SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Environmental Assessment for Proposed Rule 1118.1 – Control of Emissions from Non-Refinery Flares

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PREFACE

This document constitutes the Final Environmental Assessment (EA) for Proposed Rule 1118.1 – Control of Emissions from Non-Refinery Flares. A Draft EA was circulated for a 32-day public review and comment period from October 26, 2018 to November 27, 2018 and three comment letters were received. The comment letters and responses relative to the Draft EA have been included in Appendix E of this Final EA.

Analysis of PR 1118.1 in the Draft EA indicated that reducing NOx and VOC emissions is a direct environmental benefit, and furthermore, no secondary significant adverse environmental impacts were expected for any environmental topic areas. Since no significant adverse impacts were identified, an alternatives analysis and mitigation measures are not required. [CEQA Guidelines Section 15252].

To facilitate identification of the changes between the Draft EA and the Final EA, modifications to the document were included as underlined text and text removed from the document was indicated by ~~strikethrough~~. Subsequent to the release of the Draft EA for public review and comment, modifications were made to PR 1118.1 and some of the revisions were made in response to verbal and written comments received during the rule development process. The modifications include: 1) the addition, revision, and removal of definitions for clarification; 2) rewording and renumbering of rule language; 3) emission limits for additional types of flare gases; 4) additional requirements limiting oil and gas production flaring at replacement flares and new flares; 5) extended timelines for compliance with flare replacement or throughput reduction, and the option to make a one-time switch between the two options; 5) changes to recordkeeping, notification, source testing, and calculation requirements; and 6) new exemptions for flares that combust regeneration gas, combust only natural gas, propane, butane, or a combination of propane and butane, or flares with a various locations permit. In addition, because PR 1118.1 was modified to regulate additional types of flares, several facilities were added to the list of affected facilities. To avoid confusion, minor formatting changes are not shown in underline or strikethrough mode.

Staff has reviewed the modifications to PR 1118.1 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 Draft EA. In addition, revisions to the proposed project in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft EA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft EA has been revised to include the aforementioned modifications such that is now the Final EA for PR 1118.1.

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CHAPTER 1

PROJECT DESCRIPTION

INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (SCAQMD) in 1977[1] as the agency responsible for developing and enforcing emission control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin. 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 California Environmental Quality Act (CEQA) Guidelines[2] 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, 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[3]. Furthermore, SCAQMD must adopt rules and regulations that carry out the AQMP[4]. The AQMP is a regional blueprint for how SCAQMD will achieve air quality standards and healthful air and the 2016 AQMP[5] contains multiple goals promoting reductions of criteria air pollutants, greenhouse gases, and toxic air contaminants (TACs). In particular, the 2016 AQMP states that both oxides of nitrogen (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 the 2016 AQMP, the adoption resolution directed staff to transition facilities participating in the Regional Clean Air Incentives Market (RECLAIM) program to a command-and-control regulatory structure requiring Best Available Retrofit Control Technology (BARCT) as soon as practicable.

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

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

3 Health and Safety Code Section 40460(a).

4 Health and Safety Code Section 40440(a).

5 SCAQMD, 2016 Air Quality Management Plan. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf

In addition, the 2016 AQMP included Control Measure CMB-05 - Further NOx Reductions from RECLAIM Assessment, committed to achieving additional NOx emission reductions of five tons per day to occur by 2025. Further, California State Assembly Bill 617, approved by the Governor on July 26, 2017, requires air districts to develop, by January 1, 2019, an expedited schedule for the implementation of BARCT no later than December 31, 2023 for facilities that are subject to a market-based compliance program.

Currently, there are currently no source-specific rules regulating oxides of nitrogen (NOx), carbon monoxide (CO), and volatile organic compounds (VOC) emissions from non-refinery flares. However, the 2016 AQMP also addresses emissions from non-refinery flares in Control Measure CMB-03 - Emission Reductions from Non-Refinery Flares. As such, SCAQMD staff is proposing a new rule to implement the 2016 AQMP Control Measures CMB-03 and CMB-05, Proposed Rule (PR) 1118.1 – Control of Emissions from Non-Refinery Flares. The proposed rule seeks to reduce NOx and VOC emissions from flaring produced gas, digester gas, landfill gas, and other combustible gases and vapors and to encourage alternatives to flaring. The proposed rule also contains a limit on CO emissions to ensure proper combustion and that both NOx and CO are maintained at lower levels.

PR 1118.1 includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare gas throughput (amount of gas flared) or replacement with a flare that generates lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (landfill, digester, produced) and the type of flare equipment (open flare versus an enclosed flare). PR 1118.1 provides exemptions for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and record keeping. PR 1118.1 is expected to reduce 0.18 ~~0.2~~ ton of NOx per day from flares located at landfills, wastewater treatment plants, oil and gas production facilities, organic liquid loading stations, and tank farms.

PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit at both RECLAIM and non-RECLAIM facilities, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. This rule does not apply to owners and operators of flares used at petroleum refineries, sulfur recovery plants, various location flares, hydrogen production plants subject to SCAQMD Rule 1118 – Control of Emissions from Refinery Flares, flares which route 100% natural gas directly into the flare burner to oxidize combustible gases or vapors and are subject to SCAQMD Rule 1147 – NOx Reductions from Miscellaneous Sources, and other refinery processes that will be subject to SCAQMD Proposed Rule 1109.1 –Refinery Equipment[6], upon adoption.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA), California Public Resources Code Section 21000 *et seq.*, requires environmental impacts of proposed projects to be evaluated and feasible methods to reduce, avoid or eliminate significant adverse impacts of these projects to be identified and implemented. The lead agency is the "public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect upon the environment."

[6] Proposed Rule 1109.1 is a new rule that is identified in the October 5, 2018 Rule and Control Measure Forecast as scheduled to undergo rule development in 2019. PR 1109.1 will establish requirements for refineries that are transitioning from RECLAIM to command-and-control. http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-oct5-022.pdf

[Public Resources Code Section 21067]. Since PR 1118.1 is a SCAQMD-proposed rule, the SCAQMD has the primary responsibility for supervising or approving the entire project as a whole and is the most appropriate public agency to act as lead agency. [CEQA Guidelines[7] Section 15051(b)].

CEQA requires that all potential adverse environmental impacts of proposed projects be evaluated and that methods to reduce or avoid identified significant adverse environmental impacts of these projects be implemented if feasible. The purpose of the CEQA process is to inform the lead agency, responsible agencies, decision makers and the general public of potential adverse environmental impacts that could result from implementing PR 1118.1 and to identify feasible mitigation measures or alternatives, when an impact is significant.

Public Resources Code Section 21080.5 allows public agencies with regulatory programs to prepare a plan or other written documents in lieu of an environmental impact report once the Secretary of the Resources Agency has certified the regulatory program. The 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.

Because PR 1118.1 requires discretionary approval by a public agency, it is a "project" as defined by CEQA[8]. The proposed project will reduce NOx and VOC emissions from non-refinery flares, reduce public health impacts by reducing exposure to NOx and VOCs, and will provide an overall environmental benefit to air quality. However, SCAQMD's review of the proposed project also shows that the activities that facility operators may undertake to comply with PR 1118.1 may also create secondary adverse environmental impacts that would not result in significant impacts for any environmental topic area. Thus, the analysis of PR 1118.1 indicates that the type of CEQA document appropriate for the proposed project is an Environmental Assessment (EA). The EA is a substitute CEQA document, prepared in lieu of a Negative Declaration with no significant impacts (CEQA Guidelines Section 15252), pursuant to the SCAQMD's Certified Regulatory Program (CEQA Guidelines Section 15251(l); SCAQMD Rule 110). The EA is also a public disclosure document intended to: 1) provide the lead agency, responsible agencies, decision makers and the general public with information on the environmental impacts of the proposed project; and, 2) be used as a tool by decision makers to facilitate decision making on the proposed project.

Thus, the SCAQMD, as lead agency for the proposed project, prepared a Draft EA pursuant to its Certified Regulatory Program. The Draft EA includes a project description in Chapter 1 and an Environmental Checklist in Chapter 2. The Environmental Checklist provides a standard tool to identify and evaluate a project's adverse environmental impacts and the analysis concluded that no significant adverse impacts would be expected to occur if PR 1118.1 is implemented. Because PR 1118.1 will have no statewide, regional or area wide significance, no CEQA scoping meeting is required to be held for the proposed project pursuant to Public Resources Code Section 21083.9(a)(2). Further, pursuant to CEQA Guidelines Section 15252, since no significant adverse impacts were identified, no alternatives or mitigation measures are required.

The Draft EA ~~is being~~ was released for a 32-day public review and comment period from October 26, 2018 to November 27, 2018. ~~All~~ Three comment~~s~~ letters were received during the public

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

[8] CEQA Guidelines Section 15378

comment period on the analysis presented in the Draft EA; the comment letters and the ~~will be~~ responses~~ded to and~~ are included in Appendix E to the Final EA.

Staff has reviewed the modifications to PR 1118.1 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 Draft EA. In addition, revisions to the proposed project in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft EA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft EA has been revised to include the aforementioned modifications such that is now the Final EA for PR 1118.1.

Prior to making a decision on the adoption of PR 1118.1, the SCAQMD Governing Board must review and certify the Final EA as providing adequate information on the potential adverse environmental impacts that may occur as a result of adopting PR 1118.1.

PROJECT LOCATION

PR 1118.1 applies to any owner or operator of gas flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment plants, landfills, organic liquid loading stations, and tank farms. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the four-county South Coast Air Basin (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 non-attainment area (known as the Coachella Valley Planning Area) is a subregion of Riverside County and the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (see Figure 1-1).

