6 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day

Off-road Equipment - Rubber Tired Dozers (1): 7 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Trenchers (1): 8 hours per day

Demolition - 1 acre = 43,560 square feet

Trips and VMT - Demolition: 15 Worker Trips, 0 Vendor Trips, 5 Hauling Trips
Site Preparation: 8 Work Trips, 0 Vendor Trips, 0 Hauling Trips
Building Construction: 18 Worker Trips, 7 Vendor Trips, 0 Hauling Trips
Paving: 13 Worker Trips, 0 Vendor Trips, 0 Hauling Trips

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	250.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	2.00
tblConstructionPhase	PhaseEndDate	2/21/2018	1/3/2020
tblConstructionPhase	PhaseEndDate	2/21/2018	1/14/2019
tblConstructionPhase	PhaseEndDate	2/21/2018	1/10/2020
tblConstructionPhase	PhaseEndDate	2/21/2018	1/16/2019
tblConstructionPhase	PhaseStartDate	2/22/2018	1/20/2019
tblConstructionPhase	PhaseStartDate	2/22/2018	1/1/2019
tblConstructionPhase	PhaseStartDate	2/22/2018	1/4/2020

PAR 1146 series SCR - South Coast AQMD Air District, Summer

tblConstructionPhase	PhaseStartDate	2/22/2018	1/15/2019
tblGrading	AcresOfGrading	1.00	0.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	132.00	131.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	78.00	81.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType	Pavers	Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	1.00	8.00

PAR 1146 series SCR - South Coast AQMD Air District, Summer

tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	198.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	7.00
tblTripsAndVMT	WorkerTripNumber	0.00	18.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	13.00
tblTripsAndVMT	WorkerTripNumber	10.00	8.00

2.0 Emissions Summary

PAR 1146 series SCR - South Coast AQMD Air District, Summer

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					
2019	2.2939	23.0369	17.4919	0.0261	5.3588	1.1452	6.4825	2.9202	1.0719	3.9540	0.0000	2,560.2379	2,560.2379	0.6638	0.0000	2,575.3184
2020	1.8267	14.5786	13.4094	0.0250	0.2460	0.7260	0.9720	0.0663	0.6976	0.7639	0.0000	2,347.6649	2,347.6649	0.4365	0.0000	2,357.8954
Maximum	**2.2939**	**23.0369**	**17.4919**	**0.0261**	**5.3588**	**1.1452**	**6.4825**	**2.9202**	**1.0719**	**3.9540**	**0.0000**	**2,560.2379**	**2,560.2379**	**0.6638**	**0.0000**	**2,575.3184**

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					
2019	2.2939	23.0369	17.4919	0.0261	5.3588	1.1452	6.4825	2.9202	1.0719	3.9540	0.0000	2,560.2379	2,560.2379	0.6638	0.0000	2,575.3184
2020	1.8267	14.5786	13.4094	0.0250	0.2460	0.7260	0.9720	0.0663	0.6976	0.7639	0.0000	2,347.6649	2,347.6649	0.4365	0.0000	2,357.8954
Maximum	**2.2939**	**23.0369**	**17.4919**	**0.0261**	**5.3588**	**1.1452**	**6.4825**	**2.9202**	**1.0719**	**3.9540**	**0.0000**	**2,560.2379**	**2,560.2379**	**0.6638**	**0.0000**	**2,575.3184**

	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**

PAR 1146 series SCR - South Coast AQMD Air District, Summer

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

PAR 1146 series SCR - South Coast AQMD Air District, Summer

	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	1/1/2019	1/14/2019	5	10	
2	Site Preparation	Site Preparation	1/15/2019	1/16/2019	5	2	
3	Building Construction	Building Construction	1/20/2019	1/3/2020	5	250	
4	Paving	Paving	1/4/2020	1/10/2020	5	5	

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: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

PAR 1146 series SCR - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Paving	Paving Equipment	1	8.00	131	0.36
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Paving	Plate Compactors	1	6.00	8	0.43
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Welders	2	8.00	46	0.45
Building Construction	Aerial Lifts	1	8.00	63	0.31
Demolition	Cranes	1	8.00	226	0.29
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Trenchers	1	8.00	81	0.50
Building Construction	Tractors/Loaders/Backhoes	1	6.00	98	0.37
Site Preparation	Graders	1	8.00	187	0.41
Paving	Cement and Mortar Mixers	1	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	8.00	98	0.37

Trips and VMT

PAR 1146 series SCR - South Coast AQMD Air District, Summer

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
Building Construction	7	18.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	4	15.00	0.00	5.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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					4.2879	0.0000	4.2879	0.6492	0.0000	0.6492			0.0000			0.0000
Off-Road	2.2163	22.8402	16.7900	0.0239		1.1433	1.1433		1.0702	1.0702		2,340.7487	2,340.7487	0.5948		2,355.6184
Total	**2.2163**	**22.8402**	**16.7900**	**0.0239**	**4.2879**	**1.1433**	**5.4312**	**0.6492**	**1.0702**	**1.7194**		**2,340.7487**	**2,340.7487**	**0.5948**		**2,355.6184**

3.2 Demolition - 2019

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	4.1100e-003	0.1456	0.0279	3.9000e-004	8.7400e-003	5.4000e-004	9.2800e-003	2.3900e-003	5.2000e-004	2.9100e-003		42.3409	42.3409	2.8900e-003		42.4131
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
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0776**	**0.1967**	**0.7019**	**2.1700e-003**	**0.1764**	**1.8400e-003**	**0.1783**	**0.0469**	**1.7200e-003**	**0.0486**		**219.4892**	**219.4892**	**8.4300e-003**		**219.6999**

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					4.2879	0.0000	4.2879	0.6492	0.0000	0.6492			0.0000			0.0000
Off-Road	2.2163	22.8402	16.7900	0.0239		1.1433	1.1433		1.0702	1.0702	0.0000	2,340.7487	2,340.7487	0.5948		2,355.6184
Total	**2.2163**	**22.8402**	**16.7900**	**0.0239**	**4.2879**	**1.1433**	**5.4312**	**0.6492**	**1.0702**	**1.7194**	**0.0000**	**2,340.7487**	**2,340.7487**	**0.5948**		**2,355.6184**

3.2 Demolition - 2019

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	4.1100e-003	0.1456	0.0279	3.9000e-004	8.7400e-003	5.4000e-004	9.2800e-003	2.3900e-003	5.2000e-004	2.9100e-003		42.3409	42.3409	2.8900e-003		42.4131
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
Worker	0.0735	0.0511	0.6740	1.7800e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		177.1484	177.1484	5.5400e-003		177.2869
Total	**0.0776**	**0.1967**	**0.7019**	**2.1700e-003**	**0.1764**	**1.8400e-003**	**0.1783**	**0.0469**	**1.7200e-003**	**0.0486**		**219.4892**	**219.4892**	**8.4300e-003**		**219.6999**

3.3 Site Preparation - 2019

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					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	2.0758	22.6996	14.3849	0.0211		1.1231	1.1231		1.0332	1.0332		2,088.6792	2,088.6792	0.6608		2,105.2001
Total	**2.0758**	**22.6996**	**14.3849**	**0.0211**	**5.2693**	**1.1231**	**6.3924**	**2.8965**	**1.0332**	**3.9297**		**2,088.6792**	**2,088.6792**	**0.6608**		**2,105.2001**

PAR 1146 series SCR - South Coast AQMD Air District, Summer

3.3 Site Preparation - 2019

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	0.0000	0.0000	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	0.0392	0.0273	0.3595	9.5000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.4000e-004	0.0244		94.4791	94.4791	2.9500e-003		94.5530
Total	**0.0392**	**0.0273**	**0.3595**	**9.5000e-004**	**0.0894**	**7.0000e-004**	**0.0901**	**0.0237**	**6.4000e-004**	**0.0244**		**94.4791**	**94.4791**	**2.9500e-003**		**94.5530**

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					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	2.0758	22.6996	14.3849	0.0211		1.1231	1.1231		1.0332	1.0332	0.0000	2,088.6792	2,088.6792	0.6608		2,105.2001
Total	**2.0758**	**22.6996**	**14.3849**	**0.0211**	**5.2693**	**1.1231**	**6.3924**	**2.8965**	**1.0332**	**3.9297**	**0.0000**	**2,088.6792**	**2,088.6792**	**0.6608**		**2,105.2001**

3.3 Site Preparation - 2019

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	0.0000	0.0000	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	0.0392	0.0273	0.3595	9.5000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.4000e-004	0.0244		94.4791	94.4791	2.9500e-003		94.5530
Total	**0.0392**	**0.0273**	**0.3595**	**9.5000e-004**	**0.0894**	**7.0000e-004**	**0.0901**	**0.0237**	**6.4000e-004**	**0.0244**		**94.4791**	**94.4791**	**2.9500e-003**		**94.5530**

3.4 Building Construction - 2019

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	1.9213	14.9573	12.7532	0.0211		0.8300	0.8300		0.7976	0.7976		1,969.8833	1,969.8833	0.4037		1,979.9752
Total	**1.9213**	**14.9573**	**12.7532**	**0.0211**		**0.8300**	**0.8300**		**0.7976**	**0.7976**		**1,969.8833**	**1,969.8833**	**0.4037**		**1,979.9752**

PAR 1146 series SCR - South Coast AQMD Air District, Summer

3.4 Building Construction - 2019

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	0.0270	0.8010	0.1936	1.8100e-003	0.0448	5.3100e-003	0.0501	0.0129	5.0800e-003	0.0180		193.3538	193.3538	0.0128		193.6736
Worker	0.0882	0.0613	0.8088	2.1400e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4400e-003	0.0548		212.5780	212.5780	6.6500e-003		212.7442
Total	**0.1151**	**0.8623**	**1.0024**	**3.9500e-003**	**0.2460**	**6.8800e-003**	**0.2529**	**0.0663**	**6.5200e-003**	**0.0728**		**405.9318**	**405.9318**	**0.0194**		**406.4179**

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	1.9213	14.9573	12.7532	0.0211		0.8300	0.8300		0.7976	0.7976	0.0000	1,969.8833	1,969.8833	0.4037		1,979.9752
Total	**1.9213**	**14.9573**	**12.7532**	**0.0211**		**0.8300**	**0.8300**		**0.7976**	**0.7976**	**0.0000**	**1,969.8833**	**1,969.8833**	**0.4037**		**1,979.9752**

3.4 Building Construction - 2019

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	0.0270	0.8010	0.1936	1.8100e-003	0.0448	5.3100e-003	0.0501	0.0129	5.0800e-003	0.0180		193.3538	193.3538	0.0128		193.6736
Worker	0.0882	0.0613	0.8088	2.1400e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4400e-003	0.0548		212.5780	212.5780	6.6500e-003		212.7442
Total	**0.1151**	**0.8623**	**1.0024**	**3.9500e-003**	**0.2460**	**6.8800e-003**	**0.2529**	**0.0663**	**6.5200e-003**	**0.0728**		**405.9318**	**405.9318**	**0.0194**		**406.4179**

3.4 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	1.7223	13.7893	12.4986	0.0211		0.7208	0.7208		0.6927	0.6927		1,949.5559	1,949.5559	0.3912		1,959.3368
Total	**1.7223**	**13.7893**	**12.4986**	**0.0211**		**0.7208**	**0.7208**		**0.6927**	**0.6927**		**1,949.5559**	**1,949.5559**	**0.3912**		**1,959.3368**

PAR 1146 series SCR - South Coast AQMD Air District, Summer

3.4 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	0.0230	0.7346	0.1749	1.8000e-003	0.0448	3.6400e-003	0.0484	0.0129	3.4800e-003	0.0164		192.1139	192.1139	0.0121		192.4155
Worker	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432
Total	**0.1044**	**0.7893**	**0.9108**	**3.8700e-003**	**0.2460**	**5.1700e-003**	**0.2512**	**0.0663**	**4.8900e-003**	**0.0711**		**398.1091**	**398.1091**	**0.0180**		**398.5587**

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	1.7223	13.7893	12.4986	0.0211		0.7208	0.7208		0.6927	0.6927	0.0000	1,949.5559	1,949.5559	0.3912		1,959.3368
Total	**1.7223**	**13.7893**	**12.4986**	**0.0211**		**0.7208**	**0.7208**		**0.6927**	**0.6927**	**0.0000**	**1,949.5559**	**1,949.5559**	**0.3912**		**1,959.3368**

PAR 1146 series SCR - South Coast AQMD Air District, Summer

3.4 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	0.0230	0.7346	0.1749	1.8000e-003	0.0448	3.6400e-003	0.0484	0.0129	3.4800e-003	0.0164		192.1139	192.1139	0.0121		192.4155
Worker	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432
Total	**0.1044**	**0.7893**	**0.9108**	**3.8700e-003**	**0.2460**	**5.1700e-003**	**0.2512**	**0.0663**	**4.8900e-003**	**0.0711**		**398.1091**	**398.1091**	**0.0180**		**398.5587**

3.5 Paving - 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	0.9037	8.9966	9.4003	0.0145		0.4945	0.4945		0.4564	0.4564		1,379.8266	1,379.8266	0.4323		1,390.6332
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9037**	**8.9966**	**9.4003**	**0.0145**		**0.4945**	**0.4945**		**0.4564**	**0.4564**		**1,379.8266**	**1,379.8266**	**0.4323**		**1,390.6332**

3.5 Paving - 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	0.0000	0.0000	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	0.0588	0.0395	0.5315	1.4900e-003	0.1453	1.1000e-003	0.1464	0.0385	1.0200e-003	0.0396		148.7743	148.7743	4.2800e-003		148.8812
Total	**0.0588**	**0.0395**	**0.5315**	**1.4900e-003**	**0.1453**	**1.1000e-003**	**0.1464**	**0.0385**	**1.0200e-003**	**0.0396**		**148.7743**	**148.7743**	**4.2800e-003**		**148.8812**

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	0.9037	8.9966	9.4003	0.0145		0.4945	0.4945		0.4564	0.4564	0.0000	1,379.8266	1,379.8266	0.4323		1,390.6332
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9037**	**8.9966**	**9.4003**	**0.0145**		**0.4945**	**0.4945**		**0.4564**	**0.4564**	**0.0000**	**1,379.8266**	**1,379.8266**	**0.4323**		**1,390.6332**

3.5 Paving - 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	0.0000	0.0000	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	0.0588	0.0395	0.5315	1.4900e-003	0.1453	1.1000e-003	0.1464	0.0385	1.0200e-003	0.0396		148.7743	148.7743	4.2800e-003		148.8812
Total	**0.0588**	**0.0395**	**0.5315**	**1.4900e-003**	**0.1453**	**1.1000e-003**	**0.1464**	**0.0385**	**1.0200e-003**	**0.0396**		**148.7743**	**148.7743**	**4.2800e-003**		**148.8812**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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					
User Defined Industrial	0	0.0000	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**

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					
User Defined Industrial	0	0.0000	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**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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

CalEEMod Files and Assumptions – Construction Emissions

Construction of a SCR System (Winter)

PAR 1146 series SCR

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

PAR 1146 series SCR - South Coast AQMD Air District, Winter

Project Characteristics -

Land Use - User Defined Industrial

Construction Phase - SCR: Demolition: 10 days; Site Preparation: 2 days; Building Construction: 250 days; Paving: 5 days

Off-road Equipment - No Arch. Coating

Off-road Equipment - Cranes (1): 6 hours per day; Forklifts (1): 6 hours per day; Generator Sets (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 6 hours per day; Welders (2): 8 hours per day; Aerial Lifts (1): 8 hours per day

Off-road Equipment - Concrete/Industrial Saws (1): 8 hours per day; Rubber Tired Dozers (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Cranes (1): 8 hours per day

Off-road Equipment - Cement and Mortar Mixers (1): 6 hours per day; Paving Equipment (1): 8 hours per day; Plate Compactors (1): 6 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day

Off-road Equipment - Rubber Tired Dozers (1): 7 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Trenchers (1): 8 hours per day

Demolition - 1 acre = 43,560 square feet

Trips and VMT - Demolition: 15 Worker Trips, 0 Vendor Trips, 5 Hauling Trips
Site Preparation: 8 Work Trips, 0 Vendor Trips, 0 Hauling Trips
Building Construction: 18 Worker Trips, 7 Vendor Trips, 0 Hauling Trips
Paving: 13 Worker Trips, 0 Vendor Trips, 0 Hauling Trips

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	250.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	2.00
tblConstructionPhase	PhaseEndDate	2/21/2018	1/3/2020
tblConstructionPhase	PhaseEndDate	2/21/2018	1/14/2019
tblConstructionPhase	PhaseEndDate	2/21/2018	1/10/2020
tblConstructionPhase	PhaseEndDate	2/21/2018	1/16/2019
tblConstructionPhase	PhaseStartDate	2/22/2018	1/20/2019
tblConstructionPhase	PhaseStartDate	2/22/2018	1/1/2019
tblConstructionPhase	PhaseStartDate	2/22/2018	1/4/2020

PAR 1146 series SCR - South Coast AQMD Air District, Winter

tblConstructionPhase	PhaseStartDate	2/22/2018	1/15/2019
tblGrading	AcresOfGrading	1.00	0.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	132.00	131.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	78.00	81.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	LoadFactor	0.29	0.29
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType	Pavers	Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType	Rollers	Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Cranes
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	1.00	8.00

tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	6.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	198.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	7.00
tblTripsAndVMT	WorkerTripNumber	0.00	18.00
tblTripsAndVMT	WorkerTripNumber	10.00	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	13.00
tblTripsAndVMT	WorkerTripNumber	10.00	8.00

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					
2019	2.3005	23.0437	17.4282	0.0260	5.3588	1.1452	6.4825	2.9202	1.0720	3.9540	0.0000	2,548.0195	2,548.0195	0.6636	0.0000	2,563.0942
2020	1.8352	14.5830	13.3562	0.0248	0.2460	0.7260	0.9720	0.0663	0.6977	0.7639	0.0000	2,328.7805	2,328.7805	0.4363	0.0000	2,339.0234
Maximum	**2.3005**	**23.0437**	**17.4282**	**0.0260**	**5.3588**	**1.1452**	**6.4825**	**2.9202**	**1.0720**	**3.9540**	**0.0000**	**2,548.0195**	**2,548.0195**	**0.6636**	**0.0000**	**2,563.0942**

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					
2019	2.3005	23.0437	17.4282	0.0260	5.3588	1.1452	6.4825	2.9202	1.0720	3.9540	0.0000	2,548.0195	2,548.0195	0.6636	0.0000	2,563.0942
2020	1.8352	14.5830	13.3562	0.0248	0.2460	0.7260	0.9720	0.0663	0.6977	0.7639	0.0000	2,328.7805	2,328.7805	0.4363	0.0000	2,339.0234
Maximum	**2.3005**	**23.0437**	**17.4282**	**0.0260**	**5.3588**	**1.1452**	**6.4825**	**2.9202**	**1.0720**	**3.9540**	**0.0000**	**2,548.0195**	**2,548.0195**	**0.6636**	**0.0000**	**2,563.0942**

	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**

PAR 1146 series SCR - South Coast AQMD Air District, Winter

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

PAR 1146 series SCR - South Coast AQMD Air District, Winter

	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	1/1/2019	1/14/2019	5	10	
2	Site Preparation	Site Preparation	1/15/2019	1/16/2019	5	2	
3	Building Construction	Building Construction	1/20/2019	1/3/2020	5	250	
4	Paving	Paving	1/4/2020	1/10/2020	5	5	

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: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

PAR 1146 series SCR - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Paving	Paving Equipment	1	8.00	131	0.36
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Paving	Plate Compactors	1	6.00	8	0.43
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Welders	2	8.00	46	0.45
Building Construction	Aerial Lifts	1	8.00	63	0.31
Demolition	Cranes	1	8.00	226	0.29
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Trenchers	1	8.00	81	0.50
Building Construction	Tractors/Loaders/Backhoes	1	6.00	98	0.37
Site Preparation	Graders	1	8.00	187	0.41
Paving	Cement and Mortar Mixers	1	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	8.00	98	0.37

Trips and VMT

PAR 1146 series SCR - 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
Building Construction	7	18.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	4	15.00	0.00	5.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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					4.2879	0.0000	4.2879	0.6492	0.0000	0.6492			0.0000			0.0000
Off-Road	2.2163	22.8402	16.7900	0.0239		1.1433	1.1433		1.0702	1.0702		2,340.7487	2,340.7487	0.5948		2,355.6184
Total	**2.2163**	**22.8402**	**16.7900**	**0.0239**	**4.2879**	**1.1433**	**5.4312**	**0.6492**	**1.0702**	**1.7194**		**2,340.7487**	**2,340.7487**	**0.5948**		**2,355.6184**

3.2 Demolition - 2019

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	4.2300e-003	0.1475	0.0301	3.9000e-004	8.7400e-003	5.5000e-004	9.2900e-003	2.3900e-003	5.3000e-004	2.9200e-003		41.5725	41.5725	3.0200e-003		41.6480
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
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0842**	**0.2035**	**0.6382**	**2.0500e-003**	**0.1764**	**1.8500e-003**	**0.1783**	**0.0469**	**1.7300e-003**	**0.0486**		**207.2709**	**207.2709**	**8.2000e-003**		**207.4758**

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					4.2879	0.0000	4.2879	0.6492	0.0000	0.6492			0.0000			0.0000
Off-Road	2.2163	22.8402	16.7900	0.0239		1.1433	1.1433		1.0702	1.0702	0.0000	2,340.7487	2,340.7487	0.5948		2,355.6184
Total	**2.2163**	**22.8402**	**16.7900**	**0.0239**	**4.2879**	**1.1433**	**5.4312**	**0.6492**	**1.0702**	**1.7194**	**0.0000**	**2,340.7487**	**2,340.7487**	**0.5948**		**2,355.6184**

3.2 Demolition - 2019

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	4.2300e-003	0.1475	0.0301	3.9000e-004	8.7400e-003	5.5000e-004	9.2900e-003	2.3900e-003	5.3000e-004	2.9200e-003		41.5725	41.5725	3.0200e-003		41.6480
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
Worker	0.0800	0.0560	0.6081	1.6600e-003	0.1677	1.3000e-003	0.1690	0.0445	1.2000e-003	0.0457		165.6984	165.6984	5.1800e-003		165.8278
Total	**0.0842**	**0.2035**	**0.6382**	**2.0500e-003**	**0.1764**	**1.8500e-003**	**0.1783**	**0.0469**	**1.7300e-003**	**0.0486**		**207.2709**	**207.2709**	**8.2000e-003**		**207.4758**

3.3 Site Preparation - 2019

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					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	2.0758	22.6996	14.3849	0.0211		1.1231	1.1231		1.0332	1.0332		2,088.6792	2,088.6792	0.6608		2,105.2001
Total	**2.0758**	**22.6996**	**14.3849**	**0.0211**	**5.2693**	**1.1231**	**6.3924**	**2.8965**	**1.0332**	**3.9297**		**2,088.6792**	**2,088.6792**	**0.6608**		**2,105.2001**

3.3 Site Preparation - 2019

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	0.0000	0.0000	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	0.0427	0.0299	0.3243	8.9000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.4000e-004	0.0244		88.3725	88.3725	2.7600e-003		88.4415
Total	**0.0427**	**0.0299**	**0.3243**	**8.9000e-004**	**0.0894**	**7.0000e-004**	**0.0901**	**0.0237**	**6.4000e-004**	**0.0244**		**88.3725**	**88.3725**	**2.7600e-003**		**88.4415**

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					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	2.0758	22.6996	14.3849	0.0211		1.1231	1.1231		1.0332	1.0332	0.0000	2,088.6792	2,088.6792	0.6608		2,105.2001
Total	**2.0758**	**22.6996**	**14.3849**	**0.0211**	**5.2693**	**1.1231**	**6.3924**	**2.8965**	**1.0332**	**3.9297**	**0.0000**	**2,088.6792**	**2,088.6792**	**0.6608**		**2,105.2001**

3.3 Site Preparation - 2019

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	0.0000	0.0000	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	0.0427	0.0299	0.3243	8.9000e-004	0.0894	7.0000e-004	0.0901	0.0237	6.4000e-004	0.0244		88.3725	88.3725	2.7600e-003		88.4415
Total	**0.0427**	**0.0299**	**0.3243**	**8.9000e-004**	**0.0894**	**7.0000e-004**	**0.0901**	**0.0237**	**6.4000e-004**	**0.0244**		**88.3725**	**88.3725**	**2.7600e-003**		**88.4415**

3.4 Building Construction - 2019

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	1.9213	14.9573	12.7532	0.0211		0.8300	0.8300		0.7976	0.7976		1,969.8833	1,969.8833	0.4037		1,979.9752
Total	**1.9213**	**14.9573**	**12.7532**	**0.0211**		**0.8300**	**0.8300**		**0.7976**	**0.7976**		**1,969.8833**	**1,969.8833**	**0.4037**		**1,979.9752**

PAR 1146 series SCR - South Coast AQMD Air District, Winter

3.4 Building Construction - 2019

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	0.0282	0.8015	0.2156	1.7600e-003	0.0448	5.3900e-003	0.0502	0.0129	5.1600e-003	0.0181		187.8214	187.8214	0.0138		188.1651
Worker	0.0960	0.0672	0.7297	2.0000e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4400e-003	0.0548		198.8380	198.8380	6.2100e-003		198.9933
Total	**0.1242**	**0.8687**	**0.9453**	**3.7600e-003**	**0.2460**	**6.9600e-003**	**0.2530**	**0.0663**	**6.6000e-003**	**0.0729**		**386.6594**	**386.6594**	**0.0200**		**387.1584**

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	1.9213	14.9573	12.7532	0.0211		0.8300	0.8300		0.7976	0.7976	0.0000	1,969.8833	1,969.8833	0.4037		1,979.9752
Total	**1.9213**	**14.9573**	**12.7532**	**0.0211**		**0.8300**	**0.8300**		**0.7976**	**0.7976**	**0.0000**	**1,969.8833**	**1,969.8833**	**0.4037**		**1,979.9752**

3.4 Building Construction - 2019

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	0.0282	0.8015	0.2156	1.7600e-003	0.0448	5.3900e-003	0.0502	0.0129	5.1600e-003	0.0181		187.8214	187.8214	0.0138		188.1651
Worker	0.0960	0.0672	0.7297	2.0000e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4400e-003	0.0548		198.8380	198.8380	6.2100e-003		198.9933
Total	**0.1242**	**0.8687**	**0.9453**	**3.7600e-003**	**0.2460**	**6.9600e-003**	**0.2530**	**0.0663**	**6.6000e-003**	**0.0729**		**386.6594**	**386.6594**	**0.0200**		**387.1584**

3.4 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	1.7223	13.7893	12.4986	0.0211		0.7208	0.7208		0.6927	0.6927		1,949.5559	1,949.5559	0.3912		1,959.3368
Total	**1.7223**	**13.7893**	**12.4986**	**0.0211**		**0.7208**	**0.7208**		**0.6927**	**0.6927**		**1,949.5559**	**1,949.5559**	**0.3912**		**1,959.3368**

PAR 1146 series SCR - South Coast AQMD Air District, Winter

3.4 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	0.0241	0.7338	0.1950	1.7500e-003	0.0448	3.6900e-003	0.0485	0.0129	3.5300e-003	0.0164		186.5590	186.5590	0.0130		186.8828
Worker	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038
Total	**0.1129**	**0.7937**	**0.8576**	**3.6800e-003**	**0.2460**	**5.2200e-003**	**0.2512**	**0.0663**	**4.9400e-003**	**0.0712**		**379.2247**	**379.2247**	**0.0185**		**379.6867**

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	1.7223	13.7893	12.4986	0.0211		0.7208	0.7208		0.6927	0.6927	0.0000	1,949.5559	1,949.5559	0.3912		1,959.3368
Total	**1.7223**	**13.7893**	**12.4986**	**0.0211**		**0.7208**	**0.7208**		**0.6927**	**0.6927**	**0.0000**	**1,949.5559**	**1,949.5559**	**0.3912**		**1,959.3368**

PAR 1146 series SCR - South Coast AQMD Air District, Winter

3.4 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	0.0241	0.7338	0.1950	1.7500e-003	0.0448	3.6900e-003	0.0485	0.0129	3.5300e-003	0.0164		186.5590	186.5590	0.0130		186.8828
Worker	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038
Total	**0.1129**	**0.7937**	**0.8576**	**3.6800e-003**	**0.2460**	**5.2200e-003**	**0.2512**	**0.0663**	**4.9400e-003**	**0.0712**		**379.2247**	**379.2247**	**0.0185**		**379.6867**

3.5 Paving - 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	0.9037	8.9966	9.4003	0.0145		0.4945	0.4945		0.4564	0.4564		1,379.8266	1,379.8266	0.4323		1,390.6332
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9037**	**8.9966**	**9.4003**	**0.0145**		**0.4945**	**0.4945**		**0.4564**	**0.4564**		**1,379.8266**	**1,379.8266**	**0.4323**		**1,390.6332**

3.5 Paving - 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	0.0000	0.0000	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	0.0642	0.0433	0.4785	1.4000e-003	0.1453	1.1000e-003	0.1464	0.0385	1.0200e-003	0.0396		139.1474	139.1474	3.9900e-003		139.2472
Total	**0.0642**	**0.0433**	**0.4785**	**1.4000e-003**	**0.1453**	**1.1000e-003**	**0.1464**	**0.0385**	**1.0200e-003**	**0.0396**		**139.1474**	**139.1474**	**3.9900e-003**		**139.2472**

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	0.9037	8.9966	9.4003	0.0145		0.4945	0.4945		0.4564	0.4564	0.0000	1,379.8266	1,379.8266	0.4323		1,390.6332
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9037**	**8.9966**	**9.4003**	**0.0145**		**0.4945**	**0.4945**		**0.4564**	**0.4564**	**0.0000**	**1,379.8266**	**1,379.8266**	**0.4323**		**1,390.6332**

3.5 Paving - 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	0.0000	0.0000	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	0.0642	0.0433	0.4785	1.4000e-003	0.1453	1.1000e-003	0.1464	0.0385	1.0200e-003	0.0396		139.1474	139.1474	3.9900e-003		139.2472
Total	**0.0642**	**0.0433**	**0.4785**	**1.4000e-003**	**0.1453**	**1.1000e-003**	**0.1464**	**0.0385**	**1.0200e-003**	**0.0396**		**139.1474**	**139.1474**	**3.9900e-003**		**139.2472**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

PAR 1146 series SCR - South Coast AQMD Air District, Winter

	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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					
User Defined Industrial	0	0.0000	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**

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					
User Defined Industrial	0	0.0000	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**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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-2

Construction Emissions of Ultra-Low NOx Burners

Retrofit with Ultra-Low Nox Burners in 2019

PAR 1146 Series Affected Equipment	No. of Units	Construction Activity
Rule 1146 and 1146.1 units in RECLAIM	1	Install Ultra-Low NOx burners on 35 units during 2019

Construction Schedule - 1 day per unit

Activity	Equipment Type	No. of Equipment	Hrs/day	Crew Size
Off-Road Mobile Source Operations	Welding Machin	1	2	1

Construction Equipment Emission Factors	VOC	CO	NOx	SOx	PM10	CO2
Equipment Type*	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Welding Machine (composite)	0.0344	0.1843	0.1832	0.0003	0.0117	25.6

Source: Off-road Mobile Source Emission Factors - Scenario Year 2019

http://www.aqmd.gov/docs/default-source/cega/handbook/emission-factors/off-road-mobile-source-emission-factors-(scenario-years-2007-2025).xls

**Equipment is assumed to be diesel fueled.*

Construction Vehicle (Mobile Source) Emission Factors for Year 2019	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Construction Related Activity	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Offsite (Construction Worker Vehicle)	0.00034	0.00291	0.00030	0.00001	0.00010	0.00004	0.92780
Offsite (Delivery Truck - pickup truck)	0.00034	0.00291	0.00030	0.00001	0.00010	0.00004	0.92780

Source: Highest (Most Conservative) EMFAC2014 (Version 1.07) Emission Factors for On-Passenger Vehicles & Delivery Trucks - Scenario Year 2019

https://www.arb.ca.gov/emfac/2014/

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	Trip Length (miles)
Offsite (Construction Worker)	2	25
Offsite (Delivery Truck - Medium Duty)	2	50

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lbs/day)

	VOC	CO	NOx	SOx	PM10	CO2
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Welding Machine	0.07	0.37	0.37	0.00	0.02	51.20
TOTAL	**0.07**	**0.37**	**0.37**	**0.00**	**0.02**	**51.20**

Incremental Increase in Offsite Combustion Emissions from Construction Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Offsite Construction Emissions (lbs/day)

	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Offsite (Construction Worker Vehicle)	0.03	0.29	0.03	0.00	0.01	0.00	92.78
Offsite (Delivery Truck - pickup truck)	0.07	0.58	0.06	0.00	0.02	0.01	185.56
TOTAL	**0.10**	**0.87**	**0.09**	**0.00**	**0.03**	**0.01**	**278.34**

Source: Highest (Most Conservative) EMFAC2014 (Version 1.07) Emission Factors for On-Passenger Vehicles & Delivery Trucks - Scenario Year 2019
https://www.arb.ca.gov/emfac/2014/