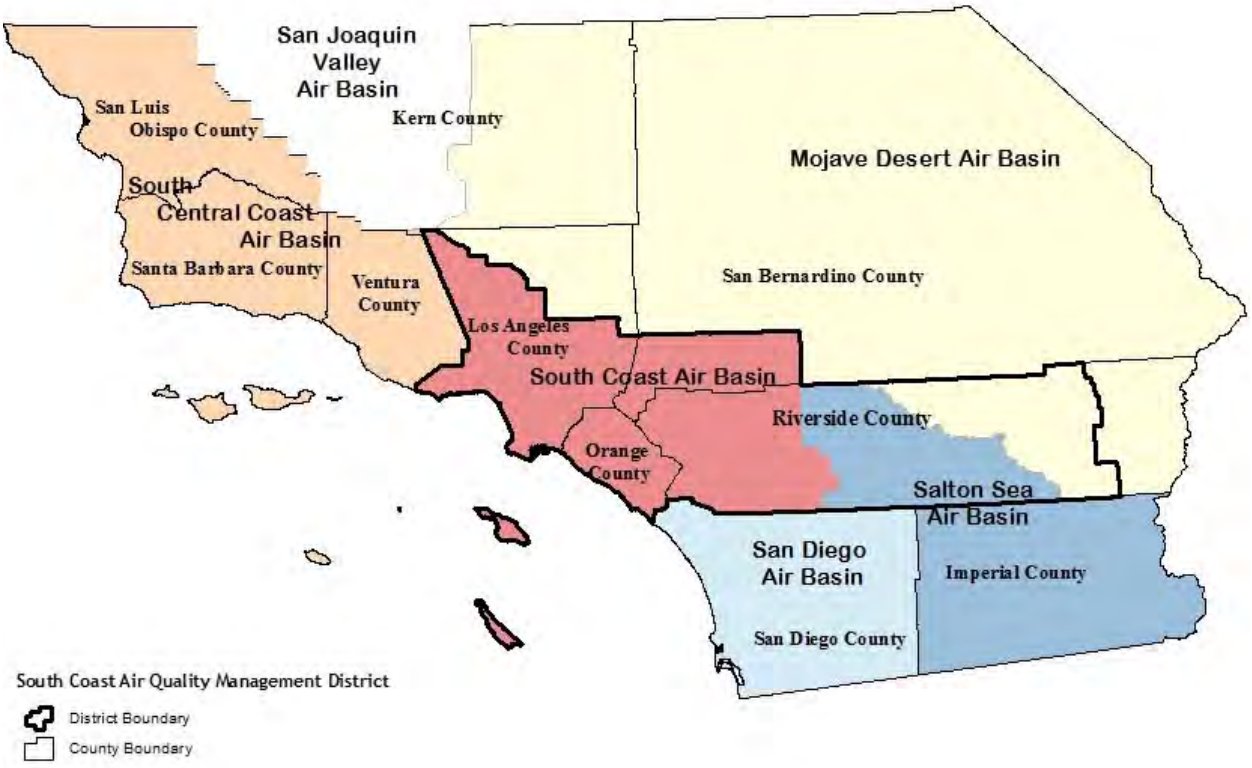


Figure 1-1
Southern California Air Basins

PROJECT BACKGROUND

A survey of SCAQMD permits for non-refinery flares indicate NOx emission rates from many facilities exceed current Best Available Control Technology (BACT) limits. Non-refinery flare emissions are currently regulated through the BACT limits as determined in SCAQMD Rules 1303 and 1701, but there are currently no source-specific rules regulating NOx emissions from non-refinery flares. The first SCAQMD BACT NOx standard for flares was established in 1988 at 0.06 pound per million British thermal unit (pound/MMBtu) for biogas. In 2016, advancements in flare technology allowed the NOx standard to be reduced to 0.018 pound/MMBtu for oil and gas production. Similar flare technology advances for biogas combustion at landfill and wastewater treatment plants lead to the 2006 update at landfills and 2018 update at remaining sites to 0.025 pound/MMBtu. For major polluting facilities, these new BACT determinations serve as requirement pursuant to the United States Environmental Protection Agency (USEPA) Lowest Achievable Emission Rate (LAER) Policy. A facility is defined as a "major polluting facility" if it emits, or has the potential to emit, a criteria air pollutant at a level that equals or exceeds the emission thresholds specified in the federal Clean Air Act. BACT/LAER determinations are based on a permit-by-permit analysis of what is achieved in practice. For non-major polluting facilities, state law requires a more detailed analysis, including cost effectiveness. The non-major source BACT standard for biogas went into effect in year 2000 and is 0.06 pound/MMBtu. There is no non-major source standard for the oil and gas industry.

As a region that is designated as extreme non-attainment for ozone, SCAQMD is required by USEPA to adopt all reasonably available control measures (RACM) or control technologies (RACM/RACT), particularly when adopted by other air agencies. In this case, two California air districts, San Joaquin Valley Air Pollution Control District (SJVAPCD) and Santa Barbara County Air Pollution Control District (SBCAPCD) have adopted rules for non-refinery flares. PR 1118.1 also addresses the USEPA's requirements for RACM/Best Available Control Measure (BACM) as presented in SJVAPCD Rule 4311 – Flares, which includes emission limits for non-refinery flares, and SBCAPCD Rule 359 – Flares and Thermal Oxidizers, which regulates the use of flares and thermal oxidizers for petroleum and transportation facilities. In addition, PR 1118.1 is being developed to facilitate the on-going transition of the NOx RECLAIM program to a command-and-control regulatory structure.

PROJECT DESCRIPTION

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare gas throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (landfill, digester, produced) and the type of flare equipment (open flare versus a shrouded flare). Further, PR 1118.1 sets additional limits for replacement and new oil and gas production flares. PR 1118.1 also provides exemption for low-use, low-emitting flares, and other special circumstances. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and record keeping.

There are ~~146~~ 153 facilities and ~~288~~ 295 flares in SCAQMD's jurisdiction that are subject to PR 1118.1. Of these flares, most are not expected to be have make any physical modifications in order to comply with PR 1118.1 because they are already operating below their capacity threshold, based on permit information. Additionally, some flares are not expected to be subject to the emission limits in PR 1118.1 because they would qualify for an exemption because they either: 1) emit less than 30 pounds of NOx per month; 2) operate less than 200 hours per year; 3) already meet the proposed emission limits; 4) are located on a closed landfill or an inert waste landfill that releases less than 2,000 million standard cubic feet per year (MMscf/year) of landfill gas; 5) combust regeneration gas; 6) combust only natural gas, propane, butane, or a combination of propane and butane; or 7) operate pursuant to a various locations permit. Of the ~~288~~ 295 flares that would be subject to PR 1118.1, SCAQMD staff has identified 25 flares at 16 facilities that potentially may need to be replaced or undergo a flare gas throughput reduction in order to comply with PR 1118.1.

The following is a detailed summary of the key elements contained in PR 1118.1. A draft of PR 1118.1 can be found in Appendix A.

Purpose – subdivision (a)

Subdivision (a) defines the purpose of PR 1118.1 is to reduce NOx and VOC emissions from flaring produced gas, digester gas, landfill gas, and other combustible gases or vapors and encourage alternatives to flaring.

Applicability – subdivision (b)

Subdivision (b) establishes that PR 1118.1 applies to any owner or operator of flares that require a SCAQMD permit at facilities, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, and organic liquid ~~loading stations, and tank farms~~ handling facilities.

Definitions – subdivision (c)

The following definitions are proposed: Annual Throughput; ~~Assist Gas;~~ Biogas; Capacity; Capacity Threshold; Digester Gas; Facility; Flare; Flare Replacement; Flare Station; Heat Input; Landfill Gas; Major Facility; Minor Facility; Notification of Annual Percent Capacity Greater than Threshold; Notification of Flare Inventory and Capacity; Notification of Flare Throughput Reduction; Notification of Increments of Progress; Notification of Intent; Open Flare; Organic Liquid; Organic Liquid Loading; Organic Liquid Storage; Other Flare Gas; Oxides of Nitrogen; Percent Capacity; Pipeline Breakout Station; Produced Gas; Protocol; Regenerative Adsorption System; Regeneration Gas; Relocate; ~~Statement of Intent; Various Locations Flare;~~ Utility Pipeline Curtailment; and Volatile Organic Compound (VOC).

Requirements– subdivision (d)

Subdivision (d) establishes the following requirements for facilities subject to PR 1118.1:

> *Emission Limit:* Paragraph (d)(1) requires owners or operators that install, replace, or relocate any flare to comply with the applicable NOx, VOC, and CO emission limits in pounds/MMBtu for digester gas, landfill gas, produced gas, other flare gas, and organic liquid storage, and in ~~parts per million (ppm) for other flare gas~~ pounds per 1,000 gallons loaded for organic liquid loading, presented in Table 1-1.

Table 1-1
Flare Emission Limits

Type of Flare Gas	pound/MMBtu		
	NOx	CO	VOC
Digester gas[a]	~~0.025~~	~~0.06~~	~~0.038~~
Major facility	0.025	0.06	0.038
Minor facility	0.06	N/A	N/A
Landfill gas[a]	0.025	0.06	0.038
Produced gas	0.018	~~0.06~~ 0.01	0.008
Other flare gas	0.06	N/A	N/A
Organic liquid handling:			
Organic liquid storage	0.25	0.37	N/A
Organic liquid loading~~Other flare gas~~	~~**ppm @ 3% oxygen**~~ ~~**Destruction Efficiency**~~ pounds/1,000 gallons loaded		
	~~30~~ 0.034	~~10~~ 0.05	~~99%~~ N/A

~~Compliance with emission limits shall be demonstrated when combusting 100% biogas (e.g., with no regeneration gas)~~ Note: Table 1-1 Flare Emission Limits shall continue to apply unless amended or otherwise superseded following a technology assessment, caused to be performed by the Executive Officer, to determine potential alternative limits appropriate for digester gas generated from food waste diverted from landfills.

Produced Gas Flare Limits: Subparagraph (d)(1)(B) sets conditions for flaring produced gas at facilities that have estimated annual emissions of four or more tons of sulfur oxides, VOCs, NOx, specific organics, particulate matter (PM) or emissions of 100 tons per year or more of CO. Clause (d)(1)(B)(ii) states that replacement flares are limited to 110% of the average throughput from the previous two calendar years. Clause (d)(2)(B)(ii) states that a new flare that is not replacing an existing flare shall have an annual throughput limit of 45 MMscf/yr. Flaring conducted during source testing or utility pipeline curtailment is not counted toward these throughput limits. Additionally, records are required to be maintained to support the activities not counted toward the throughput limit.