Total Incremental Combustion Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Ultra-low Nox burner (1 unit)	**0.2**	**1**	**0.5**	**0.003**	**0.1**	**0.01**	**330**
Significant Threshold	75	550	100	150	150	55	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a

Incremental Increase in Fuel Usage From Construction Equipment and Workers' Vehicles

Construction Activity	**Total Project Hours of Operation***	**Equipment Type**	**Diesel Fuel Usage (gal/hr)****	**Diesel Fuel Usage (gal/project) ****	**Gasoline Fuel Usage (gal/yr)*****
Operation of Portable Equipment	2	Welding Machines	1.177	2.35	N/A
Workers' Vehicles - Commuting	N/A	Light-Duty Trucks	N/A	N/A	2.50
Workers' Vehicles - Offsite Delivery/Haul	N/A	Delivery Truck****	N/A	N/A	5.00
		TOTAL	**2.35**	**7.50**	

Notes:

**Assume construction will take approximately 1 day (8 hrs/day max), but welder will only be needed for ~2 hours per day.*

***Based on CARB's Off-Road Model (Version 2.0) for Equipment Year 2014.*

****Assume that construction workers' commute vehicle and pick-up truck use gasoline and get 20 mi/gal and round trip length is 50 miles.*

Retrofit with Ultra-Low Nox Burners in 2020

PAR 1146 Series Affected Equipment	No. of Units	Construction Activity
Rule 1146 and 1146.1 units in RECLAIM	1	Install Ultra-Low NOx burners on 80 units during 2020

Construction Schedule - 1 day per unit

Activity	Equipment Type	No. of Equipment	Hrs/day	Crew Size
Off-Road Mobile Source Operations	Welding Machin	1	2	1

Construction Equipment Emission Factors	VOC	CO	NOx	SOx	PM10	CO2
Equipment Type*	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Welding Machine (composite)	0.0310	0.1816	0.1735	0.0003	0.0102	25.6

Source: Off-road Mobile Source Emission Factors - Scenario Year 2019
http://www.aqmd.gov/docs/default-source/ceqa/handbook/emission-factors/off-road-mobile-source-emission-factors-(scenario-years-2007-2025).xls
**Equipment is assumed to be diesel fueled.*

Construction Vehicle (Mobile Source) Emission Factors for Year 2011	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Construction Related Activity	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Offsite (Construction Worker Vehicle)	0.00031	0.00263	0.00026	0.00001	0.00010	0.00004	0.90138
Offsite (Delivery Truck - pickup truck)	0.00031	0.00263	0.00026	0.00001	0.00010	0.00004	0.90138

Source: Highest (Most Conservative) EMFAC2014 (Version 1.07) Emission Factors for On-Passenger Vehicles & Delivery Trucks - Scenario Year 2020
https://www.arb.ca.gov/emfac/2014/

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	Trip Length (miles)
Offsite (Construction Worker)	2	25
Offsite (Delivery Truck - Medium Duty)	2	50

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lbs/day)

	VOC	CO	NOx	SOx	PM10	CO2
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Welding Machine	0.06	0.36	0.35	0.00	0.02	51.20
TOTAL	**0.06**	**0.36**	**0.35**	**0.00**	**0.02**	**51.20**

Incremental Increase in Offsite Combustion Emissions from Construction Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Offsite Construction Emissions (lbs/day)

	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Offsite (Construction Worker Vehicle)	0.03	0.26	0.03	0.00	0.01	0.00	90.14
Offsite (Delivery Truck - pickup truck)	0.06	0.53	0.05	0.00	0.02	0.01	180.28
TOTAL	**0.09**	**0.79**	**0.08**	**0.00**	**0.03**	**0.01**	**270.41**

Source: Highest (Most Conservative) EMFAC2014 (Version 1.07) Emission Factors for On-Passenger Vehicles & Delivery Trucks - Scenario Year 2020 https://www.arb.ca.gov/emfac/2014/

Total Incremental Combustion Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Ultra-low Nox burner (1 unit)	**0.2**	**1**	**0.4**	**0.003**	**0.1**	**0.01**	**322**
Significant Threshold	75	550	100	150	150	55	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a

Incremental Increase in Fuel Usage From Construction Equipment and Workers' Vehicles

Construction Activity	**Total Project Hours of Operation***	**Equipment Type**	**Diesel Fuel Usage (gal/hr)****	**Diesel Fuel Usage (gal/project) ****	**Gasoline Fuel Usage (gal/yr)*****
Operation of Portable Equipment	2	Welding Machines	1.177	2.35	N/A
Workers' Vehicles - Commuting	N/A	Light-Duty Trucks	N/A	N/A	2.50
Workers' Vehicles - Offsite Delivery/Haul	N/A	Delivery Truck****	N/A	N/A	5.00
		TOTAL	**2.35**	**7.50**	

Notes:

**Assume construction will take approximately 1 day (8 hrs/day max), but welder will only be needed for ~2 hours per day.*

***Based on CARB's Off-Road Model (Version 2.0) for Equipment Year 2014.*

****Assume that construction workers' commute vehicle and pick-up truck use gasoline and get 20 mi/gal and round trip length is 50 miles.*

Retrofit with Ultra-Low Nox Burners in 2021

PAR 1146 Series Affected Equipment	No. of Units	Construction Activity
Rule 1146 and 1146.1 units in RECLAIM	1	Install Ultra-Low NOx burners on 51 units during 2021

Construction Schedule - 1 day per unit

Activity	Equipment Type	No. of Equipment	Hrs/day	Crew Size
Off-Road Mobile Source Operations	Welding Machin	1	2	1

Construction Equipment Emission Factors	VOC	CO	NOx	SOx	PM10	CO2
Equipment Type*	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
Welding Machine (composite)	0.0280	0.1788	0.1635	0.0003	0.0088	25.6

Source: Off-road Mobile Source Emission Factors - Scenario Year 2019
http://www.aqmd.gov/docs/default-source/ceqa/handbook/emission-factors/off-road-mobile-source-emission-factors-(scenario-years-2007-2025).xls
**Equipment is assumed to be diesel fueled.*

Construction Vehicle (Mobile Source) Emission Factors for Year 2021	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Construction Related Activity	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile	lb/mile
Offsite (Construction Worker Vehicle)	0.00029	0.00243	0.00023	0.00001	0.00010	0.00004	0.87361
Offsite (Delivery Truck - pickup truck)	0.00029	0.00243	0.00023	0.00001	0.00010	0.00004	0.87361

Source: Highest (Most Conservative) EMFAC2014 (Version 1.07) Emission Factors for On-Passenger Vehicles & Delivery Trucks - Scenario Year 2021
https://www.arb.ca.gov/emfac/2014/

Construction Worker Number of Trips and Trip Length

Vehicle	No. of One-Way Trips/Day	Trip Length (miles)
Offsite (Construction Worker)	2	25
Offsite (Delivery Truck - Medium Duty)	2	50

Incremental Increase in Onsite Combustion Emissions from Construction Equipment

Equation: Emission Factor (lb/hr) x No. of Equipment x Work Day (hr/day) = Onsite Construction Emissions (lbs/day)

	VOC	CO	NOx	SOx	PM10	CO2
Equipment Type	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Welding Machine	0.06	0.36	0.33	0.00	0.02	51.20
TOTAL	**0.06**	**0.36**	**0.33**	**0.00**	**0.02**	**51.20**

Incremental Increase in Offsite Combustion Emissions from Construction Vehicles

Equation: Emission Factor (lb/mile) x No. of One-Way Trips/Day x 2 x Trip length (mile) = Offsite Construction Emissions (lbs/day)

	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
Vehicle	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Offsite (Construction Worker Vehicle)	0.03	0.24	0.02	0.00	0.01	0.00	87.36
Offsite (Delivery Truck - pickup truck)	0.06	0.49	0.05	0.00	0.02	0.01	174.72
TOTAL	**0.09**	**0.73**	**0.07**	**0.00**	**0.03**	**0.01**	**262.08**

Source: Highest (Most Conservative) EMFAC2014 (Version 1.07) Emission Factors for On-Passenger Vehicles & Delivery Trucks - Scenario Year 2021 https://www.arb.ca.gov/emfac/2014/

Total Incremental Combustion Emissions from Construction Activities

	VOC	CO	NOx	SOx	PM10	PM2.5	CO2
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
Ultra-low Nox burner (1 unit)	**0.1**	**1**	**0.4**	**0.003**	**0.05**	**0.01**	**313**
Significant Threshold	75	550	100	150	150	55	n/a
Exceed Significance?	NO	NO	NO	NO	NO	NO	n/a

Incremental Increase in Fuel Usage From Construction Equipment and Workers' Vehicles

Construction Activity	**Total Project Hours of Operation***	**Equipment Type**	**Diesel Fuel Usage (gal/hr)****	**Diesel Fuel Usage (gal/project) ****	**Gasoline Fuel Usage (gal/yr)*****
Operation of Portable Equipment	2	Welding Machines	1.177	2.35	N/A
Workers' Vehicles - Commuting	N/A	Light-Duty Trucks	N/A	N/A	2.50
Workers' Vehicles - Offsite Delivery/Haul	N/A	Delivery Truck****	N/A	N/A	5.00
			TOTAL	**2.35**	**7.50**

Notes:

**Assume construction will take approximately 1 day (8 hrs/day max), but welder will only be needed for ~2 hours per day.*

***Based on CARB's Off-Road Model (Version 2.0) for Equipment Year 2014.*

****Assume that construction workers' commute vehicle and pick-up truck use gasoline and get 20 mi/gal and round trip length is 50 miles.*

Emissions Summary Due to Retrofits of Ultra-Low NOx Burners in 2019, 2020, and 2021

Peak Construction by Year	VOC (lbs/day)	CO (lbs/day)	NOx (lbs/day)	SOx (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	CO2 (lbs/day)	CO2 (lbs/day)	CO2 (lbs/day)
2019									
TOTAL for 1 unit in one day	0.17	1.24	0.46	0.003	0.05	0.01	329.54	329.54	0.15
Peak Daily TOTAL for 10 units installed in one day	1.70	12.42	4.56	0.03	0.55	0.13	3295.39	n/a	n/a
Peak TOTAL for 35 units installed in one year	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11533.85	5.23
Significance Threshold	75	550	100	150	150	55	n/a	n/a	n/a
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**n/a**	**n/a**	**n/a**
2020									
TOTAL for 1 unit in one day	0.16	1.15	0.43	0.003	0.05	0.01	321.61	321.61	0.15
Peak Daily TOTAL for 10 units installed in one day	1.56	11.52	4.25	0.03	0.52	0.13	3216.14	n/a	n/a
Peak TOTAL for 35 units installed in one year	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11256.48	5.10
Significance Threshold	75	550	100	150	150	55	n/a	n/a	n/a
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**n/a**	**n/a**	**n/a**
2021									
TOTAL for 1 unit in one day	0.14	1.09	0.40	0.003	0.05	0.01	313.28	313.28	0.14
Peak Daily TOTAL for 10 units installed in one day	1.44	10.85	3.96	0.03	0.49	0.13	3132.84	n/a	n/a
Peak TOTAL for 23 units installed in one year	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7205.52	3.27
Significance Threshold	75	550	100	150	150	55	n/a	n/a	n/a
Exceed Significance?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**n/a**	**n/a**	**n/a**

APPENDIX B-3

CalEEMod Files and Assumptions – Construction Emissions (Boiler Replacement)

CalEEMod Files and Assumptions – Construction Emissions

Construction for a Boiler Replacement (Annual)

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Annual

PAR 1146 series Large Boiler Replacement

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Annual

Project Characteristics -

Land Use - User Defined Industrial

Construction Phase - SCR: Demolition: 20 days; Site Preparation: 5 days; Building Construction: 60 days; Paving: 5 days

Off-road Equipment - No Arch. Coating

Off-road Equipment - Cranes (1): 6 hours per day; Forklifts (1): 6 hours per day; Generator Sets (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 6 hours per day; Welders (2): 8 hours per day; Aerial Lifts (1): 8 hours per day

Off-road Equipment - Concrete/Industrial Saws (1): 8 hours per day; Rubber Tired Dozers (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Cranes (1): 2 hours per day; Welders (1): 8 hours per day; Cement and Mortar Mixers (1): 8 hours per day

Off-road Equipment - Cement and Mortar Mixers (1): 6 hours per day; Paving Equipment (1): 8 hours per day; Plate Compactors (1): 6 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day

Off-road Equipment - Rubber Tired Dozers (1): 7 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Trenchers (1): 8 hours per day

Trips and VMT - Demolition: 2 Worker Trips, 0 Vendor Trips, 5 Hauling Trips
Site Preparation: 2 Work Trips, 0 Vendor Trips, 0 Hauling Trips
Building Construction: 2 Worker Trips, 1 Vendor Trips, 0 Hauling Trips
Paving: 2 Worker Trips, 0 Vendor Trips, 0 Hauling Trips

Demolition - Assume 1,000 square feet would be demo from existing pad

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	65.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblGrading	AcresOfGrading	2.50	0.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Annual

tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	132.00	131.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	78.00	81.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	6.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	15.00	2.00
tblTripsAndVMT	WorkerTripNumber	10.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	15.00	2.00

2.0 Emissions Summary

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Annual

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					
2019	0.0911	0.7523	0.6276	9.9000e-004	0.0149	0.0405	0.0554	7.6500e-003	0.0387	0.0463	0.0000	84.5310	84.5310	0.0181	0.0000	84.9826
2020	2.2800e-003	0.0225	0.0237	4.0000e-005	5.0000e-005	1.2400e-003	1.2900e-003	1.0000e-005	1.1400e-003	1.1600e-003	0.0000	3.1788	3.1788	9.8000e-004	0.0000	3.2033
Maximum	**0.0911**	**0.7523**	**0.6276**	**9.9000e-004**	**0.0149**	**0.0405**	**0.0554**	**7.6500e-003**	**0.0387**	**0.0463**	**0.0000**	**84.5310**	**84.5310**	**0.0181**	**0.0000**	**84.9826**

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					
2019	0.0911	0.7523	0.6276	9.9000e-004	0.0149	0.0405	0.0554	7.6500e-003	0.0387	0.0463	0.0000	84.5309	84.5309	0.0181	0.0000	84.9825
2020	2.2800e-003	0.0225	0.0237	4.0000e-005	5.0000e-005	1.2400e-003	1.2900e-003	1.0000e-005	1.1400e-003	1.1600e-003	0.0000	3.1788	3.1788	9.8000e-004	0.0000	3.2033
Maximum	**0.0911**	**0.7523**	**0.6276**	**9.9000e-004**	**0.0149**	**0.0405**	**0.0554**	**7.6500e-003**	**0.0387**	**0.0463**	**0.0000**	**84.5309**	**84.5309**	**0.0181**	**0.0000**	**84.9825**

	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**

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
4	11-22-2018	2-21-2019	0.4910	0.4910
5	2-22-2019	5-21-2019	0.3464	0.3464
8	11-22-2019	2-21-2020	0.0248	0.0248
		Highest	0.4910	0.4910

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						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**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						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**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	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

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/15/2019	1/21/2019	5	5	
3	Building Construction	Building Construction	1/20/2019	4/19/2019	5	65	
4	Paving	Paving	1/4/2020	1/10/2020	5	5	

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: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Cranes	1	2.00	226	0.29
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Demolition	Welders	1	8.00	46	0.45
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Site Preparation	Trenchers	1	8.00	81	0.50
Building Construction	Aerial Lifts	1	8.00	63	0.31
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	98	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Paving Equipment	1	8.00	131	0.36
Paving	Plate Compactors	1	6.00	8	0.43
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	98	0.37

Trips and VMT

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Annual

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	6	2.00	0.00	5.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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					4.9000e-004	0.0000	4.9000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0229	0.2046	0.1724	2.3000e-004		0.0107	0.0107		0.0101	0.0101	0.0000	19.8063	19.8063	4.5700e-003	0.0000	19.9204
Total	**0.0229**	**0.2046**	**0.1724**	**2.3000e-004**	**4.9000e-004**	**0.0107**	**0.0112**	**7.0000e-005**	**0.0101**	**0.0102**	**0.0000**	**19.8063**	**19.8063**	**4.5700e-003**	**0.0000**	**19.9204**

3.2 Demolition - 2019

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	2.0000e-005	7.5000e-004	1.4000e-004	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1906	0.1906	1.0000e-005	0.0000	0.1909
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	1.0000e-004	8.0000e-005	8.3000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2039	0.2039	1.0000e-005	0.0000	0.2040
Total	**1.2000e-004**	**8.3000e-004**	**9.7000e-004**	**0.0000**	**2.6000e-004**	**0.0000**	**2.7000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.3945**	**0.3945**	**2.0000e-005**	**0.0000**	**0.3950**

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					4.9000e-004	0.0000	4.9000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0229	0.2046	0.1724	2.3000e-004		0.0107	0.0107		0.0101	0.0101	0.0000	19.8063	19.8063	4.5700e-003	0.0000	19.9204
Total	**0.0229**	**0.2046**	**0.1724**	**2.3000e-004**	**4.9000e-004**	**0.0107**	**0.0112**	**7.0000e-005**	**0.0101**	**0.0102**	**0.0000**	**19.8063**	**19.8063**	**4.5700e-003**	**0.0000**	**19.9204**

3.2 Demolition - 2019

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	2.0000e-005	7.5000e-004	1.4000e-004	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1906	0.1906	1.0000e-005	0.0000	0.1909
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	1.0000e-004	8.0000e-005	8.3000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2039	0.2039	1.0000e-005	0.0000	0.2040
Total	**1.2000e-004**	**8.3000e-004**	**9.7000e-004**	**0.0000**	**2.6000e-004**	**0.0000**	**2.7000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.3945**	**0.3945**	**2.0000e-005**	**0.0000**	**0.3950**

3.3 Site Preparation - 2019

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					0.0132	0.0000	0.0132	7.2400e-003	0.0000	7.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1800e-003	0.0567	0.0359	5.0000e-005		2.8000e-003	2.8000e-003		2.5800e-003	2.5800e-003	0.0000	4.7331	4.7331	1.5000e-003	0.0000	4.7706
Total	**5.1800e-003**	**0.0567**	**0.0359**	**5.0000e-005**	**0.0132**	**2.8000e-003**	**0.0160**	**7.2400e-003**	**2.5800e-003**	**9.8200e-003**	**0.0000**	**4.7331**	**4.7331**	**1.5000e-003**	**0.0000**	**4.7706**

3.3 Site Preparation - 2019

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	2.0000e-005	2.0000e-005	2.1000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0510	0.0510	0.0000	0.0000	0.0510
Total	**2.0000e-005**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0510**	**0.0510**	**0.0000**	**0.0000**	**0.0510**

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					0.0132	0.0000	0.0132	7.2400e-003	0.0000	7.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1800e-003	0.0567	0.0359	5.0000e-005		2.8000e-003	2.8000e-003		2.5800e-003	2.5800e-003	0.0000	4.7331	4.7331	1.5000e-003	0.0000	4.7706
Total	**5.1800e-003**	**0.0567**	**0.0359**	**5.0000e-005**	**0.0132**	**2.8000e-003**	**0.0160**	**7.2400e-003**	**2.5800e-003**	**9.8200e-003**	**0.0000**	**4.7331**	**4.7331**	**1.5000e-003**	**0.0000**	**4.7706**

3.3 Site Preparation - 2019

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	2.0000e-005	2.0000e-005	2.1000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0510	0.0510	0.0000	0.0000	0.0510
Total	**2.0000e-005**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0510**	**0.0510**	**0.0000**	**0.0000**	**0.0510**

3.4 Building Construction - 2019

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	0.0624	0.4861	0.4145	6.9000e-004		0.0270	0.0270		0.0259	0.0259	0.0000	58.0791	58.0791	0.0119	0.0000	58.3766
Total	**0.0624**	**0.4861**	**0.4145**	**6.9000e-004**		**0.0270**	**0.0270**		**0.0259**	**0.0259**	**0.0000**	**58.0791**	**58.0791**	**0.0119**	**0.0000**	**58.3766**

3.4 Building Construction - 2019

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	1.3000e-004	3.7900e-003	9.5000e-004	1.0000e-005	2.0000e-004	2.0000e-005	2.3000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.8046	0.8046	6.0000e-005	0.0000	0.8060
Worker	3.1000e-004	2.5000e-004	2.7100e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6625	0.6625	2.0000e-005	0.0000	0.6631
Total	**4.4000e-004**	**4.0400e-003**	**3.6600e-003**	**2.0000e-005**	**9.1000e-004**	**3.0000e-005**	**9.5000e-004**	**2.5000e-004**	**3.0000e-005**	**2.7000e-004**	**0.0000**	**1.4672**	**1.4672**	**8.0000e-005**	**0.0000**	**1.4691**

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	0.0624	0.4861	0.4145	6.9000e-004		0.0270	0.0270		0.0259	0.0259	0.0000	58.0790	58.0790	0.0119	0.0000	58.3765
Total	**0.0624**	**0.4861**	**0.4145**	**6.9000e-004**		**0.0270**	**0.0270**		**0.0259**	**0.0259**	**0.0000**	**58.0790**	**58.0790**	**0.0119**	**0.0000**	**58.3765**

3.4 Building Construction - 2019

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	1.3000e-004	3.7900e-003	9.5000e-004	1.0000e-005	2.0000e-004	2.0000e-005	2.3000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.8046	0.8046	6.0000e-005	0.0000	0.8060
Worker	3.1000e-004	2.5000e-004	2.7100e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	1.9000e-004	0.0000	0.6625	0.6625	2.0000e-005	0.0000	0.6631
Total	**4.4000e-004**	**4.0400e-003**	**3.6600e-003**	**2.0000e-005**	**9.1000e-004**	**3.0000e-005**	**9.5000e-004**	**2.5000e-004**	**3.0000e-005**	**2.7000e-004**	**0.0000**	**1.4672**	**1.4672**	**8.0000e-005**	**0.0000**	**1.4691**

3.5 Paving - 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	2.2600e-003	0.0225	0.0235	4.0000e-005		1.2400e-003	1.2400e-003		1.1400e-003	1.1400e-003	0.0000	3.1294	3.1294	9.8000e-004	0.0000	3.1539
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2600e-003**	**0.0225**	**0.0235**	**4.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**3.1294**	**3.1294**	**9.8000e-004**	**0.0000**	**3.1539**

3.5 Paving - 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	2.0000e-005	2.0000e-005	1.9000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0494	0.0494	0.0000	0.0000	0.0494
Total	**2.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0494**	**0.0494**	**0.0000**	**0.0000**	**0.0494**

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	2.2600e-003	0.0225	0.0235	4.0000e-005		1.2400e-003	1.2400e-003		1.1400e-003	1.1400e-003	0.0000	3.1294	3.1294	9.8000e-004	0.0000	3.1539
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2600e-003**	**0.0225**	**0.0235**	**4.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**3.1294**	**3.1294**	**9.8000e-004**	**0.0000**	**3.1539**

3.5 Paving - 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	2.0000e-005	2.0000e-005	1.9000e-004	0.0000	5.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0494	0.0494	0.0000	0.0000	0.0494
Total	**2.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**5.0000e-005**	**0.0000**	**6.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0494**	**0.0494**	**0.0000**	**0.0000**	**0.0494**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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					
User Defined Industrial	0	0.0000	0.0000	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**

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	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	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**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Annual

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

CalEEMod Files and Assumptions – Construction Emissions

Construction for a Boiler Replacement (Summer)

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Summer

PAR 1146 series Large Boiler Replacement

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Summer

Project Characteristics -

Land Use - User Defined Industrial

Construction Phase - SCR: Demolition: 20 days; Site Preparation: 5 days; Building Construction: 60 days; Paving: 5 days

Off-road Equipment - No Arch. Coating

Off-road Equipment - Cranes (1): 6 hours per day; Forklifts (1): 6 hours per day; Generator Sets (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 6 hours per day; Welders (2): 8 hours per day; Aerial Lifts (1): 8 hours per day

Off-road Equipment - Concrete/Industrial Saws (1): 8 hours per day; Rubber Tired Dozers (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Cranes (1): 2 hours per day; Welders (1): 8 hours per day; Cement and Mortar Mixers (1): 8 hours per day

Off-road Equipment - Cement and Mortar Mixers (1): 6 hours per day; Paving Equipment (1): 8 hours per day; Plate Compactors (1): 6 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day

Off-road Equipment - Rubber Tired Dozers (1): 7 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Trenchers (1): 8 hours per day

Trips and VMT - Demolition: 2 Worker Trips, 0 Vendor Trips, 5 Hauling Trips
Site Preparation: 2 Work Trips, 0 Vendor Trips, 0 Hauling Trips
Building Construction: 2 Worker Trips, 1 Vendor Trips, 0 Hauling Trips
Paving: 2 Worker Trips, 0 Vendor Trips, 0 Hauling Trips

Demolition - Assume 1,000 square feet would be demo from existing pad

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	65.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblGrading	AcresOfGrading	2.50	0.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Summer

tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	132.00	131.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	78.00	81.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	6.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	15.00	2.00
tblTripsAndVMT	WorkerTripNumber	10.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	15.00	2.00

2.0 Emissions Summary

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Summer

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					
2019	6.3237	58.3077	44.6733	0.0663	5.3964	3.0252	8.4216	2.9247	2.8448	5.7695	0.0000	6,359.7499	6,359.7499	1.5727	0.0000	6,399.0678
2020	0.9127	9.0027	9.4820	0.0147	0.0224	0.4946	0.5170	5.9300e-003	0.4565	0.4624	0.0000	1,402.7149	1,402.7149	0.4329	0.0000	1,413.5380
Maximum	**6.3237**	**58.3077**	**44.6733**	**0.0663**	**5.3964**	**3.0252**	**8.4216**	**2.9247**	**2.8448**	**5.7695**	**0.0000**	**6,359.7499**	**6,359.7499**	**1.5727**	**0.0000**	**6,399.0678**

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					
2019	6.3237	58.3077	44.6733	0.0663	5.3964	3.0252	8.4216	2.9247	2.8448	5.7695	0.0000	6,359.7499	6,359.7499	1.5727	0.0000	6,399.0678
2020	0.9127	9.0027	9.4820	0.0147	0.0224	0.4946	0.5170	5.9300e-003	0.4565	0.4624	0.0000	1,402.7149	1,402.7149	0.4329	0.0000	1,413.5380
Maximum	**6.3237**	**58.3077**	**44.6733**	**0.0663**	**5.3964**	**3.0252**	**8.4216**	**2.9247**	**2.8448**	**5.7695**	**0.0000**	**6,359.7499**	**6,359.7499**	**1.5727**	**0.0000**	**6,399.0678**

	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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Summer

	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	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/15/2019	1/21/2019	5	5	
3	Building Construction	Building Construction	1/20/2019	4/19/2019	5	65	
4	Paving	Paving	1/4/2020	1/10/2020	5	5	

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: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Cranes	1	2.00	226	0.29
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Demolition	Welders	1	8.00	46	0.45
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Site Preparation	Trenchers	1	8.00	81	0.50
Building Construction	Aerial Lifts	1	8.00	63	0.31
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	98	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Paving Equipment	1	8.00	131	0.36
Paving	Plate Compactors	1	6.00	8	0.43
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	98	0.37

Trips and VMT

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Summer

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	6	2.00	0.00	5.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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					0.0492	0.0000	0.0492	7.4500e-003	0.0000	7.4500e-003			0.0000			0.0000
Off-Road	2.2936	20.4634	17.2377	0.0230		1.0722	1.0722		1.0139	1.0139		2,183.2691	2,183.2691	0.5033		2,195.8508
Total	**2.2936**	**20.4634**	**17.2377**	**0.0230**	**0.0492**	**1.0722**	**1.1214**	**7.4500e-003**	**1.0139**	**1.0214**		**2,183.2691**	**2,183.2691**	**0.5033**		**2,195.8508**

3.2 Demolition - 2019

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	2.0500e-003	0.0728	0.0139	2.0000e-004	4.3700e-003	2.7000e-004	4.6400e-003	1.2000e-003	2.6000e-004	1.4600e-003		21.1704	21.1704	1.4400e-003		21.2065
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
Worker	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**0.0118**	**0.0796**	**0.1038**	**4.4000e-004**	**0.0267**	**4.4000e-004**	**0.0272**	**7.1300e-003**	**4.2000e-004**	**7.5500e-003**		**44.7902**	**44.7902**	**2.1800e-003**		**44.8448**

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					0.0492	0.0000	0.0492	7.4500e-003	0.0000	7.4500e-003			0.0000			0.0000
Off-Road	2.2936	20.4634	17.2377	0.0230		1.0722	1.0722		1.0139	1.0139	0.0000	2,183.2691	2,183.2691	0.5033		2,195.8508
Total	**2.2936**	**20.4634**	**17.2377**	**0.0230**	**0.0492**	**1.0722**	**1.1214**	**7.4500e-003**	**1.0139**	**1.0214**	**0.0000**	**2,183.2691**	**2,183.2691**	**0.5033**		**2,195.8508**

3.2 Demolition - 2019

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	2.0500e-003	0.0728	0.0139	2.0000e-004	4.3700e-003	2.7000e-004	4.6400e-003	1.2000e-003	2.6000e-004	1.4600e-003		21.1704	21.1704	1.4400e-003		21.2065
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
Worker	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**0.0118**	**0.0796**	**0.1038**	**4.4000e-004**	**0.0267**	**4.4000e-004**	**0.0272**	**7.1300e-003**	**4.2000e-004**	**7.5500e-003**		**44.7902**	**44.7902**	**2.1800e-003**		**44.8448**

3.3 Site Preparation - 2019

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					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	2.0735	22.6793	14.3712	0.0211		1.1215	1.1215		1.0318	1.0318		2,086.9458	2,086.9458	0.6603		2,103.4529
Total	**2.0735**	**22.6793**	**14.3712**	**0.0211**	**5.2693**	**1.1215**	**6.3909**	**2.8965**	**1.0318**	**3.9283**		**2,086.9458**	**2,086.9458**	**0.6603**		**2,103.4529**

3.3 Site Preparation - 2019

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	0.0000	0.0000	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	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**9.7900e-003**	**6.8200e-003**	**0.0899**	**2.4000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**23.6198**	**23.6198**	**7.4000e-004**		**23.6383**

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					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	2.0735	22.6793	14.3712	0.0211		1.1215	1.1215		1.0318	1.0318	0.0000	2,086.9457	2,086.9457	0.6603		2,103.4529
Total	**2.0735**	**22.6793**	**14.3712**	**0.0211**	**5.2693**	**1.1215**	**6.3909**	**2.8965**	**1.0318**	**3.9283**	**0.0000**	**2,086.9457**	**2,086.9457**	**0.6603**		**2,103.4529**

3.3 Site Preparation - 2019

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	0.0000	0.0000	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	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**9.7900e-003**	**6.8200e-003**	**0.0899**	**2.4000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**23.6198**	**23.6198**	**7.4000e-004**		**23.6383**

3.4 Building Construction - 2019

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	1.9213	14.9573	12.7532	0.0211		0.8300	0.8300		0.7976	0.7976		1,969.8833	1,969.8833	0.4037		1,979.9752
Total	**1.9213**	**14.9573**	**12.7532**	**0.0211**		**0.8300**	**0.8300**		**0.7976**	**0.7976**		**1,969.8833**	**1,969.8833**	**0.4037**		**1,979.9752**

3.4 Building Construction - 2019

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	3.8600e-003	0.1144	0.0277	2.6000e-004	6.4000e-003	7.6000e-004	7.1600e-003	1.8400e-003	7.3000e-004	2.5700e-003		27.6220	27.6220	1.8300e-003		27.6677
Worker	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**0.0137**	**0.1212**	**0.1175**	**5.0000e-004**	**0.0288**	**9.3000e-004**	**0.0297**	**7.7700e-003**	**8.9000e-004**	**8.6600e-003**		**51.2418**	**51.2418**	**2.5700e-003**		**51.3059**

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	1.9213	14.9573	12.7532	0.0211		0.8300	0.8300		0.7976	0.7976	0.0000	1,969.8833	1,969.8833	0.4037		1,979.9752
Total	**1.9213**	**14.9573**	**12.7532**	**0.0211**		**0.8300**	**0.8300**		**0.7976**	**0.7976**	**0.0000**	**1,969.8833**	**1,969.8833**	**0.4037**		**1,979.9752**

3.4 Building Construction - 2019

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	3.8600e-003	0.1144	0.0277	2.6000e-004	6.4000e-003	7.6000e-004	7.1600e-003	1.8400e-003	7.3000e-004	2.5700e-003		27.6220	27.6220	1.8300e-003		27.6677
Worker	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**0.0137**	**0.1212**	**0.1175**	**5.0000e-004**	**0.0288**	**9.3000e-004**	**0.0297**	**7.7700e-003**	**8.9000e-004**	**8.6600e-003**		**51.2418**	**51.2418**	**2.5700e-003**		**51.3059**

3.5 Paving - 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	0.9037	8.9966	9.4003	0.0145		0.4945	0.4945		0.4564	0.4564		1,379.8266	1,379.8266	0.4323		1,390.6332
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9037**	**8.9966**	**9.4003**	**0.0145**		**0.4945**	**0.4945**		**0.4564**	**0.4564**		**1,379.8266**	**1,379.8266**	**0.4323**		**1,390.6332**