Paragraph (d)(2) states that an owner or operator with a submitted application for a flare or flare station with a deemed complete date prior to the date of rule adoption shall comply with the paragraph (d)(3)

Capacity Thresholds: Paragraph (d)(3~~2~~) requires owners or operators ~~who do not meet the emission limits in Table 1-1, as of January 1, 2019,~~ to comply with Table 1-2 – Annual Capacity Thresholds and the monitoring, recordkeeping, and reporting requirements in paragraph (g)(2).~~:~~

Table 1-2
Annual Capacity Thresholds

Type of Flare Gas	Threshold
Any gas combusted in an open flare	5%
Digester gas	70%
Landfill gas	20%
Produced gas	5%

- ~~Calculate the annual percent of permitted flare capacity used for each flare or flare station[9]. This calculation is detailed and later described in subdivision (g) - Monitoring, Recordkeeping, and Reporting. A formula is provided to convert the total annual throughput to an hourly rate, and divide by the annual capacity to determine the annual percent capacity. Annual throughput is explained to be the summed total throughput for each calendar year, as measured monthly by fuel meters. Capacity is defined as the manufacturer's designated capacity, or, if unknown or unavailable, capacity shall be the permitted limit; and~~

- Subparagraph (d)(3)(A) states that if a flare or flare station's annual percent capacity exceeds an applicable threshold in Table 1-2, the owner or operator shall submit a Notification of Annual Percent Capacity Greater than Threshold to the Executive Officer no later than 30 days from the end of the calendar year.

- Subparagraph (d)(3)(B) states that an owner or operator shall submit a ~~statement~~ Notification of Intent to the Executive Officer to reduce flare throughput or replace or modify the flare to meet Table 1-1 emission limits no later than 60 days after the end of the second consecutive calendar year if the applicable annual percent capacity threshold in ~~(see~~ Table 1-2 ~~below)~~ is exceeded~~surpassed for two consecutive calendar years~~. Clauses (d)(3)(B)(i) and (d)(3)(B)(ii) state that the ~~statement~~ Notification of intent is required to specify one of the following compliance options: 1) flare or flare station throughput reduction pursuant to paragraph (d)(4); or 2) flare or flare station replacement or modification pursuant to paragraph (d)(5).

- Subparagraph (d)(3)(C) states that an owner or operator of an existing flare or flare station shall not be subject to the annual capacity threshold requirements in paragraph (d)(3) if the flare or flares comply with the applicable flare emission limits in Table 1-1 as demonstrated by a SCAQMD approved source test. Testing shall follow a SCAQMD approved protocol conducted every five years thereafter, in accordance with paragraph (f)(4).

Flare Throughput Reduction: Paragraph (d)(4~~3~~) establishes ~~sets~~ reporting and compliance schedule requirements for achieving a reduction in flaring. In particular, subparagraph (d)(4)(A) establishes requirements for the owner or operator ~~is required~~ to submit a N~~n~~otification of Flare Throughput Reduction to the Executive Officer that includes alternative methods to reduce flare or flare station throughput below the applicable annual capacity threshold in Table 1-2 and a timetable to implement and operate the alternative method. This notification is required to be submitted within six months or within 12 months for a Publicly-Owned Facility from the end of the second consecutive calendar year~~of the second consecutive annual exceedance~~. Subparagraph (d)(4)(B) requires the owner or operator ~~is also required~~ to submit a Notification of Increments of Progress ~~reports~~ to the Executive Officer to include~~ing~~ actions to implement the throughput reduction completed, actions to implement the throughput reduction yet to be completed, and any changes to the original N~~n~~otification of Intent or the Notification of Flare Throughput Reduction. The Notification of Increments of Progress is due within 13 ~~12~~ months of the end of the second calendar year when the ~~consecutive~~ annual percent capacity is greater than ~~exceedance, and annually thereafter until flaring is reduced below~~ the applicable capacity threshold in Table 1-2. Implementation of the flare reduction

~~[9] A flare station is a group of flares which share common infrastructure such as a flare pad, blowers, or fuel meter.~~

project ~~Flaring~~ is required to ~~be reduced below the applicable capacity threshold in Table 1-2~~ occur within 36 months from ~~of~~ the end of the second consecutive calendar year when the annual percent capacity is greater than the applicable threshold in Table 1-2~~second annual exceedance~~. Subparagraph (d)(4)(C) states that the owner or operator shall reduce the annual throughput to the flare or flare station to a level at or below the applicable capacity threshold in Table 1-2. Finally, the demonstration of flare reduction at a level at or below the applicable threshold in Table 1-2 shall occur within 30 days after the end of the next calendar year the flare reduction project was implemented.