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Summer

3.5 Paving - 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	0.0000	0.0000	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	9.0500e-003	6.0800e-003	0.0818	2.3000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0800e-003		22.8884	22.8884	6.6000e-004		22.9048
Total	**9.0500e-003**	**6.0800e-003**	**0.0818**	**2.3000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0800e-003**		**22.8884**	**22.8884**	**6.6000e-004**		**22.9048**

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	0.9037	8.9966	9.4003	0.0145		0.4945	0.4945		0.4564	0.4564	0.0000	1,379.8266	1,379.8266	0.4323		1,390.6332
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9037**	**8.9966**	**9.4003**	**0.0145**		**0.4945**	**0.4945**		**0.4564**	**0.4564**	**0.0000**	**1,379.8266**	**1,379.8266**	**0.4323**		**1,390.6332**

3.5 Paving - 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	0.0000	0.0000	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	9.0500e-003	6.0800e-003	0.0818	2.3000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0800e-003		22.8884	22.8884	6.6000e-004		22.9048
Total	**9.0500e-003**	**6.0800e-003**	**0.0818**	**2.3000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0800e-003**		**22.8884**	**22.8884**	**6.6000e-004**		**22.9048**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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					
User Defined Industrial	0	0.0000	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**

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					
User Defined Industrial	0	0.0000	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**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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

CalEEMod Files and Assumptions – Construction Emissions

Construction for a Boiler Replacement (Winter)

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Winter

PAR 1146 series Large Boiler Replacement

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Winter

Project Characteristics -

Land Use - User Defined Industrial

Construction Phase - SCR: Demolition: 20 days; Site Preparation: 5 days; Building Construction: 60 days; Paving: 5 days

Off-road Equipment - No Arch. Coating

Off-road Equipment - Cranes (1): 6 hours per day; Forklifts (1): 6 hours per day; Generator Sets (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 6 hours per day; Welders (2): 8 hours per day; Aerial Lifts (1): 8 hours per day

Off-road Equipment - Concrete/Industrial Saws (1): 8 hours per day; Rubber Tired Dozers (1): 8 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Cranes (1): 2 hours per day; Welders (1): 8 hours per day; Cement and Mortar Mixers (1): 8 hours per day

Off-road Equipment - Cement and Mortar Mixers (1): 6 hours per day; Paving Equipment (1): 8 hours per day; Plate Compactors (1): 6 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day

Off-road Equipment - Rubber Tired Dozers (1): 7 hours per day; Tractors/Loaders/Backhoes (1): 8 hours per day; Trenchers (1): 8 hours per day

Trips and VMT - Demolition: 2 Worker Trips, 0 Vendor Trips, 5 Hauling Trips
Site Preparation: 2 Work Trips, 0 Vendor Trips, 0 Hauling Trips
Building Construction: 2 Worker Trips, 1 Vendor Trips, 0 Hauling Trips
Paving: 2 Worker Trips, 0 Vendor Trips, 0 Hauling Trips

Demolition - Assume 1,000 square feet would be demo from existing pad

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	65.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblGrading	AcresOfGrading	2.50	0.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00
tblOffRoadEquipment	HorsePower	97.00	98.00

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Winter

tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	132.00	131.00
tblOffRoadEquipment	HorsePower	247.00	255.00
tblOffRoadEquipment	HorsePower	78.00	81.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	6.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	15.00	2.00
tblTripsAndVMT	WorkerTripNumber	10.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	15.00	2.00

2.0 Emissions Summary

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Winter

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					
2019	6.3265	58.3107	44.6512	0.0662	5.3964	3.0253	8.4217	2.9247	2.8448	5.7695	0.0000	6,353.9953	6,353.9953	1.5728	0.0000	6,393.3147
2020	0.9135	9.0033	9.4739	0.0147	0.0224	0.4946	0.5170	5.9300e-003	0.4565	0.4624	0.0000	1,401.2339	1,401.2339	0.4329	0.0000	1,412.0558
Maximum	**6.3265**	**58.3107**	**44.6512**	**0.0662**	**5.3964**	**3.0253**	**8.4217**	**2.9247**	**2.8448**	**5.7695**	**0.0000**	**6,353.9953**	**6,353.9953**	**1.5728**	**0.0000**	**6,393.3147**

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					
2019	6.3265	58.3107	44.6512	0.0662	5.3964	3.0253	8.4217	2.9247	2.8448	5.7695	0.0000	6,353.9953	6,353.9953	1.5728	0.0000	6,393.3147
2020	0.9135	9.0033	9.4739	0.0147	0.0224	0.4946	0.5170	5.9300e-003	0.4565	0.4624	0.0000	1,401.2339	1,401.2339	0.4329	0.0000	1,412.0558
Maximum	**6.3265**	**58.3107**	**44.6512**	**0.0662**	**5.3964**	**3.0253**	**8.4217**	**2.9247**	**2.8448**	**5.7695**	**0.0000**	**6,353.9953**	**6,353.9953**	**1.5728**	**0.0000**	**6,393.3147**

	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**

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Winter

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Winter

	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	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/15/2019	1/21/2019	5	5	
3	Building Construction	Building Construction	1/20/2019	4/19/2019	5	65	
4	Paving	Paving	1/4/2020	1/10/2020	5	5	

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: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Cranes	1	2.00	226	0.29
Demolition	Rubber Tired Dozers	1	8.00	255	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Demolition	Welders	1	8.00	46	0.45
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	98	0.37
Site Preparation	Trenchers	1	8.00	81	0.50
Building Construction	Aerial Lifts	1	8.00	63	0.31
Building Construction	Cranes	1	6.00	226	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	98	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Paving Equipment	1	8.00	131	0.36
Paving	Plate Compactors	1	6.00	8	0.43
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	98	0.37

Trips and VMT

PAR 1146 series Large Boiler Replacement - 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	6	2.00	0.00	5.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	2.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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					0.0492	0.0000	0.0492	7.4500e-003	0.0000	7.4500e-003			0.0000			0.0000
Off-Road	2.2936	20.4634	17.2377	0.0230		1.0722	1.0722		1.0139	1.0139		2,183.2691	2,183.2691	0.5033		2,195.8508
Total	**2.2936**	**20.4634**	**17.2377**	**0.0230**	**0.0492**	**1.0722**	**1.1214**	**7.4500e-003**	**1.0139**	**1.0214**		**2,183.2691**	**2,183.2691**	**0.5033**		**2,195.8508**

3.2 Demolition - 2019

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	2.1100e-003	0.0738	0.0151	1.9000e-004	4.3700e-003	2.8000e-004	4.6400e-003	1.2000e-003	2.6000e-004	1.4600e-003		20.7863	20.7863	1.5100e-003		20.8240
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
Worker	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0128**	**0.0812**	**0.0962**	**4.1000e-004**	**0.0267**	**4.5000e-004**	**0.0272**	**7.1300e-003**	**4.2000e-004**	**7.5500e-003**		**42.8794**	**42.8794**	**2.2000e-003**		**42.9344**

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					0.0492	0.0000	0.0492	7.4500e-003	0.0000	7.4500e-003			0.0000			0.0000
Off-Road	2.2936	20.4634	17.2377	0.0230		1.0722	1.0722		1.0139	1.0139	0.0000	2,183.2691	2,183.2691	0.5033		2,195.8508
Total	**2.2936**	**20.4634**	**17.2377**	**0.0230**	**0.0492**	**1.0722**	**1.1214**	**7.4500e-003**	**1.0139**	**1.0214**	**0.0000**	**2,183.2691**	**2,183.2691**	**0.5033**		**2,195.8508**

3.2 Demolition - 2019

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	2.1100e-003	0.0738	0.0151	1.9000e-004	4.3700e-003	2.8000e-004	4.6400e-003	1.2000e-003	2.6000e-004	1.4600e-003		20.7863	20.7863	1.5100e-003		20.8240
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
Worker	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0128**	**0.0812**	**0.0962**	**4.1000e-004**	**0.0267**	**4.5000e-004**	**0.0272**	**7.1300e-003**	**4.2000e-004**	**7.5500e-003**		**42.8794**	**42.8794**	**2.2000e-003**		**42.9344**

3.3 Site Preparation - 2019

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					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	2.0735	22.6793	14.3712	0.0211		1.1215	1.1215		1.0318	1.0318		2,086.9458	2,086.9458	0.6603		2,103.4529
Total	**2.0735**	**22.6793**	**14.3712**	**0.0211**	**5.2693**	**1.1215**	**6.3909**	**2.8965**	**1.0318**	**3.9283**		**2,086.9458**	**2,086.9458**	**0.6603**		**2,103.4529**

3.3 Site Preparation - 2019

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	0.0000	0.0000	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	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0107**	**7.4700e-003**	**0.0811**	**2.2000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**22.0931**	**22.0931**	**6.9000e-004**		**22.1104**

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					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	2.0735	22.6793	14.3712	0.0211		1.1215	1.1215		1.0318	1.0318	0.0000	2,086.9457	2,086.9457	0.6603		2,103.4529
Total	**2.0735**	**22.6793**	**14.3712**	**0.0211**	**5.2693**	**1.1215**	**6.3909**	**2.8965**	**1.0318**	**3.9283**	**0.0000**	**2,086.9457**	**2,086.9457**	**0.6603**		**2,103.4529**

3.3 Site Preparation - 2019

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	0.0000	0.0000	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	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0107**	**7.4700e-003**	**0.0811**	**2.2000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**22.0931**	**22.0931**	**6.9000e-004**		**22.1104**

3.4 Building Construction - 2019

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	1.9213	14.9573	12.7532	0.0211		0.8300	0.8300		0.7976	0.7976		1,969.8833	1,969.8833	0.4037		1,979.9752
Total	**1.9213**	**14.9573**	**12.7532**	**0.0211**		**0.8300**	**0.8300**		**0.7976**	**0.7976**		**1,969.8833**	**1,969.8833**	**0.4037**		**1,979.9752**

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Winter

3.4 Building Construction - 2019

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	4.0300e-003	0.1145	0.0308	2.5000e-004	6.4000e-003	7.7000e-004	7.1700e-003	1.8400e-003	7.4000e-004	2.5800e-003		26.8316	26.8316	1.9600e-003		26.8807
Worker	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0147**	**0.1220**	**0.1119**	**4.7000e-004**	**0.0288**	**9.4000e-004**	**0.0297**	**7.7700e-003**	**9.0000e-004**	**8.6700e-003**		**48.9247**	**48.9247**	**2.6500e-003**		**48.9911**

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	1.9213	14.9573	12.7532	0.0211		0.8300	0.8300		0.7976	0.7976	0.0000	1,969.8833	1,969.8833	0.4037		1,979.9752
Total	**1.9213**	**14.9573**	**12.7532**	**0.0211**		**0.8300**	**0.8300**		**0.7976**	**0.7976**	**0.0000**	**1,969.8833**	**1,969.8833**	**0.4037**		**1,979.9752**

3.4 Building Construction - 2019

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	4.0300e-003	0.1145	0.0308	2.5000e-004	6.4000e-003	7.7000e-004	7.1700e-003	1.8400e-003	7.4000e-004	2.5800e-003		26.8316	26.8316	1.9600e-003		26.8807
Worker	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0147**	**0.1220**	**0.1119**	**4.7000e-004**	**0.0288**	**9.4000e-004**	**0.0297**	**7.7700e-003**	**9.0000e-004**	**8.6700e-003**		**48.9247**	**48.9247**	**2.6500e-003**		**48.9911**

3.5 Paving - 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	0.9037	8.9966	9.4003	0.0145		0.4945	0.4945		0.4564	0.4564		1,379.8266	1,379.8266	0.4323		1,390.6332
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9037**	**8.9966**	**9.4003**	**0.0145**		**0.4945**	**0.4945**		**0.4564**	**0.4564**		**1,379.8266**	**1,379.8266**	**0.4323**		**1,390.6332**

3.5 Paving - 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	0.0000	0.0000	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	9.8700e-003	6.6600e-003	0.0736	2.1000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0800e-003		21.4073	21.4073	6.1000e-004		21.4227
Total	**9.8700e-003**	**6.6600e-003**	**0.0736**	**2.1000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0800e-003**		**21.4073**	**21.4073**	**6.1000e-004**		**21.4227**

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	0.9037	8.9966	9.4003	0.0145		0.4945	0.4945		0.4564	0.4564	0.0000	1,379.8266	1,379.8266	0.4323		1,390.6332
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9037**	**8.9966**	**9.4003**	**0.0145**		**0.4945**	**0.4945**		**0.4564**	**0.4564**	**0.0000**	**1,379.8266**	**1,379.8266**	**0.4323**		**1,390.6332**

3.5 Paving - 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	0.0000	0.0000	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	9.8700e-003	6.6600e-003	0.0736	2.1000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0800e-003		21.4073	21.4073	6.1000e-004		21.4227
Total	**9.8700e-003**	**6.6600e-003**	**0.0736**	**2.1000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0800e-003**		**21.4073**	**21.4073**	**6.1000e-004**		**21.4227**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Winter

	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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					
User Defined Industrial	0	0.0000	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**

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					
User Defined Industrial	0	0.0000	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**

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	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

PAR 1146 series Large Boiler Replacement - South Coast AQMD Air District, Winter

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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-4

Operational Emissions

Appendix B-4
CEQA Impact Evaluations - Assumptions and Calculations
(2018/08/28 rev)

Emissions Summary

PARs 1146 series and PR 1100	CO, lb/day	NOx, lb/day	PM10, lb/day	PM2.5, lb/day	VOC, lb/day	SOX, lb/day
Increased Delivery Trucks	19.25	30.43	2.18	1.22	4.54	0.12
Total	**19.25**	**30.43**	**2.18**	**1.22**	**4.54**	**0.12**

By Vehicle Class	CO, lb/day	NOx, lb/day	PM10, lb/day	PM2.5, lb/day	VOC, lb/day	SOX, lb/day	CO2, MT/yr	CH4, MT/yr	N2O, MT/yr	CO2e, MT/yr	All sites: Max. # used/day	All sites: Max. # day used/yr
Diesel Delivery Trucks (T6 Construction Truck)	19.25	30.43	2.18	1.22	4.54	0.12	39.53	0.001	-	39.55	65	452
Total	**19.25**	**30.43**	**2.18**	**1.22**	**4.54**	**0.12**	**39.53**	**0.001**	**-**	**39.55**		

Note:

1. It is conservatively assumed that there will be 56 units at 32 facilities affected by PARs 1146 series and PR 1100.

2. Peak daily trips assume one ammonia/urea delivery occurs at each facility, except for Facility 6 in which there will be two ammonia truck deliveries. Truck trip distances to deliver ammonia are assumed to be 100 miles round-trip.

3. No additional employees are anticipated to be needed to operate the new SCR systems; the existing work force per affected facility is expected to be sufficient. As such, no workers' travel emissions are anticipated from the operation of the new SCR systems.

4. It is assumed heavy duty trucks would be used to deliever ammonia/urea and catalyst.

5. Values in table may difffer due to rounding.

Delivery Trucks (Ammonia and Catalyst) - T6 instate construction heavy (T6) - each

	CO	NOx	PM10	PM2.5	VOC	SOX	CO2	CH4	N2O	CO2e	VMT, mile/day
lb/mile	0.0030	0.0047	0.0003	0.0002	0.0007	0.00002	1.93	0.000042	-	1.93	100.0
lb/day, MT/day for GHG	0.30	0.47	0.03	0.02	0.07	0.002	0.09	0.000002	-	0.09	

EF: from EMFAC2017 - Year 2019

PARs 1146 series and PR 1100 Operation Emissions
(11/08/18 rev.)

Summary

Key Requirements: Operation Phase	CO, lb/day	NOx, lb/day	PM10, lb/day	PM2.5, lb/day	VOC, lb/day	SOX, lb/day
Source Testing	5.12	0.43	0.13	0.06	0.54	0.002
Total	**5.12**	**0.43**	**0.13**	**0.06**	**0.54**	**0.002**

By Vehicle Class	CO, lb/day	NOx, lb/day	PM10, lb/day	PM2.5, lb/day	VOC, lb/day	SOX, lb/day	CO2, MT/yr	CH4, MT/yr	N2O, MT/yr	CO2e, MT/yr
Source Testing (LDT)	5.12	0.43	0.13	0.06	0.54	0.002	3.30	0.00	-	3.30
Total	**5.12**	**0.43**	**0.13**	**0.06**	**0.54**	**0.002**	**3.30**	**0.00**	**-**	**3.30**

All facilities	
Max. # used/day	**Max. # used/yr**
32	224

Notes and Assumptions:
1. 32 facilities would be subject to source testing for ammonia emissions limits. Each facility would only conduct one source test at a time even with multiple units at a facility.
2. 56 SCR systems would be required to conduct the necessary ammonia emissions testing four times a year; thus, in one year the maximum number of source testing truck trips would be 224.
3. It was assumed (1) source testing truck (LDT) would be used to complete source testing at each facility.
4. It was assumed every on-road vehicle used during operation would travel a distance of 40 miles round trip.
5. Values in table may differ due to rounding.

Light-Duty Truck (LDT) - each

	CO	NOx	PM10	PM2.5	VOC	SOX	CO2	CH4	N2O	CO2e
lb/mile	0.0040	0.0003	0.0001	0.00004	0.0004	0.000002	0.8	0.00004	-	0.81246
lb/day, MT/day for GHG	0.16	0.01	0.00	0.00	0.02	0.00	0.01	0.000001	-	0.01

VMT, mile/day
40.0

EF: from EMFAC2017, EPA AP-42

APPENDIX C

Tier III Risk Assessment Calculations of Diesel PM

TIER 3 SCREENING RISK ASSESSMENT DATA INPUT

(Version 8.0 & Attachment M, Revision Mar 2016) - RiskTool (V1.03)

Application Deemed Complete Date	02/28/18
A/N	PAR 1146 series/PR 1100
Facility Name	PAR 1146 series/PR 1100

Stack Data	**Input**	**Units**
Hours/Day	24	hrs/day
Days/Week	7	days/wk
Weeks/Year	52	wks/yr
Emission Units	lb/hr	
Control Efficiency	0.00000	fraction range 0-1
Does source have T-BACT?	NO	
Point or Volume Source?	P	P or V
Stack Height or Building Height	10	feet
Area (For Volume Source Only)	5000	ft^2
Distance-Residential	25	meters
Distance-Commercial	25	meters
Meteorological Station	Redlands	
Project Duration (Short Term Options: 2, 5, or 9 Years; Else 30 years)	30	years

Source Type:	O - Other
Screening Mode (**NO** = Tier 1 or Tier 2; **YES** = Tier 3)	YES

FOR SOURCES TYPE OTHER THAN CREMATORY, BOILER, ICES, OR PRESSURE WASHER, FILL IN THE TABLE BELOW

USER DEFINED CHEMICALS AND EMISSIONS				R1 - Uncontrolled	Efficiency Factor	R2 - Controlled
Compound Code	Compound	Emission Rate (lbs/hr)	Molecular Weight	lbs/hr	Fraction range 0-1	lbs/hr
P1	Particulate Emissions from Diesel-Fueled Engines	2.83E-06	350	0.000002834		0.000002834

TIER 3 SCREEN INPUT & CANCER BURDEN CALCULATION

(Version 8.0 & Attachment M, Revision Mar 2016) - RiskTool (V1.03)

A/N: PAR 1146 series/PR 1100 **Fac:** R 1146 series/PR 1100

Screening program used	AERSCREEN
Convert 1-hr to Annual Conc. Factor	0.1

Instructions: Run a screening program at 1 lb/hr rate to get the max 1-hr concentrations at residential & commercial receptors. Enter values into the yellow highlighted cells in the table below.

Modeling emissions rate	0.1260	g/sec
Modeling emissions rate	1.00	lbs/hr
Modeling emissions rate	4.38	tons/yr
Max Hours per day	24	hr/day
Days per week	7	dy/wk
Weeks per year	52	wk/yr

MODELING RESULTS - MAX ONE HOUR

Distance residential	**25**	meters
Max. 1-hr Conc. at Residential receptor	247.9	µg/m³
Annualized Conc. Residential	24.79	µg/m³
Distance Commerical	**25**	meters
Max. 1-hr Conc. at Comm. receptor	247.9	µg/m³
Annualized Conc. Commercial	24.79	µg/m³

Annualized X/Q

X/Q Residential	**5.665**	(µg/m³)/(tons/yr)
X/Q Commercial	**5.665**	(µg/m³)/(tons/yr)

Hourly X/Q (X/Q Max)

X/Q Residential	**248.119**	(µg/m³)/(lbs/hr)
X/Q Commercial	**248.119**	(µg/m³)/(lbs/hr)

SCREEN INPUT DATA - BRITISH UNITS

Actual exhaust rate	10000.00	acfm
Temperature	68.00	°F
Stack diameter	24.00	in
Stack height	13.50	ft
Modeling emissions rate	1.00	lb/hr

SCREEN INPUT DATA - METRIC UNITS

Temperature	293.000	K
Stack diameter	0.610	meters
Stack area	0.292	m^2
Stack height	4.115	meters
Stack velocity	16.179	m/s
Modeling emissions rate	0.12611	g/s

TIER 3 SCREENING RISK ASSESSMENT REPORT
(Version 8.0 & Attachment M, Revision Mar 2016) - RiskTool (V1.03)

A/N: ? 1146 series/PR 1100 **Application deemed complete date:** 2/28/2018
Fac: ? 1146 series/PR 1100

2. Tier 3 Data

Equipment Type	Other		No T-BACT			
Operation Schedule	24	hours/day;	7	days/week;	52	weeks/year
Stack Height	10	ft				
Distance - Residential	25	m				
Distance - Commercial	25	m				
Meteorological Station	Redlands					

Dispersion Factors tables	Point Source
For Chronic X/Q	Table 3
For Acute X/Q max	Table 6

Dilution Factors

Receptor	X/Q (µg/m³)/(tons/yr)	X/Qmax (µg/m³)/(lbs/hr)
Residential	5.665	248.119
Commercial - Worker	5.665	248.119

Adjustment and Intake Factors

	Residential	Worker
Year of Exposure	30	
Combined Exposure Factor (CEF) - Table 9.1 & 9.2	676.63	56.26
Worker Adjustment Factor (WAF) - Table 10	1	1.00

3. Rule 1401 Compound Data

Compound	R1 - Uncontrolled (lbs/hr)	R2 - Controlled (lbs/hr)	CP (mg/kg-day)$^{-1}$	MP MICR Resident	MP MICR Worker	MP Chronic Resident	MP Chronic Worker	REL Chronic (µg/m^3)	REL 8-hr Chronic (µg/m^3)	REL Acute (µg/m^3)	MWAF
Particulate Emissions from Diesel-Fueled Engines	2.83E-06	2.83E-06	1.10E+00	1.00	1.00	1.00	1.00	5.00E+00			1

4. Emission Calculations

Compound	R1 (lbs/hr)	R2 (lbs/hr)	R2 (lbs/yr)	R2 (tons/yr)
Particulate Emissions from Diesel-Fueled Engines	2.83E-06	2.83E-06	2.48E-02	1.24E-05
Total	**2.83E-06**	**2.83E-06**	**2.48E-02**	**1.24E-05**

TIER 3 RESULTS **A/N:** 1146 series/PR 1100 **Application deemed complete date:** 02/28/18

5a. MICR

MICR Resident = CP (mg/(kg-day))^-1 * Q (ton/yr) * (X/Q) Resident * CEF Resident * MP Resident * 1e-6 * MWAF

MICR Worker = CP (mg/(kg-day))^-1 * Q (ton/yr) * (X/Q) Worker * CEF Worker* MP Worker* WAF Worker* 1e-6 * MWAF

Compound	Residential	Commercial
Particulate Emissions from Diesel-Fueled Engines	5.22E-08	4.34E-09
Total	**5.22E-08**	**4.34E-09**
	PASS	**PASS**

No Cancer Burden, MICR<1.0E-6

5b. Cancer Burden Calculation?	**NO**

6. Hazard Index **A/N:** ≀ 1146 series/PR 1 **Application deemed complete date:** 02/28/18

HIA = [Q(lb/hr) * (X/Q)max * MWAF]/ Acute REL
HIC = [Q(ton/yr) * (X/Q) * MP * MWAF] / Chronic REL
HIC 8-hr= [Q(ton/yr) * (X/Q) * WAF * MWAF] / 8-hr Chronic REL

Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Alimentary system (liver) - AL				Pass	Pass	Pass
Bones and teeth - BN				Pass	Pass	Pass
Cardiovascular system - CV				Pass	Pass	Pass
Developmental - DEV				Pass	Pass	Pass
Endocrine system - END				Pass	Pass	Pass
Eye				Pass	Pass	Pass
Hematopoietic system - HEM				Pass	Pass	Pass
Immune system - IMM				Pass	Pass	Pass
Kidney - KID				Pass	Pass	Pass
Nervous system - NS				Pass	Pass	Pass
Reproductive system - REP				Pass	Pass	Pass
Respiratory system - RES		1.40E-05		Pass	Pass	Pass
Skin				Pass	Pass	Pass

6a. Hazard Index Acute - Resident

HIA = [Q(lb/hr) * (X/Q)max resident * MWAF] / Acute REL

	HIA - Residential									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Particulate Emissions from Diesel-Fueled Engines										
Total										

6a. Hazard Index Acute - Worker **A/N:** ≀ 1146 series/PR 1 **Application deemed complete date:** 02/28/18

HIA = [Q(lb/hr) * (X/Q)max Worker * MWAF] / Acute REL

	HIA - Commercial									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Particulate Emissions from Diesel-Fueled Engines										
Total										

6b. Hazard Index Chronic - Resident

HIC = [Q(ton/yr) * (X/Q) Resident * MP Chronic Resident * MWAF] / Chronic REL

	HIC - Residential												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Particulate Emissions from Diesel-Fueled Engines												1.40E-05	
Total												1.40E-05	

6b. Hazard Index Chronic - Worker

HIC = [Q(ton/yr) * (X/Q) * MP Chronic Worker * MWAF] / Chronic REL

	HIC - Commercial												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Particulate Emissions from Diesel-Fueled Engines												1.40E-05	
Total												1.40E-05	

6c. 8-hour Hazard Index Chronic - Resident **A/N:** ≀ 1146 series/PR 1 **Application deemed complete date:** 02/28/18

HIC 8-hr = [Q(ton/yr) * (X/Q) Resident * WAF Resident * MWAF] / 8-hr Chronic REL

	HIC - Residential												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Particulate Emissions from Diesel-Fueled Engines													
Total													

6c. 8-hour Hazard Index Chronic - Worker

HIC 8-hr = [Q(ton/yr) * (X/Q) Worker * WAF Worker * MWAF] / 8-hr Chronic REL

	HIC - Commercial												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Particulate Emissions from Diesel-Fueled Engines													
Total													

APPENDIX D

List of Affected Facilities

Appendix D - List of Affected Facilities

Facility ID	NAICS	Facility Name	Address	On List per Government Code 65962.5 (Envirostor)?	Distance from School (meters)	Distance from Sensitive Receptor (meters)	Airport within 2 miles (code)
1744	339991	KIRKHILL - TA COMPANY	300 E CYPRESS ST BREA 92821	No	227	227	No
2946	332111	PACIFIC FORGE INC	10641 S ETIWANDA AVE FONTANA 92337	No	2613	979	No
3029	313310	MATCHMASTER DYEING & FINISHING INC	3700 S BROADWAY LOS ANGELES 90007	No	185	185	No
3721	326140	DART CONTAINER CORP OF CALIFORNIA	150 S MAPLE ST CORONA 92880	No	1080	553	AJO
7416	325120	PRAXAIR INC	2300 E Pacific Coast Hwy Wilmington 90744	No	663	487	No
9053	221330	VEOLIA ENERGY LA INC	715 W 3RD ST LOS ANGELES 90071	No	91	91	No
11435	325180	PQ CORPORATION	8401 QUARTZ AVE SOUTH GATE 90280	No	702	268	No
11716	324122	FONTANA PAPER MILLS INC	13733 VALLEY BLVD FONTANA 92335	No	2268	171	No
12155	327120	ARMSTRONG FLOORING INC	5037 PATATA ST SOUTH GATE 90280	Yes	507	131	No
14871	322130	SONOCO PRODUCTS CO	166 N BALDWIN PARK BLVD CITY OF INDUSTRY 91746	No	994	211	No
16642	312120	ANHEUSER-BUSCH LLC., (LA BREWERY)	15800 ROSCOE BLVD VAN NUYS 91406	Yes	835	68	VNY
16978	311611	CLOUGHERTY PACKING LLC/HORMEL FOODS CORI	3049 E VERNON AVE VERNON 90058	No	1088	953	No
18294	336411	NORTHROP GRUMMAN SYSTEMS CORP	1 HORNET WAY EL SEGUNDO 90245	No	159	220	LAX
20604	445110	RALPHS GROCERY CO	1100 W ARTESIA BLVD COMPTON 90220	No	840	582	CPM
21887	322121	KIMBERLY-CLARK WORLDWIDE INC.-FULT. MILL	2001 E ORANGETHORPE AVE FULLERTON 92831	No	789	789	No
22607	311511	CALIFORNIA DAIRIES, INC	11709 ARTESIA BLVD ARTESIA 90701	No	391	29	No
35302	324122	OWENS CORNING ROOFING AND ASPHALT, LLC	1501 N TAMARIND AVE COMPTON 90222	No	463	125	CPM
40034	314110	BENTLEY PRINCE STREET INC	14641 DON JULIAN RD CITY OF INDUSTRY 91746	No	1123	548	No
42775	211120	WEST NEWPORT OIL CO	1080 W 17TH ST COSTA MESA 92627	No	428	428	No
45746	322130	PABCO BLDG PRODUCTS LLC,PABCO PAPER, DBA	4460 PACIFIC BLVD VERNON 90058	Yes	150	266	No
46268	332996	CALIFORNIA STEEL INDUSTRIES INC	14000 SAN BERNARDINO AVE FONTANA 92335	No	1241	302	No
47781	221112	OLS ENERGY-CHINO	5601 EUCALYPTUS AVE CHINO 91710	No	1548	546	No
51620	221112	WHEELABRATOR NORWALK ENERGY CO INC	11500 BALSAM ST NORWALK 90650	No	801	278	No
59618	313310	PACIFIC CONTINENTAL TEXTILES, INC.	2880 E ANA ST COMPTON 90221	No	899	778	No
74424	812331	ANGELICA TEXTILE SERVICES	451 SAN FERNANDO RD LOS ANGELES 90031	No	738	185	No
85943	331315	SIERRA ALUMINUM COMPANY	11806 PACIFIC AVE FONTANA 92337	Yes	1776	721	No
94872	332431	METAL CONTAINER CORP	10980 INLAND AVE MIRA LOMA 91752	No	2353	611	No
94930	325411	CARGILL INC	566 N GILBERT ST FULLERTON 92833	No	861	834	FUL
95212	314110	FABRICA	3201 S SUSAN ST SANTA ANA 92704	No	431	568	No
96587	313310	TEXOLLINI INC	2575 EL PRESIDIO ST CARSON 90810	No	848	370	No
126498	332812	STEELSCAPE, INC	11200 ARROW ROUTE RANCHO CUCAMONGA 91730	Yes	955	600	No
129816	221112	INLAND EMPIRE ENERGY CENTER, LLC	26226 Antelope Rd Menifee 92585	No	561	380	No
131732	334413	NEWPORT FAB, LLC	4321 JAMBOREE RD NEWPORT BEACH 92660	No	1960	175	SNA
131850	314110	SHAW DIVERSIFIED SERVICES INC	15305 VALLEY VIEW AVE SANTA FE SPRINGS 90670	No	715	532	No
132068	311812	BIMBO BAKERIES USA INC	480 S VAIL AVE MONTEBELLO 90640	No	203	98	No
143741	211120	DCOR LLC	OFFSHORE PLATFORM EDITH OCS P-0296 HUNTINGTON BEACH 92649	No	3337	3337	No
153199	445110	THE KROGER CO/RALPHS GROCERY CO	850 S CYPRESS ST LA HABRA 90631	No	585	585	No
155877	312120	MILLERCOORS, LLC	15801 E 1ST ST IRWINDALE 91706	No	1705	1537	No
157363	322211	INTERNATIONAL PAPER CO	601 E BALL RD ANAHEIM 92805	No	407	160	No
165192	336411	TRIUMPH AEROSTRUCTURES, LLC	3901 JACK NORTHROP AVE HAWTHORNE 90250	No	566	256	HHR
168088	561110	POLYNT COMPOSITES USA INC	2801 LYNWOOD RD LYNWOOD 90262	Yes	457	234	No
172005	322121	NEW- INDY ONTARIO, LLC	5100 E. JURUPA ST ONTARIO 91761	No	3465	2589	No
173290	812332	MEDICLEAN	4500 DUNHAM ST COMMERCE 90040	No	521	60	No