Flare Replacement: Paragraph (d)(54) establishes procedures and a compliance schedule for flare replacement. Subparagraph (d)(5)(A) requires ~~submitting~~ a permit application to be submitted for a ~~new~~ flare replacement if an owner or operator submitted a Statement of Intent to replace or modify a flare or flare station~~, or to replace or modify an existing flare, and for determining compliance~~. The permit application ~~to replace or modify a flare or flare station~~ is required to be submitted within six months or within 12 months for a Publicly-Owned Facility from the end of the second consecutive calendar year when the annual percent capacity is greater than the applicable threshold listed in Table 1-2~~of the second consecutive annual exceedance~~. Subparagraph (d)(5)(B) requires the modified or replacement flare or flare station to meet the applicable emission limits in Table 1-1. The flare installation is required to be completed within 18 months after the SCQAMD issues the permit to construct. Finally, subparagraph (d)(5)(C) requires the owner or operator to demonstrate compliance with the applicable emission limits in Table 1-1 by ~~determination~~ conducting a source test in accordance with the procedures contained in subdivision (f). ~~is required to be completed within 180 days after the completion of the flare installation.~~

Change of Notification of Intent: Paragraph (d)(6) allows an owner or operator to submit a one-time rescission and revision of a previously submitted Notification of Intent to change the compliance option provided that the owner or operator notifies and implements the new compliance pathway no later than 36 months from the end of the second consecutive calendar year the annual capacity was greater than the applicable threshold from Table 1-2, and the revision is to change the compliance option from either: 1) flare throughput reduction per paragraph (d)(4) to flare replacement per paragraph (d)(5) to meet applicable emission limits in Table 1-1 and is triggered by the submittal of a flare application; or 2) flare replacement per paragraph (d)(4) to meet applicable emission limits in Table 1-1 and is triggered by the submittal of a Notification of Flare Throughput Reduction.

Paragraph (d)(7) requires an owner or operator of a flare or flare station combusting gases identified in Table 1-2 to submit a Notification of Flare Inventory and Capacity within 30 days of rule adoption which identifies for each flare or flare station the following information: the permit number, date of flare installation, type of gas combusted, maximum rated capacity (e.g., MMscf/hour or MMBtu/hour), description of fuel meter (if installed), and the date of the last source test.

Maintenance: Paragraph (d)(85) requires an owner or operator to perform maintenance on a flare or flare station in accordance with the ~~flare~~ manufacturer's schedule and specifications.

Paragraph (d)(9) requires the following information to be displayed in an accessible location on the flare: the model number and rated heat input capacity of the flare on a permanent rating plate for any flare installed, relocated, or modified after the date of rule adoption.

Paragraph (d)(10) states that notifications submitted will be subject to fees pursuant to SCAQMD Rule 301 – Permitting and Associated Fees.

Time Extension ~~Provision~~ – subdivision (e)

Subdivision (e) will establish the following time extension provisions for facilities subject to PR 1118.1:

Requests of the Executive Officer: Paragraph (e)(1) allows an owner or operator of a flare or flare station to submit a written request within at least 60 days prior to the schedule deadline to the Executive Officer for ~~a~~ one 24-month extension from the schedule in paragraph (d)(4) or one 12-month extension from the schedule in paragraph (d)(5) ~~to comply with the flare reduction or flare replacement or modification schedules outlined in subdivision (d)~~. An extension shall not be available for an owner or operator of a flare or flare station complying with paragraph (d)(6). The time extension request will need to include the following: permit number or application number of the flare seeking ~~requiring~~ the extension; the reason~~s~~ why a time extension is requested~~needed~~; increments of progress completed and increments of ~~so far,~~ progress yet to be completed; the anticipated time needed to complete each increment pursuant to the compliance schedule, and the length of time requested.

Approval of Time Extensions: Paragraph (e)(2) sets criteria for the Executive Officer to review and approve or reject requests for time extension. The owner or operator must provide sufficient details ~~identifying~~ justifying the basis for the requested ~~reason a time~~ extension and its duration~~is needed~~. Additionally, the owner or operator must demonstrate that there are specific circumstances ~~beyond their control~~ that necessitate the additional time requested ~~for~~ to comply~~iance~~ with the scheduled deadlines. This demonstration may include, but is not limited to, providing detailed schedules, engineering designs, construction plans, permit applications, purchase orders, economic burden, and technical infeasibility. Subparagraph (e)(2)(C) states that the failure to satisfy the aforementioned criteria may result in the denial of the request.

Source Tests – subdivision (f)

Subdivision (f) establishes the following source test requirements ~~for point source emission control~~:

Source Test Compliance Schedule: Paragraph (f)(1) establishes requirements for conducting an initial source test and source testing~~s~~ every five years thereafter in order to demonstrate compliance with NOx, VOC, and CO limits in Table 1-1. ~~Source tests are required to be conducted every five years, starting within 12 months of rule adoption.~~ For a flare subject to paragraph (d)(1), the initial source test shall be conducted according to the conditions in the permit to construct and the follow up source tests shall be conducted every five years pursuant to paragraph (d)(4). At least 90 days prior to a scheduled source test, a source test protocol is required to be submitted to the Executive Officer for approval, followed by an additional written notification to the Executive Officer indicating the intent to conduct source testing one week prior to a scheduled source test. Each source test shall be conducted according to the approved protocol. Additionally, if an approved protocol and corresponding source test were conducted prior to adoption of PR 1118.1 which demonstrated compliance with the emission limits in Table 1-1, the owner or operator will be allowed to conduct the next source test within five years of the most recent source test. ~~A new source test protocol is required to be submitted if the previous source test was not approved by the SCAQMD.~~ Operators of landfill gas flares may fulfill the five-year source testing requirement through the source testing requirements

contained in SCAQMD Rule 1150.1 – Control of Gaseous Emissions From Municipal Solid Waste Landfills, if the source test includes the pollutants from Table 1-1.