Facility ID	NAICS	Facility Name	Address	On List per Government Code 65962.5 (Envirostor)?	Distance from School (meters)	Distance from Sensitive Receptor (meters)	Airport within 2 miles (code)
175154	211120	FREEPORT-MCMORAN OIL & GAS	1400 N MONTEBELLO BLVD MONTEBELLO 90640	No	1059	425	No
175191	211120	FREEPORT-MCMORAN OIL & GAS	5640 S FAIRFAX AVE LOS ANGELES 90056	No	803	25	No
180367	211111	LINN OPERATING, INC.	25121 N SIERRA HWY SANTA CLARITA 91321	No	1112	1040	No
180410	325211	REICHHOLD LLC 2	237 S MOTOR AVE AZUSA 91702	No	1721	1327	No
182049	486910	TORRANCE VALLEY PIPELINE CO LLC	8044 WOODLEY AVE VAN NUYS 91406	No	1019	498	VNY
182050	221210	TORRANCE VALLEY PIPELINE CO LLC	25500 MAGIC MOUNTAIN PKY VALENCIA 91355	No	1878	724	No
182051	486210	TORRANCE VALLEY PIPELINE CO LLC	5800 SEPULVEDA BLVD CULVER CITY 90230	No	306	364	No
183832	313210	AST Textile	12537 CERISE AVE HAWTHORNE 90250	No	303	204	HHR
800003	336413	HONEYWELL INTERNATIONAL INC	2525 W 190TH ST TORRANCE 90504	No	266	218	No
800066	336419	HITCO CARBON COMPOSITES INC	1551 W 139TH ST GARDENA 90249	No	1256	219	No
800113	336412	ROHR, INC.	8200 ARLINGTON AVE RIVERSIDE 92503	Yes	712	157	RAL
800128	486210	SO CAL GAS CO	12801 TAMPA AVE NORTHRIDGE 91326	No	385	99	No
800129	486910	SFPP, L.P.	2359 RIVERSIDE AVE BLOOMINGTON 92316	Yes	1586	576	No
800149	325180	US BORAX INC	300 FALCON ST WILMINGTON 90744	No	1813	1653	No
800189	713110	DISNEYLAND RESORT	1313 S HARBOR BLVD ANAHEIM 92802	Yes	1142	568	No
800205	522120	BANK OF AMERICA NT & SA, BREA CENTER	275 VALENCIA AVE BREA 92823	No	376	1258	No
800371	541511	RAYTHEON SYSTEMS COMPANY - FULLERTON OPS	1801 HUGHES DR FULLERTON 92833	No	112	112	FUL
800408	336411	NORTHROP GRUMMAN SYSTEMS	3301 AVIATION Blvd Lawndale 90260	No	611	247	No
800409	336411	NORTHROP GRUMMAN SYSTEMS CORPORATION	1 SPACE PARK BLVD REDONDO BEACH 90278	Yes	594	247	No
800416	486110	PLAINS WEST COAST TERMINALS LLC	692 STUDEBAKER RD LONG BEACH 90803	Yes	193	81	No
800417	486110	PLAINS WEST COAST TERMINALS LLC	2500 E VICTORIA ST COMPTON 90220	No	1620	412	No
800419	486110	PLAINS WEST COAST TERMINALS LLC	21652 NEWLAND ST HUNTINGTON BEACH 92646	Yes	1046	668	No
800420	486110	PLAINS WEST COAST TERMINALS LLC	2685 PIER S LN LONG BEACH 90802	Yes	2631	1378	No
56	611310	UNIVERSITY SO CALIFORNIA,HEALTH SCIENCES	2011 ZONAL AVENUE LOS ANGELES 90033	No	134	134	No
918	622110	QUEEN OF THE VALLEY HOSPITAL	1115 S SUNSET AV WEST COVINA 91790	No	652	29	No
958	611110	LA UNI SCH DIST, WOODROW WILSON HIGH	4500 MULTNOMAH ST LOS ANGELES 90032	No	277	11	No
1179	221320	INLAND EMPIRE UTL AGEN, A MUN WATER DIS	16400 EL PRADO CHINO 91710	No	1790	898	No
1209	325314	DECCO US POST HARVEST, INC.	1713 S CALIFORNIA AV MONROVIA 91016	No	615	164	No
1440	622110	ST. VINCENT MEDICAL GROUP	2131 W 3RD ST LOS ANGELES 90057	No	761	79	No
1483	311999	ACCESS BUSINESS GROUP LLC, NUTRILITE	5600 BEACH BLVD BUENA PARK 90622	No	658	132	FUL
1912	611210	SADDLEBACK COMMUNITY COLLEGE DISTRICT	28000 MARGUERITE PKY MISSION VIEJO 92692	No	776	2	No
2119	611110	LA UNI SCH DIST, STEVENSON MIDDLE SCHOOL	725 S INDIANA ST LOS ANGELES 90023	No	470	135	No
2124	622110	ADVENTIST HEALTH GLENDALE	1505-1509 WILSON TERRACE GLENDALE 91206	No	655	47	No
2212	221320	LA CITY, LA-GLENDALE WATER RECLAMATION	4600-4610 COLORADO BL LOS ANGELES 90039	No	917	404	No
2261	622110	METROPOLITAN STATE HOSPITAL	11401 S BLOOMFIELD AVE NORWALK 90650	No	1219	307	No
2344	512110	20TH CENTURY FOX FILM CORP	10201 W PICO BL LOS ANGELES 90035	No	718	180	No
2504	444190	ANGELUS BLOCK CO INC	11740 SHELDON ST SUN VALLEY 91352	No	1262	700	No
2537	562213	CORONA CITY, DEPT OF WATER & POWER	1904 W CLEARWATER DR CORONA 92880	No	2155	998	No
2605	325412	3M DRUG DELIVERY SYSTEMS	19901 NORDHOFF ST NORTHRIDGE 91324	No	1146	201	No
2638	611310	OCCIDENTAL COLLEGE	1600 CAMPUS RD LOS ANGELES 90041	No	779	0	No
2680	924110	LA CO., SANITATION DISTRICT	1965 WORKMAN MILL RD WHITTIER 90601	No	1312	148	No
2961	611310	CAL ST UNIV, DOMINGUEZ HILLS	1000 E VICTORIA ST. CARSON 90747	No	87	19	No
3002	811490	ARAMARK CLEANROOM SERVICES, INC.	1405 E 58TH PLACE LOS ANGELES 90001	No	687	47	No
3153	311412	GOLDEN STATE FOODS CORP	640 S 6TH AV CITY OF INDUSTRY 91746	No	565	426	No
3254	312111	AMERIPEC INC	6965 ARAGON CIR BUENA PARK 90620	No	595	126	No

Facility ID	NAICS	Facility Name	Address	On List per Government Code 65962.5 (Envirostor)?	Distance from School (meters)	Distance from Sensitive Receptor (meters)	Airport within 2 miles (code)
3424	424430	THRIFTY ICE CREAM	9200 TELSTAR EL MONTE 91731	No	341	227	No
3496	624120	FAIRVIEW DEVELOPMENTAL CENTER	2501 HARBOR BLVD COSTA MESA 92626	No	830	19	No
3550	524113	PACIFIC LIFE INSURANCE	700 NEWPORT CENTER DR NEWPORT BEACH 92660	No	1320	97	No
3578	448190	PRUDENTIAL OVERALL SUPPLY	951 E SANDHILL CARSON 90746	No	526	108	No
3665	622110	METHODIST HOSPITAL OF SO CAL	300 W HUNTINGTON DR ARCADIA 91007	No	455	338	No
3671	622110	EISENHOWER MEDICAL CENTER	39000 BOB HOPE DR RANCHO MIRAGE 92270	No	2359	129	No
3781	327390	OLDCASTLE PRECAST	10650 HEMLOCK AV FONTANA 92335	No	2097	689	No
3885	622110	JERRY L PETTIS MEMORIAL VETERANS HOSP	11201 BENTON ST LOMA LINDA 92357	No	1434	16	No
4297	712110	J. PAUL GETTY TRUST	17985 PACIFIC COAST HWY MALIBU 90265	No	1458	19	No
4311	325412	INTERNATIONAL MEDICATION SYSTEMS LTD	1878-86 SANTA ANITA AVE SOUTH EL MONTE 91733	No	399	69	No
4351	611310	CAL ST, POLYTECHNIC UNIV, POMONA	3801 TEMPLE AV POMONA 91768	Yes	790	10	No
4430	444190	ANGELUS BLOCK CO INC	11374 TUXFORD ST SUN VALLEY 91352	No	1543	476	No
4565	611310	CAL ST UNIV NORTHRIDGE	18111 NORDHOFF ST NORTHRIDGE 91330	No	1172	21	No
4591	221310	ORANGE COUNTY WATER DISTRICT	10500 ELLIS AV FOUNTAIN VALLEY 92708	No	497	35	No
4783	622110	LOS ALAMITOS MEDICAL CENTER	3751 KATELLA AV LOS ALAMITOS 90720	No	710	158	No
5023	611310	CAL ST UNIV LONG BEACH EH&S	1250 BELLFLOWER BL.; SSA-341 LONG BEACH 90840	No	584	29	LGB
5176	611110	LA UNI SCH DIST, VERDUGO HILLS HIGH	10625 PLAINVIEW AV TUJUNGA 91042	No	209	34	No
5254	813410	JONATHAN CLUB	545 S FIGUEROA ST. LOS ANGELES 90071	No	441	360	No
5259	325620	JOHNSON & JOHNSON CONSUMER, INC.	5755-60 W 96TH STREET LOS ANGELES 90045	No	480	480	LAX
5346	611110	ALHAMBRA SCHOOL DIST,ALHAMBRA HIGH SCH	101 S 2ND ST ALHAMBRA 91801	No	521	14	No
5366	921110	PASADENA CITY, CITY HALL	100 N GARFIELD AVE. PASADENA 91109	No	855	557	No
5484	621491	SADDLEBACK MEMORIAL MEDICAL CENTER	24451 HEALTH CENTER DR LAGUNA HILLS 92653	No	943	0	No
5583	611110	ALHAMBRA SCH DIST, SAN GABRIEL HI SCHOOL	801 RAMONA ST SAN GABRIEL 91776	No	163	163	No
5679	621111	US GOVT, VETERANS ADMINISTRATION MED CTR	16111 PLUMMER ST NORTH HILLS 91343	No	394	19	No
5756	921190	REDLANDS CITY, WASTEWATER TREATMENT PLT	1950 NEVADA ST REDLANDS 92373	No	1500	1500	SBD
5903	311511	ALTA DENA CERTIFIED DAIRY INC,UNIT N0.01	17637 E VALLEY BLVD CITY OF INDUSTRY 91744	No	950	130	No
6046	711212	LOS ANGELES TURF CLUB INC	285 W HUNTINGTON DR ARCADIA 91007	No	644	587	No
6069	812331	STEINER CORP	1755 HASTER ST ANAHEIM 92802	No	874	121	No
6321	721110	WESTIN BONAVENTURE HOTEL	404 S FIGUEROA ST LOS ANGELES 90071	No	455	200	No
6324	622110	ST. BERNARDINE MEDICAL CENTER	2101 N WATERMAN AV SAN BERNARDINO 92404	No	797	69	No
6331	622210	PATTON STATE HOSPITAL	3102 E HIGHLAND AV HIGHLAND 92346	No	993	214	No
6358	424490	MARUKAN VINEGAR (USA) INC	7755 MONROE ST. PARAMOUNT 90723	No	744	0	No
6384	622310	LA CO., RANCHO LOS AMIGOS NAT. REHAB CTR	7601 E IMPERIAL HWY DOWNEY 90242	No	816	192	No
6432	221310	METROPOLITAN WATER DISTRICT OF SO CAL	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
6552	519120	LA CITY, CENTRAL PUB LIBRARY	630 W 5TH ST LOS ANGELES 90071	No	235	93	No
6586	488320	VOPAK TERMINAL LOS ANGELES, INC.	401 CANAL ST WILMINGTON 90744	No	1100	970	No
6739	622110	KAISER FOUNDATION HOSPITAL	13652 CANTARA ST PANORAMA CITY 91402	No	792	116	BUR
6897	115310	LONG BEACH CITY, WATER DEPT	2920 REDONDO AVE. LONG BEACH 90806	No	362	6	No
6974	484121	BULK TRANSPORTATION INC	415 LEMON AVE. WALNUT 91789	No	592	172	No
7010	812332	PRUDENTIAL OVERALL SUPPLY	16901 ASTON ST IRVINE 92606	No	1548	209	No
7018	448190	L & N COSTUME SERVICES	1602 E EDINGER SANTA ANA 92705	No	785	674	No
7417	221320	EASTERN MUNICIPAL WATER DIST	26560 WATSON RD & 1301 CASE RD PERRIS 92570	No	1571	82	No
7462	611110	LONG BEACH UNI SCH DIST/JORDAN HIGH	6500 ATLANTIC AV LONG BEACH 90805	No	452	19	No
7730	326150	CARPENTER CO	7809 LINCOLN AVENUE RIVERSIDE 92504	Yes	1427	206	No
7814	311111	STAR MILLING CO	20767 HWY I-215 PERRIS 92570	No	546	546	L65

Facility ID	NAICS	Facility Name	Address	On List per Government Code 65962.5 (Envirostor)?	Distance from School (meters)	Distance from Sensitive Receptor (meters)	Airport within 2 miles (code)
8015	332813	ANADITE INC	10647 GARFIELD AV SOUTH GATE 90280	Yes	1054	47	No
8066	325180	US BORAX & CHEM CORP UNIT NO. 9	300 FALCON ST WILMINGTON 90744	No	2000	1700	No
8220	622110	PROVIDENCE ST JOSEPH MED CTR	501 S BUENA VISTA ST BURBANK 91505	No	175	175	No
8254	423990	YAMAHA CORPORATION OF AMERICA	6600 ORANGETHORPE AV BUENA PARK 90620	No	402	171	No
8369	922150	LA CO., PROBATION DEPT/ISD	7285 QUILL DR DOWNEY 90242	No	507	143	No
8488	322211	INTERNATIONAL PAPER CO	1350 E 223RD ST CARSON 90745	No	1263	301	No
8560	812332	PRUDENTIAL OVERALL SUPPLY CO	6920 & 6948 BANDINI BL COMMERCE 90040	No	1183	1024	No
8608	812331	CINTAS CORP	7735 PARAMOUNT BLVD. PICO RIVERA 90660	No	1579	235	No
9163	221320	INLAND EMPIRE UTL AGEN, A MUN WATER DIS	2450 PHILADELPHIA AVE ONTARIO 91761	No	744	716	ONT
9243	622110	TORRANCE MEMORIAL MEDICAL CENTER	3330 LOMITA BL TORRANCE 90505	Yes	695	245	No
9519	311919	SANYO FOODS CORP OF AMERICA	11955 MONARCH ST GARDEN GROVE 92841	No	679	414	No
9784	622310	REDLANDS COMMUNITY HOSPITAL	350 TERRACINA BLVD/LAUREL AV REDLANDS 92373	No	629	142	No
9961	221320	RIVERSIDE CITY, WATER QUALITY CONTROL	5950 ACORN ST RIVERSIDE 92504	No	1468	1064	RAL
10167	922120	SAN BERN. CO, FACILITIES MGMT DEPT	351 N ARROWHEAD SAN BERNARDINO 92410	No	678	398	No
10198	221320	VALLEY SANITARY DIST	45-500 VAN BUREN ST INDIO 92201	No	208	3	No
10245	924110	LA CITY, TERMINAL ISLAND TREATMENT PLANT	445 FERRY ST SAN PEDRO 90731	No	2300	1773	No
10267	621493	SAINT MARY'S MEDICAL CENTER	1050 LINDEN AVE. LONG BEACH 90813	No	343	119	No
10609	611110	PASADENA USD, CHARLES W ELIOT MIDDLE SCH	2184 N LAKE AVE ALTADENA 91001	No	150	43	No
10740	325991	TEKNOR APEX COMPANY, MACLIN DIVISION	420 S 6TH AV CITY OF INDUSTRY 91746	No	925	428	No
11082	441110	DESERT COTTONSEED PRODUCTS INC	86-600 AVENUE 54 COACHELLA 92236	No	2153	597	No
11218	921190	ORANGE CO, CENTRAL UTILITY FACILITY	525 N FLOWER ST SANTA ANA 92703	Yes	628	262	No
11245	622110	HOAG HOSPITAL	301 NEWPORT BLVD NEWPORT BEACH 92658	No	1109	122	No
11301	221320	SAN BERNARDINO CITY MUN WATER DEPT (WRP)	399 CHANDLER PL SAN BERNARDINO 92408	No	660	391	No
11328	611210	RIO HONDO COMMUNITY COLLEGE	3600 WORKMAN MILL RD WHITTIER 90601	No	954	132	No
11428	622110	KAISER FOUNDATION HOSP	6041 CADILLAC AVE LOS ANGELES 90034	Yes	790	89	No
11508	622110	PRESBYTERIAN INTERCOMMUNITY HOSP	12401 E WASHINGTON BL WHITTIER 90602	No	719	156	No
11604	311511	STREMICKS HERITAGE FOODS LLC	4002 W WESTMINSTER AV SANTA ANA 92703	No	723	82	No
11732	622110	KAISER FOUNDATION HOSPITALS	9961 SIERRA AV FONTANA 92335	Yes	776	124	No
11998	336413	GOODRICH CORPORATION	11120 S NORWALK BLVD SANTA FE SPRINGS 90670	Yes	1027	71	No
12129	623311	BEVERLY HOSPITAL	309 W BEVERLY BLVD MONTEBELLO 90640	No	618	113	No
12170	332999	VACCO INDUSTRIES	10350 VACCO ST SOUTH EL MONTE 91733	Yes	444	156	No
12182	531110	PARK LA BREA	530 S BURNSIDE AV LOS ANGELES 90036	No	800	0	No
12319	921110	LA CITY, DEPT OF GEN SERVICES	111 E 1ST ST LOS ANGELES 90012	No	723	251	No
12332	532411	GATX CORPORATION	20878 SLOVER COLTON 92324	No	950	695	No
12505	622110	VALLEY PRESBYTERIAN HOSPITAL	15107 VANOWEN ST VAN NUYS 91405	No	275	0	No
12528	321211	GENERAL VENEER MFG CO	8651-52 OTIS ST SOUTH GATE 90280	No	237	175	No
12732	622110	JOHN F. KENNEDY MEM HOSP	47111 MONROE ST INDIO 92201	No	438	61	No
12820	622110	KAISER FOUNDATION HOSP	9400 E ROSECRANS AV BELLFLOWER 90706	No	863	79	No
12876	326140	FOAM FABRICATORS	1810 S SANTA FE AVE COMPTON 90221	No	829	0	No
12900	424950	ELLIS PAINTS CO/PACIFIC COAST LACQUER	3150 E PICO BL LOS ANGELES 90023	Yes	489	288	No
12923	922160	RIALTO CITY	501 E SANTA ANA AV BLOOMINGTON 92316	No	2297	23	No
13011	326199	THE GILL CORPORATION	4040-76 EASY ST EL MONTE 91731	No	821	32	EMT
13031	621111	ORTHOPAEDIC HOSP	2400 S FLOWER ST LOS ANGELES 90007	No	409	222	No
13041	331492	GEMINI INDUSTRIES INC	2311 S PULLMAN ST SANTA ANA 92705	Yes	713	713	No
13126	311225	COAST PACKING CO	3275 E VERNON AVE VERNON 90058	No	1487	1418	No

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13433	562219	SO ORANGE CO WASTEWATER AUTHORITY-RTP	29200-01 LA PAZ RD LAGUNA NIGUEL 92677	No	668	11	No
13510	621111	HOSPITAL OF THE GOOD SAMARITAN	616 S WITMER ST LOS ANGELES 90017	No	642	151	No
13613	622110	WHITE MEMORIAL MEDICAL CENTER	1720 CESAR CHAVEZ AVE LOS ANGELES 90033	No	201	0	No
13854	611210	EAST LOS ANGELES COLLEGE	1301 AVENIDA CESAR CHAVEZ MONTEREY PARK 91754	No	573	47	No
13920	622110	SAINT JOSEPH HOSPITAL	1100 W STEWART DR ORANGE 92868	No	792	116	No
13990	621491	US GOVT, VETERANS AFFAIRS MEDICAL CENTER	5901 E 7TH ST LONG BEACH 90822	No	1326	24	No
14150	922140	CAL ST, INST FOR WOMEN	16756 CHINO-CORONA RD. CORONA 92880	No	2255	349	CNO
14213	622110	LONG BEACH MEMORIAL MEDICAL CENTER	2801 ATLANTIC AVE. LONG BEACH 90806	No	745	166	No
14277	611110	LA UNI SCH DIST, NIGHTINGALE MIDDLE SCH	3311 N FIGUEROA ST LOS ANGELES 90065	No	319	85	No
14336	611110	LA UNI SCH DIST, PEARY MIDDLE SCHOOL	1415 W GARDENA BLVD GARDENA 90247	No	180	109	64CL
14437	622110	SAN ANTONIO REGIONAL HOSPITAL	999 SAN BERNARDINO RD UPLAND 91786	Yes	723	171	No
14625	322211	INTERNATIONAL PAPER	11211 GREENSTONE AVE SANTA FE SPRINGS 90670	No	1283	422	No
14924	622110	ST. FRANCIS MEDICAL CENTER	3630 E IMPERIAL HWY. LYNWOOD 90262	No	150	150	No
14966	621491	VA GREATER LOS ANGELES HEALTHCARE SYS	WILSHIRE/SAWTELLE LOS ANGELES 90073	No	678	219	No
15031	922140	SAN BERN. CO, EPWA COUNTY JAIL	630 E RIALTO AV SAN BERNARDINO 92415	No	649	101	No
15523	611110	PASADENA UNI SCH DIST, PASADENA HIGH SCH	2925 E SIERRA MADRE BL PASADENA 91107	No	278	47	No
15648	336419	HITCO CARBON COMPOSITES INC	1600 W 135TH STREET GARDENA 90249	No	1000	500	No
15713	813410	THE CALIFORNIA CLUB	538 S FLOWER ST LOS ANGELES 90071	No	216	185	No
15794	311999	NISSIN FOODS (USA) CO., INC.	2001 W ROSECRANS AV GARDENA 90249	No	772	240	No
16070	812331	BRAUN LINEN SERVICE INC	16514 S GARFIELD AV PARAMOUNT 90723	No	306	74	No
16110	611310	LA CITY, HARBOR COLLEGE	1111 FIGUEROA PL WILMINGTON 90744	Yes	679	360	No
16389	622110	CEDARS-SINAI MEDICAL CTR	8700 BEVERLY BLVD & ARDEN DR LOS ANGELES 90048	No	410	0	No
16424	611210	NORTH OR. CO. COMM COL DIST	321 E CHAPMAN AVE & 315 E WLSH FULLERTON 92832	No	311	113	No
16654	812320	BRAUN/A-1 LINEN SERVICE INC	396 S LA MESA ST POMONA 91766	No	613	0	No
16865	325320	AMVAC CHEMICAL CORP	4100 E WASHINGTON BLVD LOS ANGELES 90023	No	780	730	No
16947	311612	SERV-RITE MEAT CO INC	2515 SAN FERNANDO RD LOS ANGELES 90065	No	507	23	No
17069	924110	LA CITY, DEPT OF GEN SERVICES, PIPER TEC	555 RAMIREZ ST, (1/18)SP #200 LOS ANGELES 90012	No	761	383	No
17288	611210	EL CAMINO COLLEGE	16007 S CRENSHAW BL TORRANCE 90506	No	510	325	64CL
17301	221320	ORANGE COUNTY SANITATION DISTRICT	10844 ELLIS AVE. FOUNTAIN VALLEY 92708	No	1098	315	No
17328	541990	US GOVT, FED BLDG GSA	300 N LOS ANGELES ST LOS ANGELES 90012	No	779	472	No
17474	444190	ANGELUS BLOCK CO INC	14515 WHITTRAM AVE. FONTANA 92335	No	341	193	No
17722	622110	COMMUNITY HOSPITAL OF SAN BERNARDINO	1500 W 17TH ST SAN BERNARDINO 92411	No	621	27	No
17749	922140	ST CALIF DEPT CORRECTIONS,CAL REHAB CNTR	5TH ST/WESTERN NORCO 92860	No	649	330	No
17829	611310	L.A. PIERCE COMMUNITY COLLEGE	6201 WINNETKA AV WOODLAND HILLS 91371	Yes	475	37	No
17838	922140	OR CO, SHERIFF DEPT, FAC OPERATIONS	501 CITY DR ORANGE 92868	No	1191	66	No
18451	622110	SAN GORGONIO PASS MEM HOSP DIST	600 N HIGHLAND SPRINGS AV BANNING 92220	Yes	858	146	No
18452	611210	UNIVERSITY OF CALIFORNIA, LOS ANGELES	301 HILGARD AVENUE LOS ANGELES 90095	No	615	16	No
18542	561990	COLLEGE OF THE DESERT	43-500 MONTEREY AV PALM DESERT 92260	No	887	50	No
18606	812331	STEINER CORP, AMERICAN LINEN	900 N HIGHLAND AV LOS ANGELES 90038	No	167	74	No
18636	325180	US BORAX & CHEM CORP UNIT NO. 2	300 FALCON ST WILMINGTON 90744	No	2000	1000	No
18791	324191	LUBRICATING SPECIALTIES CO	8015 PARAMOUNT BLVD PICO RIVERA 90660	No	1326	80	No
18885	622310	CHILDREN'S HOSPITAL OF LOS ANGELES	4650 SUNSET BLVD LOS ANGELES 90027	Yes	423	256	No
18960	611210	PASADENA CITY COLLEGE	1570 E COLORADO BLVD PASADENA 91106	No	116	116	No
19159	221320	EASTERN MUNICIPAL WATER DIST	22251 SANDERSON AVE SAN JACINTO 92582	No	3504	13	No
19185	611210	NO ORANGE CO,.COMM COLLEGE DIST, CYPRESS	9200 VALLEY VIEW CYPRESS 90630	No	678	43	No

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19353	611210	GOLDEN WEST COLLEGE, COMMUNITY COLLEGE	15744 GOLDEN WEST ST HUNTINGTON BEACH 92647	No	203	34	No
19629	311225	LIBERTY VEGETABLE OIL CO	15306 S CARMENITA RD SANTA FE SPRINGS 90670	No	1424	423	No
19848	611310	CAL BAPTIST UNIVERSITY	8432 MAGNOLIA AV RIVERSIDE 92504	No	570	66	No
20197	622110	LAC/USC MEDICAL CENTER	1200 N STATE ST LOS ANGELES 90033	No	460	261	No
20237	221310	SAN CLEMENTE CITY, WASTEWATER DIV	380 AVENIDA PICO SAN CLEMENTE 92672	No	909	26	No
20252	221118	BANNING CITY, WASTEWATER TREATMENT PLAN	2242 E CHARLES ST BANNING 92220	No	2689	134	BNG
20375	812332	PRUDENTIAL OVERALL SUPPLY	6997 JURUPA AV RIVERSIDE 92504	No	1579	502	RAL
20451	622310	INTER-COMMUNITY MEDICAL CENTER	303 N 3RD AV COVINA 91723	No	443	5	No
20782	327331	ANGELUS BLOCK CO INC	1705 N MAIN ST ORANGE 92865	No	1025	803	No
21147	623220	HOLLENBECK PALMS	573 S BOYLE LOS ANGELES 90033	No	449	0	No
21505	611310	LA CITY COLLEGE	855 N VERMONT AV LOS ANGELES 90029	No	333	60	No
21717	712110	LA CO., MUSEUM OF ART	5905 WILSHIRE BLVD LOS ANGELES 90036	No	713	143	No
21858	311511	YOPLAIT USA INC	1055 E SANDHILL AV CARSON 90746	No	480	98	No
22092	331210	WESTERN TUBE & CONDUIT CORP	2001 E DOMINGUEZ ST LONG BEACH 90801	No	843	623	No
22312	721110	LA AIRPORT MARRIOTT HOTEL	5855 W CENTURY BLVD LOS ANGELES 90045	No	925	346	No
22390	923130	LA CO CIVIC CENTER	313 N FIGUEROA ST LOS ANGELES 90012	No	737	414	No
22674	221320	L.A. COUNTY SANITATION DIST VALENCIA PLT	28185 THE OLD ROAD VALENCIA 91355	No	2033	42	No
22962	311511	DRIFTWOOD DAIRY	10724 LOWER AZUSA RD. EL MONTE 91731	No	752	101	EMT
23043	541618	CSU, SAN BERNARDINO	5500 UNIVERSITY PKWY SAN BERNARDINO 92407	No	863	148	No
23106	325211	CARGILL INC	2800 LYNWOOD RD LYNWOOD 90262	No	748	101	No
23194	622310	CITY OF HOPE MEDICAL CENTER	1500 E DUARTE RD DUARTE 91010	No	995	227	No
23303	721110	ANAHEIM MAJESTIC GARDEN HOTEL	1015 W BALL RD ANAHEIM 92802	No	682	220	No
23324	325611	NORMAN, FOX & CO, UNIT NO. 1	5511 S BOYLE AVE VERNON 90058	No	782	549	No
23399	622110	WEST HILLS HOSPITAL AND MEDICAL CENTER	7300 MEDICAL CENTER DR WEST HILLS 91307	No	475	64	No
23411	325612	SANITEK PROD. INC	3959 GOODWIN AV LOS ANGELES 90039	No	853	74	No
23506	611210	WEST LOS ANGELES COLLEGE	4800 FRESHMAN DRIVE CULVER CITY 90230	no	644	34	No
23909	623110	CONGREGATIONAL HOMES, MT SAN ANTONIO GAI	900 E HARRISON AV CLAREMONT 91711	No	235	3	POC
23988	484110	VERNON WAREHOUSE CO	2322 E 37TH/38TH ST VERNON 90058	No	690	642	No
24006	611310	CAL ST UNIV LA	5151 STATE UNIVERSITY DR LOS ANGELES 90032	No	126	126	No
24046	327390	ORCO BLOCK CO INC	4510 RUTILE ST RIVERSIDE 92509	No	1178	280	No
24207	522110	WELLS FARGO BANK	3440 FLAIR DR EL MONTE 91731	No	605	163	No
24209	332813	VALMONT GEORGE INDUSTRIES	4116 WHITESIDE ST LOS ANGELES 90063	Yes	752	148	No
24505	622110	BEAR VALLEY COMMUNITY HEALTHCARE DIST.	41870 GARSTIN DR BIG BEAR LAKE 92315	No	1650	100	No
24532	721110	MIRAMAR HOTEL	1132 2ND ST SANTA MONICA 90403	No	386	35	No
24546	622110	ST JUDE MEDICAL CENTER	101 E VALENCIA MESA DR FULLERTON 92835	No	504	169	No
24570	332813	PRECISION ANODIZING & PLATING INC	1601 MILLER ST ANAHEIM 92806	No	835	190	No
24638	332811	NEWTON HEAT TREATING CO, INC	19235 E WALNUT DRIVE CITY OF INDUSTRY 91748	No	187	185	No
24711	531120	ANAHEIM CITY, CONVENTION CTR	800 W KATELLA AV ANAHEIM 92803	No	1036	330	No
25070	562212	LA CNTY SANITATION DISTRICT-PUENTE HILLS	2800 WORKMAN MILL RD CITY OF INDUSTRY 91745	No	1442	452	No
25248	561210	US GOVT, FED CORRECTIONAL INST (FCI)	TERMINAL ISLAND SAN PEDRO 90731	Yes	2116	1580	No
25591	922140	COUNTY OF RIVERSIDE (BA176)	1626 HARGRAVE ST BANNING 92220	No	1341	0	BNG
25786	312111	SEVEN-UP/ROYAL CROWN BOTTLING CO OF SOCA	3220 E 26TH ST LOS ANGELES 90023	No	1333	1165	No
25965	811310	RAINBOW TRANSPORT TANK CLEANERS,C.ALBIN	21119 S. WILMINGTON AVE LONG BEACH 90810	Yes	259	56	No
27497	722511	LA CITY, DEPT OF GEN SERVICES	1201 S FIGUEROA ST LOS ANGELES 90015	No	610	23	No
29110	221320	ORANGE COUNTY SANITATION DISTRICT	22212 BROOKHURST ST HUNTINGTON BEACH 92646	No	1255	55	No

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29411	922140	LA CO., SHERIFF'S DEPT	441 BAUCHET ST LOS ANGELES 90012	No	319	274	No
29582	112111	SCOTT BROS DAIRY	12000 S EAST END AVE CHINO 91710	No	417	19	No
30626	322299	F-D-S MANUFACTURING CO INC	2200 S RESERVOIR ST POMONA 91766	No	1173	130	No
32924	611210	CRAFTON HILLS COLLEGE	11711 SAND CANYON RD YUCAIPA 92399	No	1939	10	No
35103	621111	UCI MEDICAL CENTER	101 CITY DR S (ROUTE 104) ORANGE 92868	No	1390	27	No
35161	921190	MONROVIA CITY, DEPT OF PUBLIC WORKS	600 S MOUNTAIN AV MONROVIA 91016	No	251	66	No
35483	512110	WARNER BROTHERS STUDIO FACILITIES	4000 WARNER BLVD BURBANK 91505	No	731	335	No
35485	531120	5757 WILSHIRE LLC	5757 WILSHIRE BLVD, SUITE 380 LOS ANGELES 90036	No	636	124	No
36706	325620	COSMETIC LABORATORIES OF AMERICA	20245 SUNBURST ST CHATSWORTH 91311	No	1345	380	No
37028	532412	TOTAL EQUIP RENTAL INC	2828 S SPRING ST LONG BEACH 90806	No	467	467	No
37768	423110	TOYOTA MOTOR SALES,U.S.A. INC	19001 S WESTERN AV TORRANCE 90501	No	871	438	64CL
37934	524114	BLUE CROSS OF CAL	21555 OXNARD ST WOODLAND HILLS 91367	No	1431	251	No
39855	311941	MIZKAN AMERICA, INC	10037 E 8TH ST RANCHO CUCAMONGA 91730	No	711	151	No
39979	485113	OMNITRANS	1700 W 5TH ST SAN BERNARDINO 92411	No	612	0	No
41223	311812	PURITAN BAKERY INC	1624 E CARSON ST CARSON 90745	No	552	64	No
41229	332813	LUBECO INC	6859 DOWNEY AV LONG BEACH 90805	Yes	383	77	No
42278	Unknown	THE AEROSPACE CORP, UNIT NO.04	300 S DOUGLAS ST EL SEGUNDO 90245	No	329	244	LAX
42357	424490	ROCKVIEW DAIRIES, INC	7011 & 7044 STEWART & GRAY RD DOWNEY 90241	No	705	10	No
42783	922160	PALM SPRINGS CITY, FIRE DEPT 442	300 N EL CIELO #400 PALM SPRINGS 92262	No	1221	214	PSP
42948	921110	LONG BEACH CITY, FLEET SERV	400 W BROADWAY LONG BEACH 90802	No	550	8	No
43023	311999	WALKER FOODS, INC	225-258 N MISSION RD LOS ANGELES 90033	No	208	47	No
43522	621111	KAISER FOUNDATION HOSPITAL	25825 S VERMONT AV HARBOR CITY 90710	Yes	694	206	No
44012	311412	GOODMAN FOOD PROD INC	200 E BEACH AV INGLEWOOD 90302	No	455	106	No
44158	721110	ANAHEIM MARRIOTT HOTEL	700 W CONVENTION WY ANAHEIM 92802	No	613	80	No
44173	721110	LOS ANGELES AIRPORT HILTON	5711 W CENTURY BLVD LOS ANGELES 90045	No	721	417	No
44287	325180	PHIBRO-TECH INC	8851 DICE RD SANTA FE SPRINGS 90670	Yes	642	233	No
44655	336413	REINHOLD INDUSTRIES INC	12827 E IMPERIAL HWY SANTA FE SPRINGS 90670	No	1020	216	No
44790	611210	GLENDALE COMMUNITY COLLEGE	1500 N VERDUGO RD GLENDALE 91208	No	544	119	No
45317	621999	MED CTR GARDEN GROVE	12601 GARDEN GROVE BLVD GARDEN GROVE 92843	No	941	64	No
45489	334510	ABBOTT CARDIOVASCULAR SYSTEMS, INC.	26531 YNEZ RD TEMECULA 92591	No	459	195	No
45973	611310	UNIVERSITY OF REDLANDS	1200 E COLTON AV REDLANDS 92373	No	525	309	REI
47651	928110	US GOVT NAVAL AIR STATION NORTH ISLAND	BLDG 60121-93-96 SAN CLEMENTE 92672	No	#N/A	#N/A	#N/A
47661	922110	SAN BERN. CO, TWIN PEAKS BLDG	26010 HWY 189 TWIN PEAKS 92391	No	1579	14	No
48012	424130	CORRU-KRAFT ALHAMBRA	3201 W MISSION RD ALHAMBRA 91803	No	1083	40	No
49380	721110	MARRIOTT'S DESERT SPRINGS RESORT & SPA	74855 COUNTRY CLUB DR PALM DESERT 92260	No	938	451	No
49381	713910	THE VINTAGE CLUB	75-001 VINTAGE DR W INDIAN WELLS 92210	No	1025	5	No
49387	611310	UNIV CAL, RIVERSIDE	PHYSICAL PLANT DEPT RIVERSIDE 92521	No	647	319	No
49572	622110	KAISER FOUNDATION HOSPITAL	5601 DE SOTO WOODLAND HILLS 91367	No	288	204	No
50134	311513	CACIQUE CHEESE CO	14940 PROCTOR AV CITY OF INDUSTRY 91744	No	1085	367	No
50300	325193	PARALLEL PRODUCTS	12281 ARROW ROUTE RANCHO CUCAMONGA 91739	No	1349	927	No
50865	322211	LIBERTY CONTAINER CO, KEY CONTAINER	4224 SANTA ANA ST SOUTH GATE 90280	No	935	64	No
51304	221310	SANTA MARGARITA WATER DISTRICT	28793 ORTEGA HWY SAN JUAN CAPISTRANO 92675	No	1851	3	No
52742	326140	STOROPACK INC	12007 S WOODRUFF AV DOWNEY 90241	No	690	243	No
53015	325620	COSWAY CO INC	14805 SO MAPLE ST GARDENA 90248	No	993	510	No
54586	622110	KAISER FOUNDATION HOSPITAL	10800 MAGNOLIA AV RIVERSIDE 92505	Yes	758	5	No

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54941	444190	ANGELUS BLOCK CO INC	252 E REDONDO BEACH BL GARDENA 90247	No	872	98	No
55700	562212	WASTE MANAGEMENT OF SAN GABRIEL/POMONA	13940 E LIVE OAK AV BALDWIN PARK 91706	No	892	113	No
58876	336412	INDUSTRIAL MFG CO LLC DBA ARROWHEAD PROD	4411 KATELLA AV LOS ALAMITOS 90720	Yes	834	130	No
59001	313310	TEXLON CORP	555 VAN NESS AV TORRANCE 90501	No	360	134	64CL
59765	812332	ARAMARK UNIFORM SERVICES	4422 & 4440 E DUNHAM ST LOS ANGELES 90023	No	995	113	No
60043	812331	AMERICAN TEXTILE MAINTENANCE, REPUBLIC	1705 S HOOPER AV LOS ANGELES 90021	No	594	280	No
60442	327390	RIALTO CONCRETE PRODUCTS INC	2250 W LOWELL ST RIALTO 92377	No	1220	497	L67
60541	622110	FOUNTAIN VALLEY REGIONAL HOSP,B HANNA ET	17100 EUCLID ST FOUNTAIN VALLEY 92708	No	912	146	No
60812	311412	OVERHILL FARMS INC	3055 E 44TH ST VERNON 90058	No	1606	1524	No
61201	327390	JAMES HARDIE BUILDING PRODUCTS INC	10901 ELM AV FONTANA 92337	No	1297	309	No
61840	324191	LUBRICATING SPECIALTIES CO	3365 E SLAUSON AV VERNON 90058	No	882	349	No
62589	322211	SUNCLIPSE INC,ST HART/CORRU-KRAFT IV DIV	1911 E ROSSLYNN AV FULLERTON 92831	No	753	525	No
62596	611110	REDLANDS UNIFIED SCHOOL DISTRICT	840 E CITRUS AVE REDLANDS 92374	No	51	51	No
62901	812331	DOMESTIC LINEN SUPPLY CO INC	1600-1620 COMPTON AVE LOS ANGELES 90021	No	761	436	No
62903	313310	EXPO DYEING & FINISHING, INC.	1365 & 1385 KNOLLWOOD CIRCLE ANAHEIM 92801	No	1049	47	FUL
63249	445110	THE VONS CO INC SAFEWAY INC	3361 S BOXFORD ST LOS ANGELES 90040	No	1384	1007	No
63462	812331	MORGAN SERVICES INC	905 YALE ST LOS ANGELES 90012	No	526	48	No
63850	311421	SUNNY DELIGHT BEVERAGES CO.	1230 N TUSTIN AV ANAHEIM 92807	No	863	657	No
65108	921120	WEST COVINA CITY, CITY HALL	1444 W GARVEY AV SOUTH WEST COVINA 91790	No	903	235	No
65742	111339	SUN DATE	85-215 AVENUE 50 COACHELLA 92236	No	779	156	No
66463	611310	HARVEY MUD COLLEGE	340 E FOOTHILL BLVD CLAREMONT 91711	No	539	322	POC
66665	531110	GAYLORD APARTMENTS LTD	3355 WILSHIRE BLVD. LOS ANGELES 90010	No	319	230	No
66850	237210	VDA PROPERTY CO	4605 LANKERSHIM BLVD #707 NORTH HOLLYWOOD 91602	No	439	63	No
66906	813990	SANTA MONICA BAY TOWERS	101 CALIFORNIA AVE. SANTA MONICA 90403	No	521	0	No
67630	524210	WESCO FINANCIAL CORPORATION	301 E COLORADO BLVD PASADENA 91101	No	732	642	No
67873	484110	VERNON WAREHOUSE CO	2050 E 38TH ST VERNON 90058	No	734	558	No
68284	721110	LAKE ARROWHEAD RESORT	27984 HWY 189 LAKE ARROWHEAD 92352	No	1567	11	No
68458	721110	IRVINE OFFICE CO, TOWER 4	660 NEWPORT CENTER DR NEWPORT BEACH 92660	No	1231	0	No
69022	531120	THE 3250 WILSHIRE BLVD BUILDING	3250 WILSHIRE BLVD LOS ANGELES 90010	No	369	161	No
69367	531210	PARAMOUNT CONTRACTORS & DEVELOPERS INC	6464 SUNSET BLVD., #700 HOLLYWOOD 90028	No	484	42	No
69586	481111	DISTRIBUTORS UNLIMITED	1205 DATE STREET MONTEBELLO 90640	No	568	31	No
70049	711310	MUSIC CENTER OF LOS ANGELES COUNTY	135 N GRAND AV LOS ANGELES 90012	No	660	558	No
70496	311421	TROPICAL PRESERVING CO INC	1712 NEWTON STREET LOS ANGELES 90021	No	819	740	No
70630	313310	ALMORE DYE HOUSE INC	6850 TUJUNGA AV NORTH HOLLYWOOD 91605	No	858	193	No
70913	311411	LANGER JUICE COMPANY, INC.	16195 STEPHENS ST CITY OF INDUSTRY 91745	No	805	272	No
71051	484121	SYSTEM TRANSPORT	1710 E 29TH ST SIGNAL HILL 90755	No	922	599	No
71074	611110	LONG BEACH UNI SCH DIST; WOODROW WILSON	4400 E 10TH ST LONG BEACH 90804	No	259	16	No
71087	611110	LONG BEACH UNI SCH DIST/STEPHENS JR HIGH	1830 W COLUMBIA ST LONG BEACH 90810	No	502	16	No
71108	921110	LA CO., DEPT OF PUBLIC WORKS	900 S FREMONT AV ALHAMBRA 91803	No	813	299	No
71448	813990	SIERRA TOWERS	9255 DOHENY RD WEST HOLLYWOOD 90069	No	690	0	No
71510	611519	ORANGE, COUNTY OF - JOHN WAYNE AIRPORT	18601 AIRPORT WAY NORTH SANTA ANA 92707	No	1519	700	SNA
71570	611110	LA UNI SCH DIST, HOLLENBECK JUNIOR HIGH	2510 E SIXTH ST LOS ANGELES 90023	No	431	51	No
71573	611110	LA UNI SCH DIST, LINCOLN SENIOR HIGH	3501 N BROADWAY LOS ANGELES 90031	No	327	89	No
71654	812331	KLEEN KRAFT SERVICES INC	632 TOWNE AV LOS ANGELES 90021	No	510	238	No
71791	445110	SAFEWAY INC	12844 EXCELSIOR DRIVE NORWALK 90650	No	586	92	No

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71797	423840	TED LEVINE DRUM CO	1729 CHICO AV SOUTH EL MONTE 91733	No	1572	674	No
71854	443142	INTER-CONTINENTAL HOTEL L A CENTURY CITY	2151 AVENUE OF THE STARS LOS ANGELES 90067	No	950	0	No
71937	812331	DY-DEE SERV OF PASADENA INC,DY-DEE SERV	40 E CALIFORNIA BLVD PASADENA 91105	No	779	232	No
72494	525920	301 N LAKE, LLC	301 N LAKE ST PASADENA 91101	No	1036	211	No
72519	921110	ORANGE CO - COUNTY OPERATIONS CENTER	1300 S GRAND AVE. SANTA ANA 92705	No	195	195	No
72520	624110	ORANGE COUNTY YOUTH GUIDANCE CTR	3030 N HESPERIAN ST SANTA ANA 92706	No	1366	216	No
72664	325411	PHARMAVITE LLC	1150 AVIATION PL SAN FERNANDO 91340	No	291	140	No
72666	722330	LA UNI SCH DIST,NEWMAN NUTRITION CENTER	2310 CHARLOTTE ST LOS ANGELES 90021	No	425	89	No
72672	611110	LA UNI SCH DIST, BRET HARTE JUNIOR HIGH	9301 S HOOVER ST LOS ANGELES 90044	No	542	98	No
72693	611110	LA UNI SCH DIST, CANOGA PARK SENIOR HIGH	6850 TOPANGA CANYON BLVD CANOGA PARK 91303	No	132	51	No
72767	611110	LA UNI SCH DIST, DEARBORN ST ELEMENTARY	9240 WISH AV NORTHRIDGE 91325	No	208	80	No
72768	611110	LA UNI SCH DIST, HOLMES MIDDLE SCHOOL	9351 PASO ROBLES AV NORTHRIDGE 91325	No	116	116	No
72772	611519	LA UNIFIED DIST, FRIEDMAN OCCUPATION CTR	1646 S OLIVE ST LOS ANGELES 90015	No	631	180	No
72776	611110	LA UNI SCH DIST, TWENTY-EIGHTH ST ES	2807 STANFORD AV LOS ANGELES 90011	Yes	90	27	No
72786	238990	LA UNI SCH DIST, HUGHES MIDDLE SCHOOL	5607 CAPISTRANO AV WOODLAND HILLS 91367	Yes	362	16	No
72811	611110	LA UNI SCH DIST, BRAINARD AVE ELEMENTARY	11407 BRAINARD AV LAKE VIEW TERRACE 91342	No	47	47	No
72815	611110	LA UNI SCH DIST, CARSON SENIOR HIGH	22328 S MAIN ST CARSON 90745	No	225	0	No
72827	Unknown	LA UNI SCH DIST,SHERMAN OAKS CTR	18555 ERWIN ST RESEDA 91335	No	163	13	No
72849	611110	LA UNI SCH DIST, SEVENTH ST SCHOOL	1570 W 7TH ST SAN PEDRO 90732	No	71	0	No
72851	611110	LA UNI SCH DIST, NORMANDIE ELEMENTARY	4505 S RAYMOND AV LOS ANGELES 90037	No	16	16	No
72861	611110	LA UNI SCH DIST, EVERGREEN ELEMENTARY	2730 GANAHL ST LOS ANGELES 90033	No	481	71	No
72862	611110	LA UNI SCH DIST, GATES ST ELEMENTARY	3333 MANITOU AV LOS ANGELES 90031	No	140	8	No
72991	238990	VENTURA PETIT EAST BUILDING, ETAL	16633 VENTURA BLVD ENCINO 91436	No	708	92	No
73292	622110	CHILDREN'S HOSPITAL OF ORANGE COUNTY	455 S MAIN ST ORANGE 92868	No	932	61	No
73327	922110	LA CO., LYNWOOD REGIONAL JUSTICE CTR	11711 ALAMEDA ST LYNWOOD 90262	No	578	335	No
74060	325211	ENGINEERED POLYMER SOLUTIONS INC	5501 E SLAUSON AV LOS ANGELES 90040	Yes	1024	301	No
74398	921110	CERRITOS CITY, MAINTENANCE DIV	13150 E 166TH ST CERRITOS 90701	No	538	64	No
74408	332999	ARMTEC DEFENSE PROD. CO	85901 AVENUE 53 COACHELLA 92236	No	1233	327	No
74461	453220	PASADENA GATEWAY PLAZA, CB RICHARD ELLIS	300 N LAKE AVENUE PASADENA 91101	No	246	72	No
74723	622110	CALIFORNIA HOSPITAL MEDICAL CENTER	1401 S GRAND AVE. LOS ANGELES 90015	No	444	154	No
74840	311612	POCINO FOODS CO	14250 LOMITAS AVE CITY OF INDUSTRY 91746	No	129	90	No
75306	921190	LONG BEACH CITY, CONVENTION CENTER	300 E OCEAN BLVD LONG BEACH 90802	No	1210	209	No
76635	611110	SAN BERN CITY UNI SCH DIST,KIMBARK ELM S	18021 KENWOOD DR SAN BERNARDINO 92407	No	77	8	No
77266	311999	JSL FOODS INC.	3550 PASADENA AV LOS ANGELES 90031	No	351	98	No
77635	311421	TROPICANA MANUFACTURING COMPANY	14380 NELSON AV CITY OF INDUSTRY 91744	No	589	174	No
78137	311422	JUANITA'S FOODS	645 NO EUBANKS WILMINGTON 90744	No	742	13	No
78504	531120	GLENDALE CITY CIVIC AUDITORIUM	1401 NO VERDUGO RD GLENDALE 91208	No	410	124	No
79065	813990	WILSHIRE HOLMBY TOWER	10433 WILSHIRE BLVD LOS ANGELES 90024	No	183	0	No
79253	531210	8730 SUNSET TOWERS	8730 SUNSET BLVD LOS ANGELES 90069	No	212	0	No
79460	922110	COUNTY OF RIVERSIDE (IN701)	46-209 OASIS ST INDIO 92201	No	436	8	No
79589	812320	SUN HILL PROP.,INC, UNIV HILTON HOTEL	555 UNIVERSAL TERRACE PKWY UNIVERSAL CITY 91608	No	1445	373	No
79621	532490	NATIONWIDE BOILER INC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
79639	611110	PALM SPRINGS UNIFIED SCHOOL DIST	69-250 DINAH SHORE DR CATHEDRAL CITY 92234	No	335	21	No
80246	711310	SEGERSTROM CENTER FOR THE ARTS	600 TOWN CENTER COSTA MESA 92626	No	755	172	SNA
80719	221310	WESTERN MUNICIPAL WATER DIST	16450 LAKEPOINT DR RIVERSIDE 92503	No	1122	8	No

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80826	811192	L A WASH RACK,	4317 DOWNEY RD VERNON 90058	No	1881	1547	No
81233	623110	LA JEWISH HOME FOR THE AGING	7150 TAMPA AV RESEDA 91335	Yes	435	0	No
81234	623110	JEWISH HOME FOR THE AGING	18855 VICTORY BLVD RESEDA 91335	Yes	594	0	No
81270	237310	KIEWIT INFRASTRUCTURE WEST CO	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
82537	Unknown	US GOVT, JUSTICE DEPARTMENT	535 N ALAMEDA LOS ANGELES 90012	No	655	406	No
82542	611110	WALNUT HIGH SCHOOL	400 N PIERRE AV WALNUT 91789	No	134	134	No
82613	484110	ANCON MARINE INC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
82674	322211	SOUTHLAND BOX CO	4955 MAYWOOD AV VERNON 90058	No	1035	958	No
82741	611110	GLENDALE UNI SCH DIST/GLENDALE HIGH SCH	1440 E BROADWAY GLENDALE 91205	No	367	137	No
82742	611110	GLENDALE UNI SCH DIST/HOOVER HIGH SCH	651 GLENWOOD RD GLENDALE 91202	No	196	150	No
83101	611699	THE J PAUL GETTY TRUST	1200 GETTY CENTER DR LOS ANGELES 90049	No	1170	211	No
83485	922120	COUNTY OF RIVERSIDE (MU1307, MU 1313)	30755 AULD RD MURRIETA 92563	No	2263	750	RBK
84108	812320	YEE YUEN LAUNDRY & CLEANERS INC	2575 S NORMANDIE AV LOS ANGELES 90007	No	698	31	No
84273	325412	TEVA PARENTERAL MEDICINES, INC	17-25 HUGHES IRVINE 92618	No	2689	921	No
84456	488490	LA CANADA UNIFIED SCHOOL DISTRICT	1100 FOOTHILL BLVD LA CANADA FLINTRIDGE 91011	No	111	10	No
84516	623110	LITTLE SISTERS OF THE POOR	2100 SOUTH WESTERN AVENUE SAN PEDRO 90732	No	940	0	No
84687	424490	FARMDALE CREAMERY INC	1049 W BASELINE ST SAN BERNARDINO 92411	No	747	98	No
84742	924110	SOUTH COAST AIR QUALITY MANAGEMENT DIST	21865 COPLEY DR DIAMOND BAR 91765	No	1004	185	No
86710	623110	CLAREMONT MANOR	650 W HARRISON CLAREMONT 91711	No	148	137	POC
87651	622110	SAINT JOSEPH HOSPITAL	1140 W LA VETA DR ORANGE 92868	No	1109	172	No
88321	922130	LA CO.,INTERNAL SER DIV, S F VLY JUV HAL	16350 FILBERT ST SYLMAR 91342	No	68	68	No
89186	311930	THE COCA COLA COMPANY	1650 S VINTAGE AV ONTARIO 91761	No	3624	1455	No
89467	622110	MOUNTAINS COMMUNITY HOSPITAL	29101 HOSPITAL RD LAKE ARROWHEAD 92352	No	476	93	No
89974	813990	SHOREHAM TOWERS HOMEOWNERS ASSOCIATION	8787 SHOREHAM DR WEST HOLLYWOOD 90069	No	414	0	No
90447	488210	D & S INGREDIENT TRANSFER CO INC	5112 ALHAMBRA AVE LOS ANGELES 90032	No	1157	56	No
90933	311421	TRIPLE H FOOD PROCESSORS, LLC	5821 WILDERNESS AVE. RIVERSIDE 92504	No	1090	801	RAL
91737	611110	LONG BEACH USD JOHN G WHITTIER SCHOOL	1761 WALNUT AV LONG BEACH 90813	No	483	18	No
92065	561110	TOYOTA MOTOR SALES, USA INC.	19300 GRAMERCY PLACE TORRANCE 90501	Yes	1112	414	64CL
92771	721110	WILSHIRE PLAZA HOTEL	3515 WILSHIRE BOULEVARD LOS ANGELES 90010	No	523	34	No
93246	531120	WILSHIRE TERRACE CORPORATION	10375 WILSHIRE BLVD LOS ANGELES 90024	No	98	0	No
94009	221310	LAS VIRGENES MUNICIPAL WATER DISTRICT	3700 LAS VIRGENES ROAD CALABASAS 91302	No	1302	172	No
94529	811310	DITTY CONTAINER INC	2226 NORTH ROSEMEAD BLVD SOUTH EL MONTE 91733	No	1118	426	No
94961	311941	Q & B FOODS INC	15547 FIRST ST IRWINDALE 91706	No	2208	768	No
95135	812331	AMER TEX MAINT, REPUBLIC MSTR CHEFS RNTL	1664 W WASHINGTON BLVD LOS ANGELES 90007	No	156	95	No
95252	622210	MISSION COMMUNITY HOSPITAL	14850 ROSCOE BLVD PANORAMA CITY 91402	No	356	0	No
95345	622110	KAISER FOUNDATION HOSPITAL	1011 BALDWIN PARK BLVD BALDWIN PARK 91706	No	671	21	No
95371	622110	WEST ANAHEIM MEDICAL CENTER	3033 W ORANGE ANAHEIM 92804	No	813	74	No
95507	324121	EDGINGTON OIL CO	2400 E ARTESIA BLVD LONG BEACH 90805	No	590	227	LGB
95638	623990	CASA DE LOS AMIGOS	123 S CATALINA AVE REDONDO BEACH 90277	No	315	0	No
95952	611110	FONTANA USD A.B. MILLER HIGH SCH	6821 OLEANDER AVE FONTANA 92336	Yes	401	14	No
96326	622110	COUNTY OF RIVERSIDE REGIONAL MEDICAL CTR	26520 CACTUS AVE & NASON ST MORENO VALLEY 92555	No	612	19	No
96369	484110	UNITED PUMPING SERVICE INC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
96470	813990	DESERT ISLAND HOMEOWNERS ASSN BLDG 910	71777 FRANK SINATRA DR RANCHO MIRAGE 92270	No	3121	137	No
96674	813110	SOKA GAKKAI INTERNATIONAL USA	606 WILSHIRE BLVD SANTA MONICA 90401	No	208	53	No
96974	813110	WILSHIRE BLVD TEMPLE	3663 WILSHIRE BLVD LOS ANGELES 90010	No	232	232	No

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97020	811111	HONDA R & D NORTH AMERICAS INC	1900 HARPERS WAY TORRANCE 90501	No	732	497	64CL
97046	812331	MISSION LINEN SUPPLY	5400 ALTON ST CHINO 91710	No	1080	264	No
98134	812332	UNIFIRST CORP, INTERSTATE NUCLEAR SRVCS	700 S ETIWANDA AVE ONTARIO 91761	No	2979	1992	No
98326	325620	LEVLAD, LLC	9200 MASON AVE CHATSWORTH 91311	No	1146	547	No
98409	622110	LAKEWOOD REGIONAL MEDICAL CENTER, INC	3700 E SOUTH ST LAKEWOOD 90712	No	113	113	No
98545	488190	TAC-WEST INC	1156 NORTH FEE ANA ST ANAHEIM 92807	No	1476	641	No
98625	531210	NK BEVERLY HILLS CORP	8500 WILSHIRE BLVD, SUITE 820 BEVERLY HILLS 90211	No	409	13	No
99119	325211	INTERPLASTIC CORP	12335 S VAN NESS HAWTHORNE 90250	No	805	311	No
99265	921190	LONG BEACH UNI SCH DIST	3333 AIRPORT WAY LONG BEACH 90806	No	328	193	No
99616	722511	RENAISSANCE HOTELS & RESORTS	44-400 INDIAN WELLS LN INDIAN WELLS 92210	No	1928	161	No
100542	712110	AUTRY NATIONAL CENTER	4700 WESTERN HERITAGE WAY LOS ANGELES 90027	No	1539	795	No
100808	311824	MARUCHAN INC	15800 LAGUNA CANYON RD IRVINE 92618	No	1951	647	No
101311	423840	BOGGS TOOL PROCESSING & FILE SHARPENING	14100 ORANGE AVE PARAMOUNT 90723	No	438	18	No
102099	611110	MARGARITA MIDDLE SCH, TEMECULA VLY USD	30600 NARGARITA ROAD TEMECULA 92591	Yes	66	66	No
102334	332813	MOOG, INC	20263 S WESTERN AVE TORRANCE 90501	Yes	1337	299	64CL
103083	453998	CALIFORNIA BOILER INC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
103424	611110	WALNUT VALLEY UNIFIED SCHOOL DISTRICT	21400 PATHFINDER ROAD DIAMOND BAR 91765	No	402	21	No
104325	722410	THE CHEESECAKE FACTORY	26950 WEST AGOURA ROAD CALABASAS 91301	No	867	174	No
104641	424130	CORRU-KRAFT BUENA PARK	6600 VALLEY VIEW ST BUENA PARK 90620	No	692	692	No
105064	531120	LUCKMAN MANAGEMENT CO	9200 SUNSET BLVD LOS ANGELES 90069	No	538	0	No
105663	531120	BEVERLY WILSHIRE PROPERTIES, INC	9465 WILSHIRE BL BEVERLY HILLS 90212	No	528	34	No
106355	621999	LA CITY, 77TH ST AREA POLICE FACILITY	7600 BROADWAY LOS ANGELES 90003	No	148	23	No
107149	332813	MARKLAND MANUFACTURING INC	1111 E MCFADDEN AVE SANTA ANA 92705	No	428	74	No
107652	445110	RALPHS GROCERY CO	1500 EASTRIDGE AVENUE RIVERSIDE 92507	No	2356	777	No
107696	813990	EMPIRE WEST HOMEOWNERS ASSOCIATION	1100 N ALTA LOMA ROAD WEST HOLLYWOOD 90069	No	166	0	No
107821	562910	MESA ENVIRONMENTAL INC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
107891	622110	ORANGE COAST MEMORIAL MEDICAL CENTER	9920 TALBERT AV FOUNTAIN VALLEY 92708	No	666	27	No
108169	611110	ONTARIO MONTCLAIR SCHOOL DISTRICT	1525 BONVIEW AVE ONTARIO 91761	No	95	95	No
108214	238990	SANCON ENGINEERING INC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
108278	611310	LOYOLA MARYMOUNT UNIVERSITY	7900 LOYOLA BLVD LOS ANGELES 90045	No	1168	0	LAX
109019	311224	HOUSE FOODS AMERICA CORPORATION	7351 ORANGEWOOD AVE GARDEN GROVE 92841	No	768	307	No
109393	531312	SMG	300 E OCEAN BLVD LONG BEACH 90802	No	1210	209	No
109562	332813	VALLEY PLATING WORKS INC	5900 E SHEILA ST COMMERCE 90040	Yes	937	217	No
109608	562212	CR & R INC	1706 GOETZ RD. PERRIS 92570	No	724	509	L65
109654	531190	TRIYAR COMPANIES LLC	10850 WILSHIRE BLVD LOS ANGELES 90024	No	687	43	No
110096	313310	SWISSTEX CALIFORNIA INC.	13660 S FIGUEROA ST LOS ANGELES 90061	No	755	459	No
110930	561110	CYGNUS WILSHIRE CENTER	2975 WILSHIRE BL LOS ANGELES 90010	No	134	134	No
111176	541611	WESTERN RIVERSIDE CO REG WASTEWATER AUTH	14634 RIVER RD CORONA 92880	No	3215	315	CNO
111289	561990	KOOS MANUFACTURING INC	2741 SEMINOLE AVE SOUTH GATE 90280	No	797	6	No
111301	311511	WWF OPERATING COMPANY	18275 ARENTH AV CITY OF INDUSTRY 91748	No	502	143	No
111485	221310	INLAND EMPIRE UTL AGEN, A MUN WATER DIST	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
111958	313310	WASHINGTON GARMENT DYEING & FINISHING	1334 E 18TH ST LOS ANGELES 90021	No	356	146	No
112329	812331	CINTAS CORPORATION	2150 S PROFORMA AVE ONTARIO 91761	No	1046	898	ONT
112509	221310	METROPOLITAN WATER DIST OF SO CAL	700 N ALAMEDA ST LOS ANGELES 90012	No	835	161	No
112547	336411	GULFSTREAM AEROSPACE CORPORATION	3495 LAKEWOOD BLVD LONG BEACH 90808	No	1791	10	No