Submitting Protocol for Repeated Source Tests: Paragraph (f)(2) relieves a flare or flare station owner or operator from having to resubmit a ~~new~~ source test protocol unless requested by the SCAQMD provided that ~~or if~~ the flare or flare station and its method of operation have not been altered in a manner that requires~~ing~~ a permit ~~alteration~~ application submittal and the rule or permit emission limits have not become more stringent since the previous source test.

Compliance Determination Calculations: Paragraph (f)(3) requires all ~~compliance determinations~~ source tests to be ~~calculated~~ conducted as follows: using a SCAQMD approved test protocol; averaged over a ~~period of at least 15~~ maximum of 60 minutes of flare operation; during operation other than start up or ~~after flare start~~shut down; ~~and,~~ and in as-found operating condition.

NOx, CO, and VOC Emission Determination: Paragraph (f)(4) requires ~~the quantity of~~ NOx, CO, and VOC emissions ~~to be presented~~ in units of pounds/MMBtu heat input ~~and~~ to be determined ~~in accordance with~~ using the pollutant concentrations measured according to ~~established in~~ paragraph (f)(5) and the gas composition of the total gas or vapor combusted in the burner measured~~ment requirements established in~~ according to paragraph (f)(6). The emissions for these pollutants are required to be calculated in accordance with the procedures in 40 CFR Part 60, Appendix A, Method 19, Sections 2 and 3, or by ~~using~~ another SCAQMD-approved test method.

NOX, CO, and VOC Concentration Determination: Paragraph (f)(5) identifies the allowable methods to be used for determining the concentrations of NOx, CO, and VOC emissions. NOx and CO concentrations are required to be quantified by using SCAQMD Method - 100.1 Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling. VOC concentrations are required to be quantified by using SCAQMD Method 25.1 - Determination of VOC Emissions from Stationary Sources or Method 25.3 - Determination of VOC Emissions from Stationary Sources.

Gas Composition Determination: Paragraph (f)(6) requires gas composition to be determined by one of the following methods: 1) ASTM Method D-3588 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels; 2) ASTM Method D1945 – Standard Test Method for Analysis of Natural Gas by Gas Chromatography; or 3) ASTM D7833 – Standard Test Method for Determination of Hydrocarbons and Non-Hydrocarbon Gases in Gaseous Mixtures by Gas Chromatography.

~~Independent~~ Source Test Contractor ~~Compliance Determinations~~: Paragraph (f)(7) requires source tests to be conducted using an ~~independent~~ Executive Officer approved contractor ~~in accordance with SCAQMD Rule 304 – Equipment, Materials, and Ambient Air Analyses, subdivisions (k) and (l), to conduct source testing~~ under the laboratory Approval Program for the applicable test methods.

~~*Emission Exceedances:* Paragraph (f)(8) states that emissions determined to exceed any emission limits in PR 1118.1, using test methods specified in paragraph (f)(4) shall be considered a violation.~~

Source Test Records: Paragraph (f)(~~9~~8) requires source test records to be maintained for at least five years or until the next source test is performed, whichever occurs later, and shall be made available to SCAQMD personnel upon request. The source test reports ~~records must indicate~~ shall identify whether the source test was conducted pursuant to a SCAQMD approved protocol and must clearly identify the model, application number, permit number, origins of all gas or vapor combusted, and serial numbers of the specific flare(s) tested. If no flare model and serial number are available, a detailed description of the flare or flare station and its location is required to be included.

Monitoring, Recordkeeping, and Reporting Requirements – subdivision (g)

Subdivision (g) establishes monitoring, recordkeeping, and reporting requirements for flare and flare station owners and operators.

Fuel Meters: Paragraph (g)(1), subparagraphs (g)(1)(A) through (g)(1)(D), establish requirements for installing and operating a fuel meter. Within 90 days of the date of rule adoption, flare owners or operators are required to install and operate a fuel meter for each gas or vapor, routed to every flare or flare station, unless there is a~~n~~ metering system already installed and approved in writing by the Executive Officer. These fuel meters are required to be equipped with a dependable, permanent supply of power that cannot be unplugged, switched off, or reset, except by the main power supply circuit for the building and associated equipment or by the flare's safety shut off switch. The continuous electric power ~~supply~~ to a fuel meter may only ~~is not allowed to be~~ shut off ~~unless the flare is not operating, or is shut down~~ for maintenance or safety. Meters are also required to be calibrated within 90 days of installation or rule adoption, whichever is later~~sooner~~. Meters must also be calibrated annually thereafter, using recommended procedures or an alternative calibration method approved in writing by the Executive officer. If the fuel meter was calibrated one year prior to the date of rule adoption, the next calibration shall be conducted within the one year anniversary date of the prior calibration.