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112909	622110	DESERT HOSPITAL	1150 N INDIAN CANYON DR PALM SPRINGS 92262	No	797	19	No
112956	339992	FENDER MUSICAL INSTRUMENTS CORP.	311 CESSNA CIR CORONA 92880	No	1764	898	No
112968	332813	COAST PLATING INC	417 W 164 TH ST GARDENA 90248	Yes	513	187	No
113170	621493	SANTA MONICA - UCLA MEDICAL CENTER	1250 16TH ST SANTA MONICA 90404	No	365	63	No
113303	812332	CAITAC GARMENT PROCESSING INC	14725 S BROADWAY GARDENA 90248	No	671	330	No
113329	812930	ONE HUNDRED TOWERS LLC, CENTURY PLAZA	2049 CENTURY PARK EAST LOS ANGELES 90067	No	657	85	No
113436	622110	PACIFICA HOSPITAL OF THE VALLEY	9449 SAN FERNANDO RD SUN VALLEY 91352	No	689	0	BUR
113563	622110	RIVERSIDE COMMUNITY HOSPITAL	4445 MAGNOLIA AV RIVERSIDE 92501	No	473	164	No
113873	221112	MM WEST COVINA LLC	2210 S AZUSA AVE WEST COVINA 91792	Yes	1390	29	No
113936	812320	RADIANT SRVS CORP, EL SEGUNDO CLNRS/LDRY	651 W KNOX ST GARDENA 90248	No	1777	703	64CL
114012	313310	UNIVERSAL DYEING & PRINTING	2303 E 11TH ST LOS ANGELES 90021	No	1260	1197	No
114296	531210	KILROY AIRPORT IMPERIAL COMPANY	909 N SEPULVEDA BLVD EL SEGUNDO 90245	No	1080	217	No
114346	531120	CB RICHARD INVESTORS ITF CAL STRS	9595 WILSHIRE BLVD BEVERLY HILLS 90212	No	340	134	No
114484	922120	CITY OF SANTA ANA POLICE DEPARTMENT	60/62 CIVIC CENTER PLZ SANTA ANA 92702	No	750	71	No
114561	322212	SMURFIT KAPPA NORTH AMERICA LLC	13400 E NELSON AVE CITY OF INDUSTRY 91746	No	1184	179	No
114910	813110	PROVIDENCE HOLY CROSS MEDICAL CTR.	15031 RINALDI STREET MISSION HILLS 91345	No	674	61	No
115117	311612	S & S FOODS, L.L.C.	1120 W FOOTHILL BLVD AZUSA 91702	No	1024	341	No
115987	531110	PACIFIC PLAZA PARTNERS, LLC	1431 OCEAN AV SANTA MONICA 90401	No	483	137	No
116001	812331	AMERIPRIDE UNIFORM SERVICES	5950 ALCOA AVE VERNON 90058	No	761	484	No
116020	311612	GAYTAN FOODS	15430 E PROCTOR AVE CITY OF INDUSTRY 91744	No	1072	354	No
116773	111339	C C GRABER COMPANY	315 E 4TH ST ONTARIO 91764	No	575	0	No
116924	325412	AMPHASTAR PHARMACEUTICAL, INC	11570 SIXTH ST RANCHO CUCAMONGA 91730	No	3051	591	No
117536	313310	SUPER DYEING & FINISHING	8825 MILLERGROVE AVE SANTA FE SPRINGS 90670	No	718	124	No
117851	424710	SHORE TERMINALS LLC	841-901 LA PALOMA AVE WILMINGTON 90744	No	1820	1400	No
117980	325620	THIBIANT INTERNATIONAL INC	20320 PRAIRIE ST CHATSWORTH 91311	No	1040	494	No
118124	713110	CEDAR FAIR LP, KNOTT'S BERRY FARM DBA	8039 BEACH BLVD BUENA PARK 90620	Yes	698	0	No
118217	531110	DOUGLAS EMMETT REALTY FUND DBA WESTSIDE	11845 OLYMPIC BLVD #1260 LOS ANGELES 90064	No	510	124	No
118379	622110	ARROWHEAD REGIONAL MEDICAL CTR	4 COLTON 92324	No	449	11	No
118420	621310	GENERAL SERVICES ADMINISTRATION	411 W 4TH ST SANTA ANA 92701	No	472	55	No
118458	531110	BARRINGTON PLAZA, D EMMETT REALTY FUND	11740 WILSHIRE BLVD STE 240 LOS ANGELES 90025	No	406	5	No
118526	541611	WESTERN MUNICIPAL WATER DISTRICT	22751 NANDINA AVE RIVERSIDE 92518	No	1426	8	No
118628	621111	ALHAMBRA HOSPITAL MEDICAL CENTER	100 S RAYMOND AV ALHAMBRA 91801	No	336	58	No
118648	541611	STAPLES CENTER, L A ARENA COMPANY LLC.	1111 S FIGUEROA ST LOS ANGELES 90015	Yes	702	159	No
118681	561720	LA STATE BLDG AUTHORITY, JUNIPERO SIERRA	320 W 4TH ST LOS ANGELES 90013	No	544	462	No
118984	622110	NORTHRIDGE HOSPITAL MEDICAL CENTER	18300 ROSCOE BLVD. NORTHRIDGE 91325	No	771	89	No
119366	424690	UNIVAR USA INC.	2600 S GARFIELD AVE COMMERCE 90040	No	407	407	No
119386	311511	STREMICKS HERITAGE FOODS LLC	11503 PIERCE ST RIVERSIDE 92505	No	389	63	No
119433	531120	WILSHIRE PARK PLACE LLC	3700 WILSHIRE BLVD LOS ANGELES 90010	No	235	140	No
119664	311919	MARQUEZ MARQUEZ FOOD PRODUCTS	11803 INDUSTRIAL AVE SOUTH GATE 90280	Yes	575	39	No
119681	541618	WILMONT INC	3200 WILSHIRE BLVD LOS ANGELES 90010	No	457	127	No
119710	311411	NOR-CAL BEVERAGE COMPANY, INC.	1226 N OLIVE ST ANAHEIM 92801	No	869	161	No
120651	622110	HUNTINGTON BEACH HOSPITAL	17772 BEACH BLVD. HUNTINGTON BEACH 92647	No	999	0	No
120676	541380	HEMET UNIFIED SCHOOL DIST/NUTRITION CNTR	2075 W ACACIA HEMET 92545	No	224	117	HMT
120748	424480	PACIFIC FRUIT PROCESSORS, INC.	12128 CENTER ST SOUTH GATE 90280	No	739	10	No
121017	311612	SQUARE H BRANDS INC	2731 S SOTO ST LOS ANGELES 90023	Yes	1403	1228	No

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121045	531210	3600 WILSHIRE LLC	3600 WILSHIRE BLVD LOS ANGELES 90010	No	417	124	No
121289	334510	MEDTRONIC MINIMED, INC.	18000 DEVONSHIRE ST NORTHRIDGE 91325	No	690	196	No
121294	623311	BARTLETT CARE CENTER LLC	600 E WASHINGTON AVE SANTA ANA 92701	No	323	0	No
121371	237210	DOUGLAS, EMMETT & CO	15303 VENTURA BLVD SHERMAN OAKS 91403	No	661	117	No
121459	322211	PACKAGING CORPORATION OF AMERICA	4240 BANDINI BLVD LOS ANGELES 90023	No	1067	1067	No
121507	531110	THE SALVATION ARMY (CALIF CORP)	180 E OCEAN BLVD LONG BEACH 90802	No	1138	0	No
121570	322130	C B SHEETS	13901 S CARMENITA RD SANTA FE SPRINGS 90670	No	745	272	No
121671	721110	CROWNE PLAZA LOS ANGELES AIRPORT	5985 W CENTURY BLVD. LOS ANGELES 90045	No	1297	451	No
121872	313210	DAE SHIN USA INC /JAE WEON LEE	610 N GILBERT ST FULLERTON 92833	No	663	122	FUL
121897	531120	EQUITABLE PLAZA, LLC	3435 WILSHIRE BLVD LOS ANGELES 90010	No	394	182	No
121908	311941	VAN LAW FOODS	2325 MOORE AVE FULLERTON 92833	No	980	217	FUL
122083	562219	STERICYCLE, INC.	2775 E 26TH ST LOS ANGELES 90023	No	1215	1003	No
122166	811310	MANLEYS BOILER REPAIR CO., INC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
122325	424990	RRR REAL ESTATE	5151 ALCOA AVE VERNON 90058	No	1329	946	No
122337	561499	CENTRAL PLAZA LLC	3450 WILSHIRE BLVD, STE #400 LOS ANGELES 90010	No	380	138	No
122412	531210	PARAMOUNT PLAZA, LLC	3550 WISLHIRE BLVD LOS ANGELES 90010	No	496	154	No
122599	325620	GAR LABS	1844 MASSACHUSETTS AVE RIVERSIDE 92507	No	623	293	No
122740	722511	611 W 6TH ST ASSOC LLC/METCOM MGMT LLC	611 W 6TH ST STE 2600 LOS ANGELES 90017	No	80	80	No
123664	311710	AQUAMAR INC	10888 7TH ST RANCHO CUCAMONGA 91730	No	2208	158	No
123788	531210	LOWE ENTERPRISES COMMERCIAL GROUP	16133 VENTURA BLVD ENCINO 91436	No	1141	43	No
123846	531210	JAMISON PROPERTIES	4201 WILSHIRE BLVD LOS ANGELES 90010	No	441	37	No
123880	531120	CENTURY PARK PLAZA, DOUGLAS EMMETT REALT	1801 CENTURY PARK EAST LOS ANGELES 90067	No	323	251	No
124116	311513	SAPUTO CHEESE USA, INC.	5611 E IMPERIAL HWY SOUTH GATE 90280	No	1371	23	No
124275	326299	KMC ACQUISITION CORP	12023 WOODRUFF AVE DOWNEY 90241	No	700	249	No
124868	812332	CINTAS CORPORATION NO 3	1851 S WINEVILLE ONTARIO 91761	No	3397	737	No
125244	813110	WEST ANGELES CHURCH OF GOD IN CHRIST	3600 CRENSHAW BLVD LOS ANGELES 90018	No	175	60	No
125282	325414	GILEAD SCIENCES INC, 502 BLDG	502 COVINA BLVD SAN DIMAS 91773	No	855	356	No
125299	325412	GILEAD SCIENCES INC	650 CLIFFSIDE DRIVE SAN DIMAS 91773	No	573	372	No
125840	313210	WIMATEX, INC.	5801 S SECOND ST VERNON 90058	No	599	409	No
125900	624410	DEPT OF CHILDREN & FAMILY, MACLAREN HALL	4024 N DURFEE AVE EL MONTE 91732	No	343	113	EMT
126214	311520	DONG PHUONG TOFU INC	15022 MORAN ST WESTMINSTER 92683	No	467	0	No
126728	541611	DOUGLAS EMMETT & CO/ONE WESTWOOD	10990 WILSHIRE BLVD, STE #1280 LOS ANGELES 90024	No	1099	87	No
126835	519120	DPSS - EXPOSITION PARK WEST ASSET LEASIN	3833 S VERMONT AVE LOS ANGELES 90037	No	987	23	No
126847	524210	GLENDALE PLAZA	655 N CENTRAL AVE GLENDALE 91203	No	452	0	No
126939	561110	THE ATRIUM IRVINE LLC	19100 VON KARMAN # 260 IRVINE 92612	No	1973	192	SNA
127411	713940	BILTMORE HOTEL	506 S GRAND AVE LOS ANGELES 90071	No	212	146	No
127416	926110	LA CO, VALENCIA CIVIC CENTER	23740 MAGIC MOUNTAIN PKY VALENCIA 91355	No	922	132	No
127861	561450	EXPERIAN INFORMATION SOLUTIONS INC	475 ANTON BLVD COSTA MESA 92626	No	769	146	SNA
128159	238320	KOREAN EDUCATION FOUNDATION IN LA	680 WILSHIRE PL LOS ANGELES 90005	No	290	140	No
128951	313310	HARRY'S DYE & WASH, INC	1015 E ORANGETHORPE ANAHEIM 92801	No	1262	391	No
129376	812320	FINAL TOUCH DYEING & FINISHING	13416 ESTRELLA AVE GARDENA 90248	No	426	166	No
129416	721110	WESTIN SOUTH COAST PLAZA	686 ANTON BOULEVARD COSTA MESA 92626	No	985	306	SNA
129562	561210	3055 WILSHIRE LLC	3055 WILSHIRE BLVD. LOS ANGELES 90010	No	69	69	No
129827	721110	PACIFIC PALMS CONFERENCE RESORT	1 INDUSTRY HILLS PKWY CITY OF INDUSTRY 91744	No	700	517	No
130248	311412	O'TASTY FOODS, INC.	160 S HACIENDA BLVD CITY OF INDUSTRY 91745	No	557	63	No

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130254	551112	10100 SANTA MONICA, INC	10100 SANTA MONICA BLVD LOS ANGELES 90067	No	428	349	No
130388	313310	WESTERN YARN DYEING INC.	2011 EAST RAYMER AVENUE FULLERTON 92833	No	716	470	FUL
130646	326299	WEST AMERICAN RUBBER COMPANY, LLC	750 N MAIN ST ORANGE 92868	No	830	259	No
130668	311999	GOLDEN SPECIALTY FOODS. LLC	14605 BEST AV NORWALK 90650	No	1291	206	No
131431	522110	OLYMPIC PLAZA	11500 OLYMPIC BLVD LOS ANGELES 90064	No	348	116	No
131507	551112	WIRETECH, INC.	6440 E CANNING ST COMMERCE 90040	No	1006	1004	No
131864	621999	BRISTOL GROUP LLC/SAMARITAN MED TOWER	1127 WILSHIRE BLVD LOS ANGELES 90017	No	737	156	No
132152	315190	COMPLETE GARMENT, INC.	2101 E 38TH ST VERNON 90058	No	698	694	No
132401	311612	RICE FIELD CORP. / DEREK LEE	14500 E VALLEY BLVD CITY OF INDUSTRY 91746	No	690	459	No
132942	327390	QUIKRETE CORP OF SOUTHERN CALIF	20625 TEMESCAL CYN RD CORONA 92883	No	2926	29	No
132999	531210	BEVERLY HILLS PROPERTY	691 S IROLO ST LOS ANGELES 90005	No	467	51	No
133596	812332	STONE BLUE INC	2501 E 28TH ST VERNON 90058	No	1035	998	No
133975	611210	NORTH ORANGE COUNTY COMM.COLLEGE DIST.	1830 REMNEYA ANAHEIM 92801	No	512	80	No
134102	621511	QUEST DIAGNOSTICS,NICHOLS INST. VALENCIA	27027 TOURNEY RD SANTA CLARITA 91355	No	1175	275	No
134211	721110	MONTAGE RESORTS & SPA	30801 SOUTH COAST HWY LAGUNA BEACH 92651	No	249	103	No
134334	923120	US FOOD AND DRUG ADMINISTRATION	19701 FAIRCHILD AVE IRVINE 92612	No	1600	489	SNA
134426	237210	AMISCOPE PROPERTIES	20525 NORDOFF CHATSWORTH 91311	No	1061	336	No
134847	237210	DOUGLAS EMMETT 2000 LLC	21700 OXNARD STREET WOODLAND HILLS 91367	No	1349	198	No
134985	311412	OVERHILL FARMS, INC	2727 E VERNON AVE VERNON 90058	No	721	652	No
135023	722310	KINGS HAWAIIAN BAKERY	19161 HARBORGATE WAY TORRANCE 90501	No	694	436	64CL
135185	813212	BEACH CITIES HEALTH DISTRICT	514 N PROSPECT AVE REDONDO BEACH 90277	No	447	109	No
135273	424490	ARCHER DANIELS MIDLAND COMPANY	455 N 6TH ST COLTON 92324	No	718	63	No
135425	721110	SHERATON GATEWAY HOTEL- LAX	6101 W CENTURY BLVD LOS ANGELES 90045	No	1464	583	No
135545	334220	NORTHROP GRUMMAN SPACE & MISSION SYSTEM	ONE SPACE PARK REDONDO BEACH CA 90278	Yes	791	357	No
136655	311942	USA FOODS, INC/LEE KUM KEE	14415 & 14455 DON JULIAN RD CITY OF INDUSTRY 91746	No	813	377	No
136953	311710	BUMBLE BEE FOODS, LLC	13100 ARTIC CIRCLE DR SANTA FE SPRINGS 90670	No	1128	370	No
137244	454390	CLEMENT- PAPPAS CA INC	1755 E ACACIA ST ONTARIO 91761	No	2124	1527	ONT
137433	424420	JESSIE LORD BAKERY, LLC	21100 S WESTERN AV TORRANCE 90501	No	1458	66	64CL
137722	493190	VOPAK TERMINAL LONG BEACH INC,A DELAWARE	305 HENRY FORD AV SAN PEDRO 90731	No	2639	2277	No
137966	452111	LA CURACAO BUSINESS CENTER	1605 W OLYMPIC BLVD LOS ANGELES 90015	No	280	98	No
138325	424590	IMPERIAL WESTERN PRODUCTS CO INC	86-600 AVE 54 COACHELLA 92236	No	2153	597	No
138402	444190	ORCO BLOCK CO INC	35100 DILLON RD INDIO 92202	No	8021	1421	No
138514	531210	SHATTO CORPORATION	425 SHATTO PL LOS ANGELES 90020	No	146	146	No
138689	926120	CALTRANS DISTRICT 7 HEADQUARTERS	100 S MAIN ST LOS ANGELES 90012	No	774	288	No
138705	531120	BROADWAY CIVIC CENTER	316 W 2ND ST LOS ANGELES 90012	No	916	591	No
139172	812990	DOWNTOWN CENTER STUDIOS	1201 W 5TH ST LOS ANGELES 90017	No	623	257	No
139193	622110	UHS-CORONA INC/CORONA REGIONAL MED CTR	800 S MAIN ST CORONA 92882	No	340	127	No
139280	621111	KAISER PERMANENTE ONTARIO VINEYARD MED C	2295 S VINEYARD AVE ONTARIO 91761	No	1242	431	ONT
139318	531312	811 WILSHIRE, LLC	811 WILSHIRE LOS ANGELES 90017	No	291	291	No
139668	325998	NALCO COMPANY	2111 E DOMINGUEZ ST CARSON 90810	Yes	1030	792	No
139759	611110	LAKESIDE HIGH SCHOOL	32693 RIVERSIDE DR LAKE ELSINORE 92530	No	179	111	No
139800	713940	KAISER PERMANENTE/INDEPENDENCE PARK FAC	12254 BELLFLOWER BLVD DOWNEY 90242	No	573	121	No
140022	325211	HUNTSMAN ADVANCED MATERIALS AMERICAS, L	5121 SAN FERNANDO RD WEST LOS ANGELES 90039	No	565	100	No
140043	611210	WILSHIRE CENTER, INC.	3255 WILSHIRE BLVD LOS ANGELES 90010	No	452	164	No
140423	531120	KAJIMA DEVELOPMENT CORPORATION	250 E FIRST STREET #610 LOS ANGELES 90012	No	488	26	No

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140961	326199	GKN AEROSPACE TRANSPARENCY SYS INC	12122 & 12241 WESTERN AVE GARDEN GROVE 92841	No	599	19	No
141072	424690	BRENNTAG PACIFIC INC	10747 PATTERSON PL SANTA FE SPRINGS 90670	No	1284	388	No
141119	721110	DOUBLETREE ANAHEIM/ORANGE CO, DT MGMT	100 THE CITY DR ORANGE 92868	No	1307	0	No
141175	928110	CALIFORNIA NATIONAL GUARD ARMORY	1351 W SIERRA MADRE AVE AZUSA 91702	No	1053	208	No
141473	424410	NONG SHIM AMERICA, INC	12155 6TH ST RANCHO CUCAMONGA 91730	No	2675	1117	No
142065	711310	SEGERSTROM CENTER FOR THE ARTS	615 TOWN CENTER DR COSTA MESA 92626	No	771	183	SNA
142435	921110	CLAREMONT CITY	1616 MONTE VISTA AVE CLAREMONT 91711	No	808	195	No
143929	813110	HARVEST ROCK CHURCH	131 S ST JOHN PASADENA 91105	No	393	335	No
144132	312111	ASEPTIC SOLUTIONS USA, LLC	484 ALCOA CIR CORONA 92880	No	1696	613	No
144422	454390	NESTLE WATERS NORTH AMERICA INC	1925 COMPTON AVENUE LOS ANGELES 90011	No	554	172	No
144539	333241	PURATOS CORPORATION	18831 LAUREL PARK RD RANCHO DOMINGUEZ 90220	No	1745	1403	No
144695	713940	WESTLAKE WELLBEING PROPERTIES, LLC	2 DOLE DR WESTLAKE VILLAGE 91362	No	375	375	No
145071	561499	PASEO COLORADO HOLDINGS LLC	280 E COLORADO BLVD PASADENA 91101	No	756	624	No
145389	311999	SWEET OVATIONS	16911 S NORMANDIE AVE GARDENA 90247	No	813	19	64CL
145747	721110	CROWNE PLAZA HOTEL	300 N HARBOR DR REDONDO BEACH 90277	No	594	37	No
145869	621511	QUEST DIAGNOSTICS INC.	8401 FALLBROOK AVE WEST HILLS 91304	No	1221	212	No
146016	238110	COFFMAN SPECIALTIES, INC.	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
146346	621111	KAISER FOUNDATION HOSPITAL	9353 IMPERIAL HWY DOWNEY 90242	No	338	11	No
146468	237210	DOUGLAS EMMETT REALTY FUND 2002	6320 CANOGA AVE WOODLAND HILLS 91367	No	1323	132	No
146706	424690	TITAN TERMINAL AND TRANSPORT INC	4570 ARDINE ST SOUTH GATE 90280	Yes	562	80	No
146897	922120	LOS ANGELES CO SHERIFF DEPT/LA REGIONAL	1800 PASEO RANCHO CASTILLA LOS ANGELES 90032	No	341	43	No
146903	454390	NESTLE WATERS NORTH AMERICA	5772 JURUPA ST ONTARIO 91761	No	2866	1894	No
146908	621399	PROV HLTH SYS/LITTLE CO MARY MED CTR S.P	1300 W 7TH ST SAN PEDRO 90732	No	650	29	No
147356	622110	CHA HOLLYWOOD MED CTR LP	1300 N VERMONT AVE LOS ANGELES 90027	No	521	51	No
147371	221320	INLAND EMPIRE UTILITIES AGENCY	6063 KIMBALL AVE CHINO 91710	No	1455	761	No
147620	325412	SUNRIDER MANUFACTURING, LP	1461 FRANCISCO ST TORRANCE 90501	No	1215	666	64CL
147669	531210	7080 HOLLYWOOD, LLC	7080 HOLLYWOOD BLVD HOLLYWOOD 90028	No	314	101	No
147943	531210	LBA REALTY	1150 S OLIVE ST LOS ANGELES 90015	No	84	72	No
147971	812331	REPUBLIC MASTER CHEFS	1340 ORIZABA AVE. LONG BEACH 90804	No	401	6	No
148034	721110	THE ISLAND HOTEL	690 NEWPORT CENTER DR NEWPORT BEACH 92660	No	1333	0	No
148094	311111	BREEDERS CHOICE PET FOODS INC	16321 E ARROW HIGHWAY IRWINDALE 91706	No	1036	37	No
148140	445299	THE COCA-COLA COMPANY-ANAHEIM	2121 E WINSTON RD ANAHEIM 92806	No	1363	100	No
148411	621610	KAISER PERMANENTE DOWNEY MED CENTER	9333 IMPERIAL HWY DOWNEY 90242	No	338	11	No
148720	611110	HAWTHORNE SCHOOL DIST, PRARIE VISTA MID	13600 PRAIRIE AVE HAWTHORNE 90250	Yes	398	43	No
148928	313210	TRI-STAR DYEING AND FINISHING, INC..	15125 MARQUARDT SANTA FE SPRINGS 90670	No	1812	978	No
148962	562211	VEOLIA ENVIRONMENTAL SERVICES	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
148983	334510	BOSTON SCIENTIFIC NEUROMODULATION	25155 RYE CANYON LOOP SANTA CLARITA 91355	No	933	488	No
149051	322211	SMURFIT KAPPA NORTH AMERICA LLC	440 N BALDWIN PARK BL CITY OF INDUSTRY 91746	No	930	467	No
149102	811111	2000 AVE OF THE STARS/TRAMMELL CROW CO.	2000 AVENUE OF THE STARS LOS ANGELES 90067	No	684	253	No
149387	311511	REX CREAMERY	5743 SMITHWAY ST COMMERCE 90040	No	779	145	No
149431	424490	BDS NATURAL PRODUCTS	1904 E DOMINGUEZ ST LONG BEACH 90810	No	573	354	No
149455	531210	3780 WILTERN CENTER LLC	3780 WILSHIRE BLVD LOS ANGELES 90010	No	251	138	No
149526	445110	HEALTHVERVE FOOD MFG. USA, INC	9083 SANTA ANITA AVE RANCHO CUCAMONGA 91730	No	2351	1439	No
150072	721110	CELEBRITY CASINOS INC	123 E ARTESIA BLVD COMPTON 90220	No	1587	348	No
150397	811219	RF MAC DONALD CO	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A

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150519	928110	CALIFORNIA ARMY NATIONAL GUARD	4255 SARATOGA AVE LOS ALAMITOS 90720	No	1352	309	No
150667	311225	VENTURA FOODS LLC	2900 E JURUPA AVE ONTARIO 91761	No	2694	1527	ONT
151474	311999	MARUKOME USA, INC.	17132 PULLMAN ST IRVINE 92614	No	1350	145	SNA
151843	326140	INSULFOAM	5635 SCHAEFER AVE CHINO 91710	No	1482	378	No
152332	512131	LA LIVE, LLC	777 CHICK HEARN CT LOS ANGELES 90015	No	750	219	No
152494	424490	GOURMET FRESH PASTA	950 N FAIR OAKS AVE PASADENA 91103	No	1099	35	No
152576	448120	ARAMARK UNIFORM & CAREER APPAREL LLC	1135 HALL AVE RIVERSIDE 92509	No	2993	283	No
152641	561990	WATT MINERAL HOLDINGS LLC	E/SIERRA HWY & N/DOCKWEILER NEWHALL 91321	No	1328	16	No
152886	312112	NIAGARA BOTTLING, LLC.	2560 PHILADELPHIA AVE ONTARIO 91761	No	573	552	ONT
153663	424690	1990 WESTWOOD,LLC	2140 W OLYMPIC BLVD LOS ANGELES 90006	No	576	37	No
153702	811490	CM LAUNDRY, LLC	14919 S FIGUEROA ST GARDENA 90248	No	412	39	No
154028	531210	350 FIGUEROA, LLC	350 S FIGUEROA ST LOS ANGELES 90071	No	628	327	No
154030	531312	JAMISON CALIFORNIA MARKET CENTER, LP	110 E 9TH ST LOS ANGELES 90079	No	586	237	No
154034	621999	CENTINELA HOSPITAL MEDICAL CENTER	555 E HARDY ST INGLEWOOD 90301	No	394	164	No
154509	453220	SAN GABRIEL VALLEY MEDICAL CENTER	438 W. LAS TUNAS DR., SAN GABRIEL SAN GABRIEL 91776	No	209	47	No
155134	424310	ROYAL PRINTEX , INC.	1946 E 46TH ST VERNON 90058	No	544	544	No
155368	312111	REFRESCO BEVERAGES US INC.	570 E MILL ST SAN BERNARDINO 92408	Yes	987	463	No
155422	611310	POMONA COLLEGE	609 N COLLEGE WAY CLAREMONT 91711	No	488	232	POC
155452	921190	CITY OF LA, DEPT OF GEN SVCS, LAPD ADM B	100 W 1ST ST LOS ANGELES 90012	No	840	354	No
155521	531312	WILSHIRE CATALINA PLAZA, LLC	3325 WILSHIRE BLVD LOS ANGELES 90010	No	377	175	No
156167	622110	MONTCLAIR HOSPITAL MEDICAL CENTER	5000 SAN BERNARDINO ST MONTCLAIR 91763	No	798	100	No
156294	812331	MEDICO PROFESSIONAL LINEN SERVICE	2201 E CARSON ST LONG BEACH 90807	No	1159	100	No
156298	561110	WASTE MGMT. HEALTHCARE SOLUTIONS OF CA	4280 E BANDINI BLVD VERNON 90058	No	877	877	No
156722	313310	AMERICAN APPAREL KNIT AND DYE	12641 INDUSTRY ST GARDEN GROVE 92841	No	875	298	No
156851	322211	INTERNATIONAL PAPER CO	19615 S SUSANA RD COMPTON 90221	No	1217	631	No
156875	313210	HITEX DYEING & FINISHING, INC	355 N VINELAND AVE CITY OF INDUSTRY 91746	No	885	92	No
156902	622110	PROVIDENCE TARZANA MEDICAL CENTER	18321 CLARK ST TARZANA 91356	No	838	132	No
157418	561499	OVERLAND VENTURE, L.P.	955 OVERLAND CT SAN DIMAS 91773	No	529	187	No
157845	531210	WILSHIRE TOWER APARTMENTS, LLC	701 S PARKER ST ORANGE 92868	No	888	8	No
158151	611110	ROBERT F KENNEDY COMMUNITY OF SCHOOLS	3161 W 8TH ST LOS ANGELES 90005	No	174	42	No
158404	622110	HOAG MEM HOSP PRESBYTERIAN	16200 SAND CANYON AVE IRVINE 92618	No	1175	190	No
158573	721110	TERRANEA RESORT	100 TERRANEA WAY RANCHO PALOS VERDES 90275	No	1181	531	No
158809	622110	GARFIELD MEDICAL CENTER/AHMC	525 N GARFIELD AV MONTEREY PARK 91754	No	584	71	No
159107	622110	LOMA LINDA UNIVERSITY HEALTH BEAUMONT-BA	81 HIGHLAND SPRINGS AVE BEAUMONT 92223	No	1464	117	No
159449	622110	KECK HOSPITAL OF USC	1500 SAN PABLO ST LOS ANGELES 90033	No	356	132	No
159634	531210	WILSHIRE SHATTO CENTER	3130 WILSHIRE BLVD LOS ANGELES 90010	No	266	241	No
160367	531120	JAMISON CALIFORNIA MARKET CENTER LP	124 E OLYMPIC BLVD LOS ANGELES 90079	No	480	235	No
160576	311999	FOSTER FARMS, COMPTON PLANT	1805 N SANTA FE AV COMPTON 90221	No	853	0	No
160826	622110	MISSION HOSPITAL LAGUNA BEACH	31872 S COAST HWY LAGUNA BEACH 92651	No	2277	77	No
160853	622110	AHMC ANAHEIM REGIONAL MEDICAL CENTER	1111 W LA PALMA AV ANAHEIM 92801	No	832	71	No
161439	313240	FANTASY DYEING AND FINISHING, INC.	5389 ALCOA AVE VERNON 90058	No	1196	761	No
161754	311511	ALTA DENA CERTIFIED DAIRY, LLC	17851 E RAILROAD ST CITY OF INDUSTRY 91748	No	1572	645	No
161834	424430	LOS ALTOS FOOD PRODUCTS, INC.	450 BALDWIN PARK BLVD CITY OF INDUSTRY 91746	No	821	467	No
161945	811192	QUALAWASH HOLDINGS, LLC	8332 WILCOX AVE SOUTH GATE 90280	No	884	84	No
162430	622110	PHYSICIANS HOSPITAL OF MURRIETA	28070 BAXTER RD MURRIETA 92563	No	1885	272	No

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163088	325180	ARKEMA INC.	19206 HAWTHORNE BL TORRANCE 90503	No	893	34	No
163123	311119	GEORGE VERHOEVEN GRAIN, INC.	5355 E AIRPORT DR ONTARIO 91761	No	3906	1408	No
164081	424430	IMURAYA USA INC.	2502 BARRANCA PKY IRVINE 92606	No	1221	295	No
164459	523991	KAISER PERMANENTE	3424 E LA PALMA AVE ANAHEIM 92806	No	1651	143	No
164522	423220	USA CANNING	201 N SULLIVAN ST SANTA ANA 92703	No	295	92	No
164820	541990	MEDICAL WASTE SERVICES, LLC	7321 QUIMBY ST PARAMOUNT 90723	No	554	208	No
165233	448150	POMONA COURTHOUSE SOUTH, JCC/AOC	400 CIVIC CENTER PLAZA POMONA 91766	No	753	98	No
165524	311421	CLIFFSTAR CALIFORNIA LLC	11751 PACIFIC AVE FONTANA 92337	No	2057	1012	No
165535	453910	LOTUS NATURAL PET FOOD	2727 MARICOPA ST TORRANCE 90503	No	610	63	No
165892	236115	FLATIRON CONSTRUCTION CORP	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
166187	322219	INTERNATIONAL COMPOSITES TECHNOLOGIES IN	1435 S SANTA FE AVE COMPTON 90221	No	671	68	No
166475	622110	HEMET VALLEY MEDICAL CENTER	1117 E DEVONSHIRE AVE HEMET 92543	No	671	126	No
166488	611210	LOS ANGELES MISSION COLLEGE	12890 W HARDING ST SYLMAR 91342	No	641	6	No
166710	531210	REALTY ASSOCIATES FUND IX	1960 E GRAND AVE EL SEGUNDO 90245	No	1154	436	No
167167	311513	SCHREIBER FOODS, INC.	1901 VIA BURTON ST FULLERTON 92831	No	610	338	No
167524	811219	PALM SPRINGS USD RANCHO MIRAGE HS	31001 RATTLER RD RANCHO MIRAGE 92270	No	1963	5	No
167938	424130	ROCKTENN CP, LLC	18021 S VALLEY VIEW AVE CERRITOS 90703	No	760	293	No
167947	322211	ROCKTENN CP, LLC	185 N SMITH AV CORONA 92880	No	814	369	No
167951	334418	CITY OF BUENA PARK	6955 ARAGON CIR BUENA PARK 90620	No	697	200	No
168083	622110	COMMUNITY HOSPITAL LONG BEACH	1720 TERMINO AV LONG BEACH 90804	No	694	0	No
168160	424490	YAKULT U.S.A., INC.	17235 NEWHOPE ST FOUNTAIN VALLEY 92708	No	1062	335	No
168424	424950	BNA COLOR INDUSTRY, INC	5000 DISTRICT BLVD VERNON 90058	No	377	377	No
168523	311999	JSL FOODS INTERNATIONAL	1478 N INDIANA ST LOS ANGELES 90063	No	435	13	No
169893	562219	CARBONLITE INDUSTRIES LLC	875 MICHIGAN AVE RIVERSIDE 92507	No	1223	150	No
169910	335312	ACCESS ENERGY, LLC	16323 SHOEMAKER AVE CERRITOS 90703	No	599	328	No
170075	523999	PACIFIC FINANCIAL EQUITIES, LLC	800 W 6TH ST LOS ANGELES 90017	No	290	290	No
170140	336413	HELICOPTER TECHNOLOGY COMPANY	14610 S BROADWAY GARDENA 90248	No	879	504	No
170253	327120	SAK CONSTRUCTION, LLC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
170890	812990	HOLLYWOOD PRODUCTION CTR	401 N BRAND BLVD GLENDALE 91203	No	591	0	No
171250	333241	JOHN BEAN TECHNOLOGIES CORPORATION	1660 IOWA AVE RIVERSIDE 92507	No	639	377	No
171575	447190	PHILLIPS 66 COMPANY LOS ANGELES LUBRICAN	13707 S BROADWAY LOS ANGELES 90061	No	977	573	No
171914	561720	ENVTECH TANK SERVICES LLC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
172211	311423	INLAND EMPIRE FOODS	5425 WILSON ST RIVERSIDE 92509	No	2121	922	No
172234	321920	IFCO SYSTEMS US., INC	8950 ROCHESTER AVE RANCHO CUCAMONGA 91730	No	2628	1044	No
172272	922120	VAN NUYS COURTHOUSE EAST, JCC/AOC	6230 SYLMAR AV VAN NUYS 91401	No	583	156	No
172387	339112	HAEMONETICS MANUFACTURING INC	1630-1665 INDUSTRIAL PARK ST COVINA 91722		491	56	No
172630	311999	PROPORTION FOODS, LLC	3501 E VERNON VERNON 90058	No	1854	1463	No
172641	561720	SHANNON DIVERSIFIED INC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
172781	622110	TEMECULA VALLEY HOSPITAL	31700 TEMECULA PKY TEMECULA 92592	No	655	108	No
173258	322211	INTERNATIONAL PAPER	9211 NORWALK BLVD SANTA FE SPRINGS 90670	No	877	369	No
173418	424480	EVOLUTION FRESH	11655 JERSEY BLVD RANCHO CUCAMONGA 91730	No	2391	734	No
173420	621999	EQUINOX	1835 S SEPULVEDA BLVD LOS ANGELES 90025	No	473	87	No
173647	721110	MIX RESTAURANT, HILTON ANAHEIM, HHC HA T	777 CONVENTION WAY ANAHEIM 92802	No	731	216	No
173739	327390	OLDCASTLE PRECAST INC	2020 GOETZ RD PERRIS 92570	No	785	729	L65
174183	424480	IMT CAPITAL II SHERMAN OAKS LLC	14130 RIVERSIDE DR SHERMAN OAKS 91423	No	1022	39	No

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175030	921110	CITY OF CHINO HILLS	15091 LA PALMA DR CHINO 91710	No	880	406	No
175080	531210	BERINGIA CENTRAL, LLC	633 W 5TH ST LOS ANGELES 90071	No	328	26	No
175126	325110	AEROJET ROCKETDYNE OF DE, INC.	8900 DE SOTO AV CANOGA PARK 91304	No	766	85	No
175261	339999	OSI RIVERSIDE	1155 MOUNT VERNON AVE RIVERSIDE 92507	No	2002	332	No
175552	237210	DOUGLAS EMMETT MANAGEMENT, LLC	8484 WILSHIRE BLVD BEVERLY HILLS 90211	No	315	63	No
176198	811111	RINCON TRUCK CENTER, INC	114 RINCON CT SAN CLEMENTE 92672	No	713	130	No
176295	237210	HINES GLOBAL REIT 2300 MAIN ST LP	2300 MAIN ST IRVINE 92614	No	396	396	SNA
176369	541990	TESORO LOGISTICS MARINE TERMINAL 3	MARINE TERMINAL 3 PORT OF LB LONG BEACH 90813	Yes	216	0	No
176480	488210	TMG TRANSPORTATION INC	1435 N HARBOR FULLERTON 92835	No	1131	40	No
176489	238220	MANLEYS BOILER, INC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
176566	622110	PIH HEALTH DOWNEY	11500 BROOKSHIRE AV DOWNEY 90241	No	558	129	No
176762	622210	COLLEGE MEDICAL CENTER	2776 PACIFIC AV LONG BEACH 90806	No	282	19	No
176788	311811	BIMBO BAKERIES USA, INC.	500 S PLACENTIA AV PLACENTIA 92870	No	1061	415	No
176803	325180	CLEAN HARBORS	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
177039	541380	NATIONAL TECHNICAL SYSTEMS	3505 E THIRD ST SAN BERNARDINO 92408	No	1032	116	SBD
177042	236220	SOLVAY USA, INC	20851 S SANTA FE AVE LONG BEACH 90810	Yes	929	433	No
177422	311111	AMERICAN JERKY COMPANY	2400 E FRANCIS ST ONTARIO 91761	No	1577	1452	ONT
177551	721110	NREA-TRC 700 LLC	700 S FLOWER ST. LOS ANGELES 90017	No	375	298	No
177942	327390	RIALTO CONCRETE PRODUCTS	23200 TEMESCAL CYN RD CORONA 92883	No	1186	45	No
178029	Unknown	350 SOUTH GRAND AVENUE (LA) OWNER, LLC	350 S GRAND AV LOS ANGELES 90071	No	489	251	No
178181	424910	MARTIN FEED LLC	8755 CHINO-CORONA RD CORONA 92880	No	2358	264	CNO
178261	Unknown	RICH PRODUCTS CORPORATION	3401 W SEGERSTROM AVE SANTA ANA 92704	No	1349	655	No
178416	Unknown	CALIFORNIA DEPT OF VETERANS AFFAIRS	11500 NIMITZ AVE LOS ANGELES 90049	No	1143	179	No
178423	531210	BROOKFIELD OFFICE PROPERTIES	333 & 355 SO GRAND AVE LOS ANGELES 90071	No	488	238	No
178726	423920	LOS ANGELES DISTILLERY	8650 HAYDEN PL CULVER CITY 90232	No	473	145	No
179052	423720	BOILER DYNAMICS INC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
179104	813990	GREAT WOLF LODGE	12681 HARBOR BLVD GARDEN GROVE 92840	No	999	5	No
179129	322211	INTERNATIONAL PAPER	5991 BANDINI BLVD LOS ANGELES 90040	No	1511	150	No
179134	336411	NORTHROP GRUMMAN SYSTEMS CORPORATION	5500 CANOGA AV WOODLAND HILLS 91367	No	1019	18	No
179265	531110	PROLOGIS, L.P.	20704 S FORDYCE AVE LONG BEACH 90810	No	1297	491	No
179310	531210	ONYX TOWER, LLC	6100 WILSHIRE BLVD LOS ANGELES 90048	No	373	74	No
179514	327331	SIERRA BUILDING PRODUCTS, OLDCASTLE APG	10774 POPLAR AVE FONTANA 92337	No	1318	430	No
179547	722511	US CORRUGATED OF LOS ANGELES	13820 MICA ST SANTA FE SPRINGS 90670	No	1788	948	No
179811	327213	ASEPTIC TECHNOLOGY LLC	24855 CORBIT PL YORBA LINDA 92887	No	729	92	No
180116	326130	REPET INC.	14207 MONTE VISTA AVE CHINO 91710	No	1674	430	No
180258	622110	INLAND EMPIRE SATELLITE REGIONAL REFEREN	13000 PEYTON DR CHINO HILLS 91709	No	969	148	No
180375	622110	UNIVERSITY OF SOUTHERN CALIFORNIA ON BEH	1812 VERDUGO BL GLENDALE 91208	No	679	51	No
180392	722513	CURCI IRVINE LLC C/O NEWPORT REAL ESTATE	1 GLEN BELL WAY IRVINE 92618	No	3595	58	No
180426	561990	HERITAGE DISTRIBUTING	425 9TH AVE CITY OF INDUSTRY 91746	No	1141	509	No
180538	312112	NIAGARA BOTTLING, LLC	1401 N ALDER AVE RIALTO 92376	No	858	415	L67
180672	334413	INFINEON TECHNOLOGIES AMERICAS CORP.	41915 BUSINESS PARK DR TEMECULA 92590	Yes	185	185	No
180889	541330	523 WEST 6TH STREET PROPERTY OWNER, LLC	523 W 6TH ST LOS ANGELES 90014	No	76	76	No
180908	325998	ECO SERVICES OPERATIONS CORP.	20720 S WILMINGTON AVE CARSON 90810	Yes	1019	381	No
180945	238210	ALLTECH, INC.	1702 S CUCAMONGA AVE ONTARIO 91761	No	406	406	No
181040	221310	SANTA MARGARITA WATER DISTRICT	26801 CAMINO CAPISTRANO LAGUNA NIGUEL 92677	No	782	346	No

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181041	812331	CINTAS - WHITTIER, CINTAS CORP.	2829 WORKMAN MILL RD WHITTIER 90601	No	1569	415	No
181084	531120	W/GL OCEAN AVENUE LB HOLDINGS VII, LLC	1 WORLD TRADE CENTER, #1820 LONG BEACH 90831	No	570	8	No
181182	424470	KING MEAT SERVICE, INC.	4215 EXCHANGE AV VERNON 90058	No	1490	1468	No
181225	322211	MONTEBELLO CONTAINER COMPANY, LLC	5150 INDUSTRY AV PICO RIVERA 90660	No	938	327	No
181257	322211	MONTEBELLO CONTAINER COMPANY, LLC	14333 MACAW ST LA MIRADA 90638	No	1643	480	No
181291	812331	HONG KONG DENIM DESIGN ONC	9725 FACTORIAL WAY SOUTH EL MONTE 91733	No	948	254	No
181347	722310	PREFERRED MEALS	5469 FERGUSON DR COMMERCE 90022	No	729	249	No
181526	531210	STATE OF CALIFORNIA	3737 MAIN ST RIVERSIDE 92501	No	554	554	No
181542	812331	LEMON TREE WASHHOUSE SERVICES, INC.	717 JUNIPERO SERRA DRIVE SAN GABRIEL 91776	No	246	14	No
181609	541711	GILEAD SCIENCES, INC	1800 WHEELER AVE LA VERNE 91750	No	980	240	No
181660	454390	NEW AVON LLC	2940 E FOOTHILL BLVD. PASADENA 91121	No	385	79	No
181946	531210	COLLIERS INTERNATIONAL	6053 W CENTURY BLVD LOS ANGELES 90045	No	1469	623	No
181947	531210	COLLIERS INTERNATIONAL	6033 W CENTURY BLVD LOS ANGELES 90045	No	1403	576	No
181966	236220	SYNEAR FOODS USA, LLC	9601 CANOGA AVE CHATSWORTH 91311	Yes	695	618	No
182093	561110	ONNI 800 WILSHIRE LIMITED PARTNERSHIP	800 WILSHIRE BLVD LOS ANGELES 90017	No	304	304	No
182102	334412	EMD SPECIALTY MATERIALS, LLC ARLON EMD	9433 HYSSOP DR RANCHO CUCAMONGA 91730	No	3259	549	No
182157	325412	BAXALTA US INC	4501 COLORADO BLVD LOS ANGELES 90039	No	600	68	No
182187	561499	DEDEAUX PROPERTIES	4000 NOAKES ST COMMERCE 90023	No	697	378	No
182210	611110	MCKINLEY K-8 SCHOOL	325 S OAK KNOLL AVE PASADENA 91101	No	327	293	No
182214	311422	COMAN	3305 E VERNON AVE VERNON 90058	No	1703	1595	No
182599	237110	INSITUFORM TECHNOLOGIES, LLC	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
182601	531210	THE KOLL COMPANY	18000 STUDEBAKER RD CERRITOS 90703	No	605	219	No
182603	311930	AMERICAN FRUITS AND FLAVORS LLC.	10725 SUTTER ST PACOIMA 91331	No	581	13	No
182752	488999	TORRANCE LOGISTICS COMPANY LLC	2619 E 37TH ST VERNON 90058	No	921	859	No
182774	812310	MELIK DYE WORKS	710 W 58TH STREET LOS ANGELES 90037	No	444	14	No
182957	811198	VALVOLINE, LLC	9520 JOHN ST SANTA FE SPRINGS 90670	No	959	922	No
183134	333414	CANSECO BOILER SERVICES, INC.	VARIOUS LOCATIONS	No	#N/A	#N/A	#N/A
183368	522310	FORTERRA BUILDING PRODUCTS	26380 PALOMAR RD. ROMOLAND 92585	No	1078	58	No
183465	311411	ASEPTIC INNOVATIONS, INC	4940 E LANDON DR ANAHEIM 92807	No	821	385	No
183581	311412	DEL REAL LLC	11041 INLAND AVE MIRA LOMA 91752	No	2710	801	No
183736	322211	GEORGIA-PACIFIC CORRUGATED LLC	15500 VALLEY VIEW AVE LA MIRADA 90638	No	1923	710	No
183737	621111	ORANGE COUNTY GLOBAL MEDICAL CENTER	1001 N TUSTIN AV SANTA ANA 92705	No	89	66	No
183926	325998	EVONIK CORPORATION	3305 E 26TH ST LOS ANGELES 90058	No	1088	863	No
184003	722511	FRANZ BAKERY LOS ANGELES	457 E MARTIN LUTHER KING BLVD LOS ANGELES 90011	No	229	39	No
184249	326199	RPLANET EARTH LOS ANGELES, LLC	5300 S BOYLE AVE VERNON 90058	No	1112	744	No
184321	531120	CVFI-444 S FLOWER, LP	444 SOUTH FLOWER ST, STE #1750 LOS ANGELES 90071	No	399	135	No
185034	322211	JELLCO CONTAINER	1265 N VAN BUREN ST ANAHEIM 92807	No	1048	435	No
185143	812331	9W HALO WESTERN OPCP L.P. D/B/A ANGELICA	300 E COMMERCIAL ST POMONA 91766	No	745	5	No
185144	812331	9W HALO WESTER OPCP L.P. D/B/A ANGELICA	925 S 8TH ST COLTON 92324	No	249	113	No
185145	812331	9W HALO WESTERN OPCP LP DBA ANGELICA	1575 N CASE ST ORANGE 92867	No	735	299	No
185146	812331	9W HALO WESTERN OPCP L.P. D/B/A ANGELICA	451 SAN FERNANDO RD LOS ANGELES 90031	No	826	560	No
185282	238990	BKEP MATERIALS LLC - FONTANA	14929 SLOVER AV FONTANA 92337	No	2039	845	No
185504	333318	UNIFIRST CORP	13123 ROSECRANS AVE SANTA FE SPRINGS 90670	No	451	24	No
185509	622110	GLENDALE MEMORIAL HOSPITAL & HEALTH CTR	1420 S CENTRAL AV GLENDALE 91204	No	462	21	No
185630	424480	AVALON PACKING,AMERICAN FOOD PROCESSING	2501 W ROSECRANS AVE LOS ANGELES 90059	No	246	13	No
185801	211111	BERRY PETROLEUM COMPANY, LLC	25121 N SIERRA HWY SANTA CLARITA 91321	No	1384	6	No
186226	312111	REYES COCA-COLA BOTTLING, LLC	1338 E 14TH ST LOS ANGELES 90021	No	235	235	No

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186255	312111	REYES COCA-COLA BOTTLING, LLC	1321 E 14TH ST LOS ANGELES 90021	No	232	232	No
186291	312111	REYES COCA-COLA BOTTLING, LLC	11536 PATTON RD. DOWNEY 90241	No	568	137	No
186424	333318	SUEZ WTS SERVICES USA, INC	11689 PACIFIC AV FONTANA 92335	No	2110	1098	No
186621	722513	MODU FOOD SERVICE INC	5050 EVERETT CT VERNON 90058	No	761	761	No
186836	Unknown	GAMBOL PET USA	20343 HARVILL AVE PERRIS 92570	No	1167	319	No
187119	Unknown	MERIDIAN PARKWAY CAMPUS	14950 INNOVATION DR RIVERSIDE 92518	No	1455	903	RIV
187165	Unknown	ALTAIR PARAMOUNT, LLC	14700-14708 DOWNEY AV PARAMOUNT 90723	No	298	3	No
187180	Unknown	KIRKHILL MANUFACTURING COMPANY	2500,2525 THOMPSON ST LONG BEACH 90805	No	425	106	No
187258	Unknown	LEE KUM KEE	14515 DON JULIAN RD CITY OF INDUSTRY 91746	No	869	570	No
187272	Unknown	MCGUFF PHARMACEUTICALS INC	4040 W CARRIAGE DR SANTA ANA 92704	No	1521	164	No
187354	Unknown	CAPTEK PHARMA	14535 INDUSTRY CIR LA MIRADA 90638	No	1864	497	No
187823	Unknown	KIRKHILL INC	300 E CYPRESS ST BREA 92821	No	689	140	No
187872	Unknown	T.I. COMMERCE LLC	19001 S WESTERN AVE TORRANCE 90501	No	681	393	64CL
187885	Unknown	SMITHFIELD PACKAGED MEATS CORP	3049 E VERNON AVE VERNON 90058	No	1157	1088	No
187888	Unknown	SMITHFIELD PACKAGED MEATS CORP	3883 S SOTO ST VERNON 90058	No	1144	1075	No
187890	Unknown	SMITHFIELD PACKAGED MEATS CORP	2750 E 37TH ST VERNON 90058	No	1130	1064	No
188010	Unknown	MEDICO PROFESSIONAL LINEN SERVICE	2654 SEQUOIA DR SOUTH GATE 90280	No	439	5	No
188064	Unknown	HOLLYWOOD PARK LAND COMPANY LLC	1050 S PRAIRIE AVE INGLEWOOD CA 90301	No	972	185	LAX
188199	Unknown	SMG	4000 E ONTARIO CENTER PKY ONTARIO CA 91764	No	669	325	ONT
188265	Unknown	CJ FOODS MANUFACTURING BEAUMONT CORP	415 NICHOLAS ROAD BEAUMONT CA 92223	No	1170	821	No
188437	Unknown	CHAI FIVE LAUNDRY SERVICES LLC	640 E WARDLOW RD LONG BEACH CA 90807	No	204	64	LGB
188487	Unknown	505 NORTH BRAND OWNER LLC.	505 N BRAND BLVD GLENDALE CA 91203	No	594	164	GCJ
800202	512110	UNIVERSAL CITY STUDIOS, LLC.	3900 LANKERSHIM/100 UNI CTY PL UNIVERSAL CITY 91608	Yes	1440	375	No
800212	622110	POMONA VALLEY COMM HOSP (EIS USE)	1798 N GAREY AV POMONA 91767	Yes	684	0	POC
800214	221320	LA CITY, SANITATION BUREAU (HTP)	12000 VISTA DEL MAR PLAYA DEL REY 90293	No	2047	700	No
800234	611310	LOMA LINDA UNIV	10935 PARKLAND AV LOMA LINDA 92350	No	546	126	No
800236	221320	LA CO. SANITATION DIST	24501 S FIGUEROA ST CARSON 90745	Yes	1109	407	No
800265	611310	UNIV OF SO CAL (EIS & NSR USE ONLY)	MCCLINTOCK ST,W 34TH,CHILD'S LOS ANGELES 90089	No	161	0	No
800288	611310	UNIV CAL IRVINE (NSR USE ONLY)	JAMBOREE, CAMPUS, BRIDGE ETC. IRVINE 92697	No	922	312	No
800289	325412	ALLERGAN INC	18600 VON KARMAN & 2525 DUPONT IRVINE 92612	No	1709	146	SNA
800312	622110	LA CO HARBOR-UCLA MEDICAL CENTER	1000 W CARSON & 1124 W CARSON TORRANCE 90502	No	438	21	No
800353	622110	HUNTINGTON MEMORIAL HOSPITAL	160 CONGRESS,100 W CALIF,720 F PASADENA 91105	No	694	84	No
800386	922140	LA CO., SHERIFF DEPT	29300 THE OLD RD SAUGUS 91384	No	850	418	No
800387	611310	CAL INST OF TECH	650 S WILSON PASADENA 91106	No	127	127	No
800429	622110	KAISER FOUNDATION HOSPITAL	1550 N EDGEMONT ST LOS ANGELES 90027	No	238	35	No
550	921190	LA CO., INTERNAL SERVICE DEPT	301 N BROADWAY LOS ANGELES 90012	No	541	388	No
2418	322211	FRUIT GROWERS SUPPLY CO	225 S WINEVILLE ROAD ONTARIO 91761	No	4067	1088	No
2825	311421	MCP FOODS INC	424,425 S ATCHISON ST ANAHEIM 92805	No	777	0	No
3704	324121	ALL AMERICAN ASPHALT, UNIT NO.01	1776 ALL AMERICAN WAY CORONA 92879	No	998	404	No
5973	486210	SO CAL GAS CO	25205 W RYE CANYON ROAD VALENCIA 91355	No	882	724	No
7411	331222	DAVIS WIRE CORP	5555 IRWINDALE AV IRWINDALE 91706	No	1910	682	No
8582	221210	SO CAL GAS CO/PLAYA DEL REY STORAGE FAC	8141 GULANA AV PLAYA DEL REY 90293	No	726	0	LAX
14049	311824	MARUCHAN INC	1902 DEERE AV IRVINE 92606	No	1456	496	No
16660	336414	THE BOEING COMPANY	5301 BOLSA AVE HUNTINGTON BEACH 92647	Yes	1371	502	No
21598	812331	ANGELICA TEXTILE SERVICES	1575 N CASE ST ORANGE 92867	No	687	332	No
38872	311111	MARS PETCARE U.S., INC.	2765 LEXINGTON WY SAN BERNARDINO 92407	No	1371	182	No
40483	326130	NELCO PROD. INC	1411 E ORANGETHORPE AV FULLERTON 92831	No	1382	629	No
42630	325120	PRAXAIR INC	5705 AIRPORT DR ONTARIO 91761	No	3568	1746	No
50098	311613	D&D DISPOSAL INC,WEST COAST RENDERING CO	4105 BANDINI BL VERNON 90023	No	1419	1365	No

Facility ID	NAICS	Facility Name	Address	On List per Government Code 65962.5 (Envirostor)?	Distance from School (meters)	Distance from Sensitive Receptor (meters)	Airport within 2 miles (code)
62548	322130	THE NEWARK GROUP, INC.	6001 S EASTERN AV COMMERCE 90040	No	1053	369	No
63180	311613	DARLING INGREDIENTS INC.	2626,2643 E 25TH ST LOS ANGELES 90058	No	1432	1144	No
107654	212321	CALMAT CO	16005 FOOTHILL BLVD IRWINDALE 91706	No	1812	945	No
107656	324121	CALMAT CO	11447 TUXFORD ST SUN VALLEY 91352	No	1437	637	No
115241	334220	THE BOEING COMPANY	2260,2060,2030,2010,2012,2030,2060 IMP H EL SEGUNDO 90245	No	1072	188	No
115563	332812	NCI GROUP INC., DBA, METAL COATERS OF CA	9133 CENTER AVE RANCHO CUCAMONGA 91730	Yes	1382	484	No
117227	722511	SHCI SM BCH HOTEL LLC, LOEWS SM BCH HOTE	1700 OCEAN AV SANTA MONICA 90401	No	747	60	No
117290	325412	B BRAUN MEDICAL, INC	2525 MCGAW AVE. IRVINE 92614	No	715	267	No
122666	313310	A'S MATCH DYEING & FINISHING	2522 E 37TH ST VERNON 90058	No	658	600	No
123774	331492	HERAEUS PRECIOUS METALS NO. AMERICA, LLC	13429 ALONDRA BL. SANTA FE SPRINGS 90670	No	1118	425	No
130211	322121	PAPER-PAK INDUSTRIES	1941 WHITE AV LA VERNE 91750	No	1165	0	POC
137471	325414	GRIFOLS BIOLOGICALS INC	5555 VALLEY BLVD LOS ANGELES 90032	No	1120	97	No
138568	332111	CALIFORNIA DROP FORGE, INC	1033 ALHAMBRA AV LOS ANGELES 90012	No	307	140	No
141295	313310	LEKOS DYE AND FINISHING, INC	3131 HARCOURT ST COMPTON 90221	No	591	121	No
142267	331512	FS PRECISION TECH LLC	3025 E VICTORIA ST COMPTON 90221	No	478	224	No
144455	326113	LIFOAM INDUSTRIES, LLC	2340 E 52ND ST VERNON 90058	No	739	669	No
169754	211111	SO CAL HOLDING, LLC	20101 GOLDENWEST ST HUNTINGTON BEACH 92648	No	771	6	No
171960	322211	TIN, INC. DBA INTERNATIONAL PAPER	5110 JURUPA ONTARIO 91761	No	4004	1508	No
183564	531210	ONNI TIMES SQUARE LP	202 W 1ST ST, LOS ANGELES 90012	No	938	460	No
800037	324191	DEMENNO/KERDOON	2000 N ALAMEDA ST COMPTON 90222	Yes	480	108	No
800067	334220	THE BOEING COMPANY	IMPERIAL, MAPLE,NASH,& SELBY EL SEGUNDO 90245	No	631	444	No
800335	488111	LA CITY, DEPT OF AIRPORTS	275 CENTER WAY LOS ANGELES 90045	No	1559	1453	No
800338	322211	SPECIALTY PAPER MILLS INC	8834 & 8844 S MILLERGORVE DR SANTA FE SPRINGS 90670	No	660	103	No

APPENDIX E

Ammonia Storage Calculations

Hazards Assessment for PARs 1146 series and PR 1100 - SCRs

Summary						
Facility	Monthly Aq. NH3 Needed (gal/month)	Sized for Tank	Typical Tank Sizes to Hold NH3 (gallons)	RMP Value (in miles)	Distance (feet)	Significant?
1	401.98	603	1,000	0.2	1056	No
2	214.19	321	500	0.1	528	Yes
3	981.89	1,473	2,000	0.2	1056	No
4	955.22	1,433	2,000	0.2	1056	No
5	1370.37	2,056	3,900	0.3	1584	Yes
6	6455.27	9,683	10,000	0.6	3168	Yes
7	339.99	510	1,000	0.2	1056	No
8	1860.51	2,791	3,900	0.3	1584	No
9	565.23	848	1,000	0.2	1056	Yes
10	1217.88	1,827	2,000	0.2	1056	No
11	1042.07	1,563	2,000	0.2	1056	Yes
12	934.97	1,402	2,000	0.2	1056	Yes
13	566.42	850	1,000	0.2	1056	No
14	1011.43	1,517	2,000	0.2	1056	Yes
15	119.00	178	250	0.1	528	No
16	296.07	444	500	0.1	528	No
17	297.49	446	500	0.1	528	No
18	486.47	730	1,000	0.2	1056	No
19	177.93	267	500	0.1	528	No
20	355.71	534	1,000	0.2	1056	Yes
21	1130.47	1,696	2,000	0.2	1056	No
22	3138.28	4,707	6,565	0.4	2112	No
23	340.33	510	1,000	0.2	1056	Yes
24	420.40	631	1,000	0.2	1056	No
25	690.67	1,036	2,000	0.2	1056	Yes
26	2487.31	3,731	3,900	0.3	1584	No
27	942.90	1,414	2,000	0.2	1056	Yes
28	652.78	979	1,000	0.2	1056	No
29	935.65	1,403	2,000	0.2	1056	Yes
30	1334.57	2,002	3,900	0.3	1584	Yes
31	451.51	677	1,000	0.2	1056	No
32	1211.27	1,817	2,000	0.2	1056	No

Notes:

1. Storage tanks should be sized to hold at least 1.5 times (https://www.tannerind.com/sto-aqua-ammonia.html)
2. Tank Size Dimensions (Typical): https://ammoniatanks.com/; https://www.epa.gov/sites/production/files/2013-11/documents/appendix-f1.pdf
3. RMP*Comp run at 77 degrees F
4. Assume square footage of building enclosure is twice the size of the O.D. and length of the tank

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
1	20.9816	0.0105

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	20.9816	2	0.4561	-	-	-
Aqueous Ammonia	NH3	17	-	4	0.9122	15.5082	1.05	16.2836

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	2.11	770.17	64.18
Water	H20	18	81%	4.5	0.80	8.345	11.11	4053.53	337.79
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**13.22**	**4823.70**	**401.98**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
2	11.1801	0.0056

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	11.1801	2	0.2430	-	-	-
Aqueous Ammonia	NH3	17	-	4	0.4861	8.2636	1.05	8.6767

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	1.12	410.39	34.20
Water	H20	18	81%	4.5	0.80	8.345	5.92	2159.93	179.99
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**7.04**	**2570.32**	**214.19**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
3	51.2510	0.0256

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	51.2510	2	1.1142	-	-	-
Aqueous Ammonia	NH3	17	-	4	2.2283	37.8812	1.05	39.7753

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	5.15	1881.27	156.77
Water	H20	18	81%	4.5	0.80	8.345	27.13	9901.41	825.12
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**32.28**	**11782.68**	**981.89**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
4	49.8591	0.0249

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	49.8591	2	1.0839	-	-	-
Aqueous Ammonia	NH3	17	-	4	2.1678	36.8524	1.05	38.6950

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	5.01	1830.17	152.51
Water	H20	18	81%	4.5	0.80	8.345	26.39	9632.50	802.71
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**31.40**	**11462.67**	**955.22**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
5	71.5283	0.0358

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	71.5283	2	1.5550	-	-	-
Aqueous Ammonia	NH3	17	-	4	3.1099	52.8687	1.05	55.5122

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	7.19	2625.58	218.80
Water	H20	18	81%	4.5	0.80	8.345	37.86	13818.86	1151.57
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**45.05**	**16444.44**	**1370.37**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
6	336.9413	0.1685

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	336.9413	2	7.3248	-	-	-
Aqueous Ammonia	NH3	17	-	4	14.6496	249.0436	1.05	261.4958

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	33.89	12368.08	1030.67
Water	H20	18	81%	4.5	0.80	8.345	178.34	65095.13	5424.59
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**212.23**	**77463.21**	**6455.27**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
7	17.7462	0.0089

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	17.7462	2	0.3858	-	-	-
Aqueous Ammonia	NH3	17	-	4	0.7716	13.1168	1.05	13.7726

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	1.78	651.41	54.28
Water	H20	18	81%	4.5	0.80	8.345	9.39	3428.47	285.71
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**11.18**	**4079.87**	**339.99**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
8	97.1120	0.0486

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	97.1120	2	2.1111	-	-	-
Aqueous Ammonia	NH3	17	-	4	4.2223	71.7784	1.05	75.3673

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	9.77	3564.68	297.06
Water	H20	18	81%	4.5	0.80	8.345	51.40	18761.48	1563.46
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**61.17**	**22326.16**	**1860.51**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
9	29.5031	0.0148

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	29.5031	2	0.6414	-	-	-
Aqueous Ammonia	NH3	17	-	4	1.2827	21.8066	1.05	22.8969

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	2.97	1082.97	90.25
Water	H20	18	81%	4.5	0.80	8.345	15.62	5699.82	474.99
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**18.58**	**6782.79**	**565.23**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
10	63.5686	0.0318

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	63.5686	2	1.3819	-	-	-
Aqueous Ammonia	NH3	17	-	4	2.7639	46.9855	1.05	49.3348

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	6.39	2333.41	194.45
Water	H20	18	81%	4.5	0.80	8.345	33.65	12281.10	1023.42
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**40.04**	**14614.51**	**1217.88**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
11	54.3921	0.0272

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	54.3921	2	1.1824	-	-	-
Aqueous Ammonia	NH3	17	-	4	2.3649	40.2029	1.05	42.2130

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	5.47	1996.57	166.38
Water	H20	18	81%	4.5	0.80	8.345	28.79	10508.25	875.69
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**34.26**	**12504.81**	**1042.07**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
12	48.8021	0.0244

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	48.8021	2	1.0609	-	-	-
Aqueous Ammonia	NH3	17	-	4	2.1218	36.0711	1.05	37.8746

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	4.91	1791.37	149.28
Water	H20	18	81%	4.5	0.80	8.345	25.83	9428.28	785.69
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**30.74**	**11219.65**	**934.97**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
13	29.5650	0.0148

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	29.5650	2	0.6427	-	-	-
Aqueous Ammonia	NH3	17	-	4	1.2854	21.8524	1.05	22.9450

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	2.97	1085.24	90.44
Water	H20	18	81%	4.5	0.80	8.345	15.65	5711.80	475.98
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**18.62**	**6797.04**	**566.42**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
14	52.7930	0.0264

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	52.7930	2	1.1477	-	-	-
Aqueous Ammonia	NH3	17	-	4	2.2953	39.0209	1.05	40.9719

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	5.31	1937.87	161.49
Water	H20	18	81%	4.5	0.80	8.345	27.94	10199.30	849.94
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**33.25**	**12137.16**	**1011.43**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
15	6.2112	0.0031

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	6.2112	2	0.1350	-	-	-
Aqueous Ammonia	NH3	17	-	4	0.2701	4.5909	1.05	4.8204

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	0.62	227.99	19.00
Water	H20	18	81%	4.5	0.80	8.345	3.29	1199.96	100.00
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**3.91**	**1427.96**	**119.00**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
16	15.4540	0.0077

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	15.4540	2	0.3360	-	-	-
Aqueous Ammonia	NH3	17	-	4	0.6719	11.4225	1.05	11.9936

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	1.55	567.27	47.27
Water	H20	18	81%	4.5	0.80	8.345	8.18	2985.62	248.80
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**9.73**	**3552.89**	**296.07**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
17	15.5279	0.0078

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	15.5279	2	0.3376	-	-	-
Aqueous Ammonia	NH3	17	-	4	0.6751	11.4772	1.05	12.0510

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	1.56	569.98	47.50
Water	H20	18	81%	4.5	0.80	8.345	8.22	2999.91	249.99
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**9.78**	**3569.89**	**297.49**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
18	25.3919	0.0127

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	25.3919	2	0.5520	-	-	-
Aqueous Ammonia	NH3	17	-	4	1.1040	18.7679	1.05	19.7063

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	2.55	932.06	77.67
Water	H20	18	81%	4.5	0.80	8.345	13.44	4905.56	408.80
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**15.99**	**5837.62**	**486.47**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
19	9.2872	0.0046

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	9.2872	2	0.2019	-	-	-
Aqueous Ammonia	NH3	17	-	4	0.4038	6.8644	1.05	7.2077

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	0.93	340.90	28.41
Water	H20	18	81%	4.5	0.80	8.345	4.92	1794.23	149.52
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**5.85**	**2135.13**	**177.93**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
20	18.5670	0.0093

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	18.5670	2	0.4036	-	-	-
Aqueous Ammonia	NH3	17	-	4	0.8073	13.7234	1.05	14.4096

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	1.87	681.54	56.79
Water	H20	18	81%	4.5	0.80	8.345	9.83	3587.03	298.92
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**11.69**	**4268.57**	**355.71**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
21	59.0061	0.0295

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	59.0061	2	1.2827	-	-	-
Aqueous Ammonia	NH3	17	-	4	2.5655	43.6132	1.05	45.7939

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	5.93	2165.93	180.49
Water	H20	18	81%	4.5	0.80	8.345	31.23	11399.65	949.97
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**37.17**	**13565.58**	**1130.47**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
22	163.8066	0.0819

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	163.8066	2	3.5610	-	-	-
Aqueous Ammonia	NH3	17	-	4	7.1220	121.0745	1.05	127.1282

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	16.47	6012.84	501.07
Water	H20	18	81%	4.5	0.80	8.345	86.70	31646.50	2637.21
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**103.18**	**37659.34**	**3138.28**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
23	17.7640	0.0089

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	17.7640	2	0.3862	-	-	-
Aqueous Ammonia	NH3	17	-	4	0.7723	13.1299	1.05	13.7864

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	1.79	652.06	54.34
Water	H20	18	81%	4.5	0.80	8.345	9.40	3431.89	285.99
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**11.19**	**4083.95**	**340.33**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
24	21.9432	0.0110

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	21.9432	2	0.4770	-	-	-
Aqueous Ammonia	NH3	17	-	4	0.9541	16.2189	1.05	17.0298

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	2.21	805.47	67.12
Water	H20	18	81%	4.5	0.80	8.345	11.61	4239.30	353.27
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**13.82**	**5044.76**	**420.40**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
25	36.0503	0.0180

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	36.0503	2	0.7837	-	-	-
Aqueous Ammonia	NH3	17	-	4	1.5674	26.6458	1.05	27.9781

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	3.63	1323.29	110.27
Water	H20	18	81%	4.5	0.80	8.345	19.08	6964.71	580.39
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**22.71**	**8288.00**	**690.67**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
26	129.8283	0.0649

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	129.8283	2	2.8224	-	-	-
Aqueous Ammonia	NH3	17	-	4	5.6447	95.9600	1.05	100.7580

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	13.06	4765.60	397.13
Water	H20	18	81%	4.5	0.80	8.345	68.72	25082.08	2090.17
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**81.77**	**29847.68**	**2487.31**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
27	49.2161	0.0246

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	49.2161	2	1.0699	-	-	-
Aqueous Ammonia	NH3	17	-	4	2.1398	36.3772	1.05	38.1960

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	4.95	1806.57	150.55
Water	H20	18	81%	4.5	0.80	8.345	26.05	9508.28	792.36
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**31.00**	**11314.85**	**942.90**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
28	34.0727	0.0170

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	34.0727	2	0.7407	-	-	-
Aqueous Ammonia	NH3	17	-	4	1.4814	25.1842	1.05	26.4434

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	3.43	1250.70	104.23
Water	H20	18	81%	4.5	0.80	8.345	18.03	6582.65	548.55
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**21.46**	**7833.36**	**652.78**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
29	48.8376	0.0244

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	48.8376	2	1.0617	-	-	-
Aqueous Ammonia	NH3	17	-	4	2.1234	36.0973	1.05	37.9022

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	4.91	1792.68	149.39
Water	H20	18	81%	4.5	0.80	8.345	25.85	9435.14	786.26
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**30.76**	**11227.81**	**935.65**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
30	69.6598	0.0348

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	69.6598	2	1.5143	-	-	-
Aqueous Ammonia	NH3	17	-	4	3.0287	51.4877	1.05	54.0620

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	7.01	2557.00	213.08
Water	H20	18	81%	4.5	0.80	8.345	36.87	13457.87	1121.49
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**43.88**	**16014.87**	**1334.57**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
31	23.5670	0.0118

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	23.5670	2	0.5123	-	-	-
Aqueous Ammonia	NH3	17	-	4	1.0247	17.4191	1.05	18.2900

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	2.37	865.07	72.09
Water	H20	18	81%	4.5	0.80	8.345	12.47	4553.00	379.42
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**14.84**	**5418.07**	**451.51**

Estimated Ammonia Use & Ammonia Tank Sizing

Amount of NOx Reductions Needed

Facility	NOx Reductions (lb/day)	NOx Reductions (ton/day)
32	63.2238	0.0316

Stochiometric Equation

2NO2 + 4NH3 + O2 --> 3N2 + 6H2O

Amount of NH3 Needed (lb/day)

Compound	Formula	Molecular Weight (MW)	NOx Reductions (lb/day)	Mole Ratio	Moles	NH3 Needed (lb/day)	Ammonia Slip Factor	Total NH3 Needed for Ammonia Slip (lb/day)
NOx	NO2	46	63.2238	2	1.3744	-	-	-
Aqueous Ammonia	NH3	17	-	4	2.7489	46.7306	1.05	49.0672

Gallons Needed of NH3 (19% solution)

Compound	Formula	Molecular Weight (MW)	Molecular Weight (MW)	Moles (%/MW)	Mole Fraction	Density (lb/gal)	Daily Solution Needed (gal/day)	Annual Solution Needed (gal/yr)	Monthly Solution Needed (gal/month)
Aqueous Ammonia	NH3	17	19%	1.12	0.20	7.72	6.36	2320.75	193.40
Water	H20	18	81%	4.5	0.80	8.345	33.46	12214.48	1017.87
Total	**-**	**-**	**100%**	**5.62**	**1.00**	**-**	**39.82**	**14535.23**	**1211.27**

APPENDIX F

CEQA Scoping Comments and Responses to Comments

Introduction

A CEQA scoping meeting was required for the proposed project pursuant to Public Resources Code Section 21083.9(a)(2) and was held at the SCAQMD's Headquarters in conjunction with the Public Workshop on February 14, 2018. One oral, CEQA-related comment was made during the scoping meeting.

Comment #1

Mr. Shawn Tieu from Andeavor inquired about whether the CEQA document will analyze particulate emissions from the ammonia slip that may result from using ammonia in SCR systems to control NOx emissions.

Response to Comment #1

The analysis of ammonia slip can be found in Chapter 4, page 4-19~~16~~ of this Revised Draft SEA.

APPENDIX G

Comment Letters Received on the Original Draft SEA (comment period from April 3, 2018 to May 18, 2018) and Responses to Comments

Comment Letter #1: Shasta Gaughen, Ph.D./Pala Environmental Department

Comment Letter #2: Ray Teran/Viejas Band of Kumeyaay Indians

Comment Letter #3: Richard Vuong/OC Public Works

Comment Letter #4: Oyango A. Snell/Western States Petroleum Association

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

April 9, 2018

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178
Attention: Ms. Diana Thai (c/o CEQA)

Re: Recipient of CEQA Notices/Documents

Dear Ms. Thai,

The Pala Band of Mission Indians would like to thank you for the opportunity to review and comment on the SDAPCD's notices related to the California Environmental Quality Act (CEQA). According to your letter the SDAPCD participating as a lead agency on projects is very valuable information for us and we wish to continue receiving more communication from SCAQMD pertaining to CEQA. This letter therefore is to inform you that Pala currently has no objections to receiving more information from SCAQMD. Please keep us on your contacts list.

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

Response to Comment Letter #1 – Pala Environmental Department

Thank you for your comment. No further response is required under CEQA.

Comment Letter #2

VIEJAS
TRIBAL GOVERNMENT

P.O Box 908
Alpine, CA 91903
#1 Viejas Grade Road
Alpine, CA 91901

Phone: 6194453810
Fax: 6194455337
viejas.com

April 9, 2018

Barbara Radlein
Program Supervisor
South Coast AQMD
21865 Copley Drive
Diamond Bar, CA 91765

Re: Emissions of Oxides of Nitrogen

Dear Ms. Radlein,

The Viejas Band of Kumeyaay Indians ("Viejas") has reviewed the proposed project and at this time we have determined that the project site has little cultural significance or ties to Viejas. We further recommend that you contact the tribe(s) closest to the cultural resources. We, however, request to be informed of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains in order for us to reevaluate our participation in the government-to-government consultation process.

Please do not hesitate to contact me if you have further questions. Please call Ernest Pingleton at 619-659-2314 or me at 619-659-2312, or email, epingleton@viejas-nsn.gov or rteran@viejas-nsn.gov. Thank you.

Sincerely,

Ray Teran, Resource Management
VIEJAS BAND OF KUMEYAAY INDIANS

Response to Comment Letter #2 – Viejas Band of Kumeyaay Indians

The comment recieved from Mr. Ray Teran indicates the proposed project would have little culturual significance or ties to the Viejas Band of Kumeyaay Indians. Mr. Teran has suggested staff contact the Tribe(s) closest to cultural resources about the proposed project and asked to be informed of any new developments. Staff notified all of the tribes on the Tribal Consultation List as provided by the Native American Heritage Commission of the availability of the original Draft SEA. Afte rthe comment period for the original Draft SEA ended, SCAQMD staff revised the project description and environmental analysis and prepared this Revised Draft SEA to reflect these changes. The Revised Draft SEA has been released for a 45-day public comment and review period. As part of the recirculation process, the staff has also notified all of the tribes on the list of the availability of the Revised Draft SEA.

Comment Letter #3

OC Public Works
Integrity, Accountability, Service, Trust
Shane L. Silsby, Director

April 26, 2018 NCL-18-021

Diana Thai
c/o CEQA
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Proposed Amended Rules 1146 Series and Adoption of Rule 1100

Dear Ms. Thai:

The County of Orange has reviewed the Draft Subsequent Environmental Assessment (SEA) for the Proposed Amended Rules 1146 Series and Adoption of Rule 1100 and has no comments at this time. We would like to be advised of any further developments on the project. Please continue to keep us on the distribution list for future notifications related to the project.

If you have any questions, please contact John Fyne-Nsofor in Development Services at (714) 667-8870.

Sincerely,

Richard Vuong, Manager, Planning Division
OC Public Works Service Area/OC Development Services
300 North Flower Street
Santa Ana, California 92702-4048
Richard.Vuong@ocpw.ocgov.com

300 N. Flower Street, Santa Ana, CA 92703
P.O. Box 4048, Santa Ana, CA 92702-4048
www.ocpublicworks.com
714.667.8800 | Info@OCPW.ocgov.com

Response to Comment Letter #3 – OC Public Works

Thank you for your comment. Staff has also sent a notification regarding the availability of the Revised Draft SEA. Staff will continue to keep OC Public Works on the distribution list for future notifications related to the project. No further response is required under CEQA.

Comment Letter #4

Western States Petroleum Association
Credible Solutions • Responsive Service • Since 1907

Oyango A. Snell, Esq.
General Counsel

May 1, 2018

Dr. Philip Fine
Deputy Executive Officer, Planning and Rules
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Via e-mail at: pfine@aqmd.gov

Re: WSPA concerns with Proposed Amended Rules 1146, 1146.1 and 1146.2 and RECLAIM Landing Rules

Dear Dr. Fine:

Western States Petroleum Association (WSPA) appreciates the ability to participate in working groups related to the transition of the Regional Clean Air Incentives Market (RECLAIM) program and Proposed Amended Rules (PAR) 1146, 1146.1 and 1146.2 and the opportunity to make comments. WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that are within the purview of the RECLAIM Program administered by the South Coast Air Quality Management District (AQMD or District).

PAR 1146, 1146.1 and 1146.2 represent essential "landing rules" which, if adopted, would apply to many WSPA member and non-member facilities which stand to be transitioned from RECLAIM's market-based structure into new command-and-control Best Available Retrofit Control Technology (BARCT) requirements. We have several comments and concerns with the District's current proposals for these PARs.

1. **Staff has not conducted a BARCT assessment for the boilers, steam generators, or process heaters at facilities that would be transitioning from RECLAIM under PAR 1146, 1146.1 and 1146.2.**

State law defines BARCT as "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." (Health & Saf. Code § 40406). Under the current proposal, District Staff has not conducted a BARCT assessment for boilers, steam generators, or process heaters located at facilities transitioning from RECLAIM to command and control. Rather, the current Staff proposal would simply extend the requirements of existing Rules 1146, 1146.1 and 1146.2 to this large number of facilities. These RECLAIM facilities were not part of the universe of facilities or equipment considered when the District adopted the BARCT requirements currently found in Rules 1146, 1146.1, or 1146.2. Therefore, the District has not analyzed the environmental, energy, and economic impacts for the entire class or category of source. The District cannot simply extend existing requirements to a new universe of facilities and equipment without first conducting new (or supplementary)

4-1

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Comment Letter #4 (continued)

BARCT determinations to demonstrate that proposed emission limitations and/or other requirements are both technically feasible and cost effective. Such a demonstration is required under California Health & Safety Code Section 40406.

RECLAIM facilities have been subject to market-based emissions control requirements since 1994. For this reason, the boilers, steam generators, and process heaters at these facilities will widely vary in terms of their physical configurations (e.g., basic equipment, emissions controls) and their emissions performance. Furthermore, many of the compliance requirements (e.g., averaging periods) in these rules differ from RECLAIM and cannot readily be applied to RECLAIM equipment and facilities. It is inappropriate to assume that the BARCT requirements, and supporting technical feasibility and cost effectiveness analyses, can apply equally and equitably to facility equipment that was not part of the original BARCT analysis. The District needs to demonstrate that those requirements or alternative BARCT requirements are both technically feasible and cost effective for this new group of facilities being transitioned from RECLAIM where they have operated for two plus decades. 4-1 cont.

2. The environmental and socioeconomic impacts for PAR 1146, 1146.1 and 1146.2 should be considered in CEQA and Socioeconomic Assessments for the entire RECLAIM Transition Project.

Under the California Environmental Quality Act (CEQA), CEQA Guidelines and SCAQMD Rule 110, the SCAQMD Governing Board (as the lead agency under its certified regulatory program) is required to identify and evaluate environmental impacts of its rulemaking activities, as well as feasible means and alternatives to reduce, avoid or eliminate significant impacts. More specifically, "an accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193.) The entire project being proposed must be described in the EIR, and the project description must not minimize project impacts. (*City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1450.) Furthermore, CEQA forbids piecemealing[1] and the Court has explicitly found that it is inappropriate to divide a project into small segments in order to avoid preparing an EIR. (*Bozung v. Local Agency Formation Com.* (1975) 13 Cal.3d 263, 283-284.) 4-2

The California Supreme Court has also held that EIRs may need to address future environmental effects of a proposed project. In Laurel Heights I, the court set forth the standards for determining whether reasonably foreseeable future activities must be included in an EIR project description and for determining whether the impacts of those activities must be analyzed in the EIR:

> "We hold that an EIR must include an analysis of the environmental effects of future expansion or other action if: (1) it is a reasonably foreseeable consequence of the initial project; and (2) the future expansion or action will be significant in that it will likely change the scope or nature of the initial project or its environmental effects." (*Laurel Heights Improvement Assn. v. Regents of the University of California ("Laurel Heights I")* (1988) 47 Cal.3d 376, 396.)

[1] "Piecemealing" or "segmenting" means dividing a project into two or more pieces and evaluating each piece in a separate environmental document. The rule of forbidding piecemealing arises from the definition of "project" under CEQA, where "project" is defined as "the whole of an action." (14 Cal. Code Regs. § 15378(a).)

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Comment Letter #4 (continued)

As previously noted, PAR 1146, 1146.1 and 1146.2 are part of the District's larger effort to transition RECLAIM program facilities from RECLAIM's market-based design to a command-and-control design. This has been described to the Working Group, and documented in the District's staff report:

> "The proposed amendments in Rules 1146, 1146.1 and 1146.2 initiate the transition of the NOx RECLAIM program to a command-and-control regulatory structure." [2]

This transition is also noted in the District's preliminary environmental assessment, which was drafted for compliance with the California Environmental Quality Act (CEQA):

> "As a result of control measure CMB-05 from the 2016 AQMP and ABs 617 and 398, SCAQMD staff has been directed by the Governing Board to begin the process of transitioning equipment at NOx RECLAIM facilities from a facility permit structure to an equipment-based command-and-control regulatory structure per SCAQMD Regulation XI – Source Specific Standards. SCAQMD has begun this transition process by proposing amendments to Rule 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; and Rule 1146.2 – Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters. Proposed Amended Rules (PAR) 1146, 1146.1, and 1146.2 (collectively referred to herein as the PAR 1146 series) will be the first set of rules to be amended to initiate the transition of equipment from the NOx RECLAIM program to a command-and-control regulatory structure while achieving BARCT." [3]

4-2 cont.

We believe the District needs to prepare an environmental assessment that considers the entire RECLAIM Transition Project, its rulemakings and its other associated components, across impacted facilities and equipment. While the District prepared a Final Program Environmental Impact Report (Final Program EIR) regarding the 2016 AQMP (certified in March 2017), the analysis focused solely on the implementation of CMB-05. CMB-05 was a general directive from the 2016 AQMP, requiring an assessment of further NOx reductions from the RECLAIM program. (Final Program EIR for the 2016 Air Quality Management Plan (January 2017) p. 2-17.) More specifically, the Final Program EIR describes CMB-05 as "identif[ying] a series of approaches, assessments, and analyses *that can be explored* to make the program more effective…" (Emphasis added. Final Program EIR at p. 2-17.) The Final Program EIR lists the control methodology of CMB-05 as "re-examination of the RECLAIM program, including voluntary opt-out and the additional control equipment and SCR/SNCR equipment." (Final Program EIR at p. 4.1-2.) Additionally, the Final Program EIR also sets forth the air quality impact, as it relates to CMB-05, as "potential emissions as a result of construction to install new equipment, generation of ammonia emissions from the operations of SCR/SNCR equipment, and potential air quality and GHG emissions from electricity to operate equipment." (Final Program EIR at p. 4.1-2.) The Final Program EIR never addresses the concept of, much less the impacts related to, sunsetting the RECLAIM program.

As shown above, CMB-05 lacks the specifications set forth in the RECLAIM Transition Project and its rulemakings. More importantly, the RECLAIM Transition Project had not yet even been created when CMB-05 was conceived or evaluated under the Final Program EIR. In fact, the RECLAIM Transition Project is still

[2] SCAQMD Preliminary Draft Staff Report for Proposed Amended Rule (PAR) 1146, PAR 1146.1, PAR 1146.2 and Proposed Rule 1100, January 2018, see page 3.

[3] SCAQMD Draft Subsequent Environmental Assessment for PAR 1146 – Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters; 1146.2 - Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters; and PR 1100 – Implementation Schedule for NOx Facilities, March 2018, page 1-2.

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Comment Letter #4 (continued)

currently under development on an ongoing basis, as District Staff continues to determine how to approach the applicability of several landing rules and whether some rules will even be included in the Project. Given the Final Program EIR's reliance on general directives like CMB-05 and the RECLAIM Transition Project not yet existing at the time of assessment, the Final Program EIR fails to properly evaluate the potential environmental impacts specifically related to the RECLAIM Transition Project and its rulemakings.

4-2 cont.

As prior amendments to the Regulation XX program were considered under CEQA, we believe the overall group of RECLAIM Transition rulemakings[4] needs to be collectively considered under CEQA, as well. Rules to advance the RECLAIM Transition Project, including these proposed amendments to the 1146 series rules, should not be adopted and facilities should not be removed from RECLAIM until the District has completed and certified a CEQA assessment that evaluates the entire Project. Undertaking these RECLAIM Transition Project rulemakings in a fragmented manner constitutes a piecemealing of the project, which is explicitly forbidden by CEQA as described above. Given that the 1146 series rules are clearly part of the larger RECLAIM Transition Project, we believe the District's current draft CEQA document is improperly scoped.

Additionally, Health & Safety Code Section 40440.8 requires that "[w]henever the south coast district intends to propose the adoption, amendment, or repeal of a rule or regulation that will significantly affect air quality or emissions limitations, the district . . . shall perform an assessment of the socioeconomic impacts of the adoption, amendment, or repeal of the rule or regulation." (Health & Saf. Code § 40440.8(a)). One of the specific factors that the Board is to take into consideration is the "availability and cost-effectiveness of alternatives to the rule or regulation . . ." (Health & Saf. Code § 40440.8(b)(4)). Health & Safety Code Section 40728.5 sets forth substantively identical requirements for all air districts. Similarly, Health & Safety Code Section 40440.5(c)(3) requires that if an environmental assessment is prepared in connection with a proposal to adopt, amend or repeal any rule or regulation, "the staff report shall also include social, economic, and public health analyses." Stakeholders have not yet seen the District's draft socioeconomic assessment for these proposed rules, but we similarly recommend that the District conduct a program-level socioeconomic assessment that considers the socioeconomic effects of the overall RECLAIM Transition Project, including all associated Regulation XI rulemakings, and the 1146 series rules. This should be completed to support related Governing Board rule adoptions prior to the District transitioning individual RECLAIM facilities out of the program.

4-3

WSPA continues to be concerned that the RECLAIM transition could cause significant negative impacts to Southern California businesses, air quality and the regional economy. Similar to the Final Program EIR described above, the Final Socioeconomic Report for the 2016 AQMP analyzed the socioeconomic impacts for the 2016 AQMP, which focused solely on CMB-05. As discussed above, CMB-05 did not include a transition of the RECLAIM program to a command-and-control scheme like that described in the RECLAIM Transition Project or in the Project's associated rulemakings. Given that fact, the RECLAIM Transition rulemaking proposals cannot rely on the 2016 AQMP's Socioeconomic Assessment to cover the RECLAIM Transition Project.

3. The District needs to resolve critical questions about New Source Review (NSR) requirements and Federal NSR equivalency before transitioning individual RECLAIM facilities out of the program.

Under PAR 1146, 1146.1 and 1146.2, Staff has proposed that RECLAIM facilities covered by these rules would begin to be transitioned out of the RECLAIM program after the rules' adoption. This raises a number of serious concerns due to the lack of transition framework, particularly on the topic of NSR. There remain a number of complex questions (legal and otherwise) over how the District will satisfy EPA requirements to demonstrate equivalency with the Federal NSR program. Since a transition model has not been agreed upon between EPA and

4-4

[4] At this time, RECLAIM Transition project includes proposed amendments to Regulation XX rules, as well as PAR 301, PAR 1109 and/or PR 1109.1, PAR 1110.2, PAR 1118.1, PAR 1134, PAR 1135, PAR 1146, 1146.1, and 1146.2, and PAR 1147, 1147.1, and 1147.2.

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Comment Letter #4 (concluded)

the District, facilities are left with uncertainty regarding their permit transition requirements and how future permit changes will impact their operations. RECLAIM facilities should not be transitioned from the program until SCAQMD has resolved these key NSR issues with EPA.

In light of these important issues, PAR 1146, 1146.1 and 1146.2 are not ready for the Governing Board's consideration. Any scheduled or proposed hearing should be delayed until these issues have been adequately addressed. 4-4 cont.

Thank you for considering these comments. We look forward to continuing to work with you and your Staff on this rulemaking which is critically important to stakeholders, as well as the regional air quality and economy.

If you have any questions, please contact me at (916) 325-3115, or by email at osnell@wspa.org.

Sincerely,

cc: Cathy Reheis-Boyd, WSPA
Patty Senecal, WSPA
Bridget McCann, WSPA
Wayne Nastri, SCAQMD
Clerk of the Board, SCAQMD

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Response to Comment Letter #4 – Western States Petroleum Association

Response to Comment 4-1:
Based on the feedback received on the prior analysis, staff conducted a new BARCT assessment for the boilers, steam generators, and process heaters that took into account equipment at both RECLAIM and non-RECLAIM facilities that will be subject to PAR 1146 and 1146.1. Based on those findings, staff has determined new BARCT recommendations for both RECLAIM and non-RECLAIM equipment. Results of the BARCT assessment, which includes a technology assessment, along with supporting cost-effectiveness analysis and incremental cost-effectiveness played a key role in the BARCT NOx emission level recommendations that were presented Working Group Meeting #5 on August 2, 2018 and updated rule language was presented at Working Group #6 on August 29, 2018 meeting on updated rule language on August 29th. The recommendations were also presented at a Public Workshop on September 20, 2018. Staff has encouraged facility operators to meet with staff regarding unique facility operations and, to the extent possible, were included in the staff recommendations.

Response to Comment 4-2:
The commentator's suggestion that only one programmatic CEQA document should be prepared because future rule amendments to landing rules, or NSR (Regulation XIII) are related to PARs 1146 series and PR 1100 is incorrect and inconsistent with SCAQMD past practice. SCAQMD past practice in conducting CEQA analyses for rule projects such as PARs 1146 series and PR 1100 is that the project being contemplated undergoes its own CEQA analysis. All SCAQMD rules and regulations are related to each other in that they are adopted and/or amended to meet the clean air goals outlined in the 2016 AQMP. The CEQA document for the 2016 AQMP, the March 2017 Final Program EIR, contains the programmatic analyses of the overall effects of SCAQMD's clean air goals. However, CEQA neither requires the SCAQMD to simultaneously amend every rule that may be affected by a control measure in the 2016 AQMP nor requires one programmatic CEQA document to be prepared that encompasses every rule.

The decision to transition from NOx RECLAIM into a source-specific command-and-control regulatory structure was approved by the SCAQMD Governing Board as control measure CMB-05 in the 2016 AQMP. CMB-05 is required by the California Health and Safety Code to implement BARCT in the RECLAIM program as well as other stationary sources, which will be completed upon rule amendment or adoption of various landing rules. CMB-05 identifies a series of approaches that can be explored to make the RECLAIM program more effective in ensuring equivalency with command-and-control regulations implementing BARCT and to generate further NOx emissions reductions at RECLAIM facilities.

CMB-05 specifically contemplates the unwinding of the RECLAIM program (see Appendix IV-A, pp. IV-A-67 to IV-A-71 - http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/appendix-iv-a.pdf).

Furthermore, the potential environmental impacts associated with the 2016 AQMP, including CMB-05, were specifically analyzed in the March 2017 Final Program EIR. In particular, the March 2017 Final Program EIR addressed the environmental effects of future expansion and other actions of reasonably foreseeable consequences for the RECLAIM Transition project and determined that the overall implementation has the potential to generate adverse environmental

impacts to seven topic areas: air quality; energy; hazards and hazardous materials; hydrology and water quality; noise; solid and hazardous waste; and transportation. More specifically the March 2017 Final Program EIR evaluated and identified the impacts from the installation and operation of additional control equipment, such as selective catalytic reduction (SCR) equipment, potentially resulting in construction emissions, increased electricity demand, hazards from the additional ammonia transport and use, increase in water use and wastewater discharge, changes in noise volume, generation of solid waste from construction and disposal of old equipment and catalyst replacements, as well as changes in traffic patterns and volume. The commentator has not identified any additional impact areas, mitigation, or project alternatives from the RECLAIM Transition project that were excluded from the analysis in the March 2017 Final Program EIR for the 2016 AQMP. In any event, the time to challenge the assessments for the analyses of March 2017 Final Program EIR for the 2016 AQMP relied upon has passed (see Public Resources Code Sections 21167 and 21167.2).

The environmental impacts of the entire RECLAIM Transition project were analyzed in the 2016 AQMP and the associated March 2017 Final Program EIR was a program level analysis. The SCAQMD has and will continue to evaluate each individual RECLAIM Transition rule that is developed pursuant to the 2016 AQMP, to determine if any additional CEQA review is required. This has been consistent with SCAQMD's past practice and is not considered piecemealing.

While PARs 1146 series and PR 1100 are part of SCAQMD's Regulation XX - Regional Clean Air Incentives Market (RECLAIM) and that other landing rules are scheduled to be amended in the future, separate CEQA analyses will be conducted for these future rule amendments. Table G-1 identifies several source-specific landing rules as identified by the SCAQMD in its monthly rule forecast report as scheduled to be undergoing separate, future rule amendments[23] from PARs 1146 series and PR 1100.

[23] SCAQMD, Final Subsequent Environmental Assessment for PARs 2001 and 2002, September 2018, p. 1-6.

Table G-1
Rule Development Forecast for Source-Specific Rules
Affected by NOx RECLAIM Transition

Rule Number	Rule Title	Rule Development Forecast (subject to change)
1109.1	Emissions of Oxides of Nitrogen from Boilers and Process Heaters in Refineries	December 2019
1110.2	Emissions from Gaseous- and Liquid-Fueled Engines	1st Quarter2019
1118.1	Control of Emissions from Non-Refinery Flares	December 2018
1134	Emissions of Oxides of Nitrogen from Stationary Gas Turbines	1st Quarter 2019
1135	Emissions of Oxides of Nitrogen from Electric Power Generating Systems	November 2018
1146	Emissions of Oxides of Nitrogen from Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters	December 2018
1146.1	Emissions of Oxides of Nitrogen from Small Industrial, Institutional and Commercial Boilers, Steam Generators, and Process Heaters	
1146.2	Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters	
1147	NOx Reductions from Miscellaneous Sources	TBD 2019
1147.1	NOx Reductions from Metal Operations Facilities	TBD 2019
1147.2	NOx Reductions from Aggregate Facilities	TBD 2019
1153.1	Emissions of Oxides of Nitrogen from Commercial Food Ovens	TBD 2019

Key: TBD = to be determined

Pursuant to the SCAQMD's Certified Regulatory Program (CEQA Guidelines Section 15251(l); codified in SCAQMD Rule 110 - the rule which implements the SCAQMD's certified regulatory program), the SCAQMD typically prepares an Environmental Assessment (EA) to evaluate the environmental impacts for rule projects proposed for adoption or amendment. PARs 1146 series and PR 1100, are considered a "rule" project that is subject to CEQA under the SCAQMD's Certified Regulatory Program.

The original and Revised Draft SEA for PARs 1146 series and PR 1100 rely on the previous CEQA analyses in: 1) the Final EAs that were certified for the September 2008 amendments to Rules 1146 and 1146.1 (referred to herein as the September 2008 Final EAs for Rules 1146 and 1146.1); 2) the Final EA that was certified for the May 2006 amendments to Rule 1146.2 (referred to herein as the May 2006 Final EA); and 3) the Final Program EIR that was certified for the March 2017 adoption of the 2016 AQMP (referred to herein as the March 2017 Final Program EIR), which is specifically allowed per CEQA Guidelines Section 15162. The preparation of the original and Revised Draft SEA for PARs 1146 series and PR 1100 in this manner in no way chops up the project into "bite-sized pieces" to avoid CEQA or obscure the effects of the project. To the contrary, both the original and Revised Draft SEA for PARs 1146 series and PR 1100 identify the previous CEQA analyses conducted, which already identified and analyzed significant adverse impacts, so as to not repeat or duplicate the information previously provided. The original and

Revised Draft SEA instead focus on the changes proposed in PARs 1146 series and PR 1100, which transition NOx RECLAIM facilities with applicable equipment units to a command-and-control regulatory structure because BARCT analyses have been conducted for these landing rules.

Also, the March 2017 Final Program EIR for the 2016 AQMP evaluated and identified the impacts from the installation and operation of additional control equipment, which would be the same type of equipment and impacts that would occur under the RECLAIM Transition. Furthermore, the December 2015 Final Program EA for NOx RECLAIM also evaluated and identified the impacts from the installation and operation of additional control equipment to comply with BARCT, which is equivalent to command-and-control requirements. Thus, the environmental impacts analysis of complying with BARCT would be the same whether NOx RECLAIM continued in its present form or if NOx RECLAIM facilities transition to a command-and-control regulatory structure. Thus, even though the RECLAIM transition language was added to the 2016 AQMP, no changes were required to the March 2017 Final Program EIR since the impacts associated with implementing BARCT were already evaluated.

Response to Comment 4-3:

Based on past practice, SCAQMD staff evaluates socioeconomic impacts for all command-and-control rules identified as landing rules, including impacts for the installation and operation of controls, as well as impacts for monitoring, reporting, and recordkeeping requirements. To be published in the forthcoming 30-day package (available October 2018) for the November 2, 2018 Governing Board Set Hearing will be the most recent PAR 1146 Series staff report and draft socioeconomic impact analysis. The Final Socioeconomic Report in the 2016 AQMP includes program-level benefit-cost and macroeconomic impact assessment of proposed and amended rules involving RECLAIM transition, and the socioeconomic impact assessment for all such rules undergo a project-level cost assessment that the Governing Board considers before the proposed rule or amendment is adopted.

Response to Comment 4-4:

Staff has given priority to resolve the NSR issues and are committed to working with the U.S. EPA to ensure a whole and functional NSR program. However, staff disagrees that the BARCT rulemakings that are currently underway in several categories should cease until amendments to the NSR program are adopted. Staff believes that the development and implementation of BARCT NOx emission requirement development and implementation can proceed on a parallel path, because it is possible for facilities to go through NSR permitting under current RECLAIM rules. Furthermore, many emission reduction projects as a result of implementing BARCT would not necessarily trigger NSR. RECLAIM transition framework has been outlined in PARs 2001 and 2002. PAR 2002 will provide an option for facilities to remain in RECLAIM for a limited time until future provisions in Regulation XIII pertaining to NSR are adopted. A facility that elects to remain in RECLAIM can offset NOx emission increases with RTCs, while obtaining offset exemptions for other pollutants, if eligible under Rule 1304 requirements. A facility that elects to exit RECLAIM would temporarily not be allowed access to the internal bank for NOx offsets. There are some RECLAIM facilities that have expressed interest in exiting RECLAIM and these facilities are primarily those that have shut down all of their equipment, but are still considered active facilities. Staff has initiated efforts to resolve NSR (Regulation XIII) and related permitting issue, any future amendments that are proposed to Regulation XIII will be accompanied by a CEQA and socioeconomic analysis.