Determining Percent Capacity: ~~Subparagraph~~ Paragraph (g)(2)~~(1)(E)~~ requires a determination of percent capacity of a flare or flare meter, effective upon rule adoption, or when a fuel meter is installed, whichever is later, and requires ~~along with~~ records to be maintained that document~~ing~~ the percent capacity determination.

- ~~Clause (g)(1)(E)(i)~~ Subparagraph (g)(2)(A) requires the calculation for total annual throughput ~~to be conducted~~ in units of ~~terms of volume (~~MMscf/year~~)~~ or by total annual heat input in units of ~~(~~MMBtu/year~~)~~ to be calculated by summing the throughput or heat input of the gas at the end of each calendar year. In particular, t~~T~~he monthly throughput is required to be measured and recorded at least once per ~~a~~ month ~~in accordance with the flare-specific~~ by the fuel meter(s) ~~requirements described subparagraphs (g)(1)(A) through (g)(1)(C)~~. If determining the percent capacity in units of MMBtu/year, t~~T~~he heat input of the flare gas is also required to be measured and recorded at least once per month. The heat input may be calculated and recorded for a landfill~~s~~ monthly by measuring the methane concentration of landfill or digester gas with a portable nondispersive infrared detector or equivalent detector approved in writing by the Executive Officer, and calibrated per manufacturer's specifications. Heat input measurements are not required for any month or months when the flare is not in use.

- ~~Clause (g)(2)(BE)(ii)~~ Subparagraph (g)(2)(B) states that capacity shall be ~~based on~~determined by the manufacturer~~'s~~ designation, if known; ~~if this information is not known or available,~~Otherwise, the capacity shall be determined using ~~the~~ permit conditions limiting~~s~~ throughput or heat input~~will be used as a surrogate for the capacity~~. The capacity for flare stations shall be determined by combining the total capacity of all the flares in the flare station.

- ~~Clause (g)(2)(CE)(iii)~~ Subparagraph (g)(2)(C) presents the equations for how the annual percent capacity shall ~~should~~ be calculated at the end of each calendar year.
    - If percent capacity by volume is chosen, the following equation is provided:

$$Percent\ Capacity_{MMscf} = \frac{Total\ Annual\ Throughput\ \left(\frac{MMscf}{year}\right) \Big/ x\ 8760\ \frac{\cancel{hour}}{\cancel{year}}}{\text{Capacity (MMscf/hour)}}\ x\ 100\%$$

    - Whereas, if percent capacity by ~~volume~~ heat input is selected, the following equation is used:

$$Percent\ Capacity_{MMBtu} = \frac{Total\ Annual\ Heat\ Input\ \left(\frac{MMBtu}{year}\right) \Big/ x\ 8760\ \frac{\cancel{hour}}{\cancel{year}}}{\text{Capacity (MMBtu/hour)}}\ x\ 100\%$$

    x = the time period in hours/year that records are required to be maintained and recorded

- Subparagraph (g)(2~~1~~)(D) states that if an owner or operator fails to measure or record the monthly throughput or heat input value in compliance with the provisions above, the percent capacity will be assumed to be 100% for the months without records.

Low-emitting exemption (mass): ~~Subparagraph (g)(2)(A)~~ Paragraph (g)(3) requires ~~flare or flare station~~ an owner~~s~~ or operator~~s~~ with an exempt flare or flare station pursuant to paragraph (h)(2) to ~~demonstrate that NOx emissions are less than 30 pounds per month if they wish to validate compliance by relying on exemptions that are determined via~~ monitor and maintain NOx emission records as follows: ~~the mass-based exemption provided in subdivision (h) (see subparagraph (h)(2)(A)). The~~ 1) NOx emissions ~~are required to~~ shall be determined based on the most recently ~~by an~~ approved source test ~~in accordance with the requirements subdivision (f)~~ conducted pursuant to a SCAQMD approved source test protocol;~~.~~ 2) t~~T~~he monthly gas throughput ~~is required to~~ shall be measured and recorded at least once per month by the fuel meter(s);~~.~~ 3) t~~T~~he heat input of the flare gas ~~is also required to~~ shall be measured and recorded at least monthly according to the methods listed presented in paragraph (f)(6) for gas composition determination, or calculated and recorded monthly by measuring the methane concentration of landfill or digester gas using a portable nondispersive infrared detector, or equivalent detector, calibrated per manufacturer's specifications, or estimated using default heat values of 600 Btu/scf for digester gas, 500 Btu/scf for landfill gas, and 1,000 Btu/scf for produced gas. Finally, the monthly pounds of NOx emitted shall be calculated by multiplying

the monthly volume flow rate (MMscf/month) by the NOx emission factor (pounds NOx/MMBtu) and by the heat value of the gas (Btu/scf).

Low use exemption (duration): ~~Subparagraph (g)(2)(B)~~ Paragraph (g)(4) requires ~~a demonstration~~flare and flare station operation records to be monitored and maintained for a flare or flare station that is exempt pursuant to paragraph (h)(3) ~~for any flare that qualifies for the low usage~~ for the 200 hours per year validation using a calibrated non-resettable totalizing time meter or equivalent method approved in writing by the Executive Officer or for the an annual throughput limit equivalent to 200 hours per year validation, using a calibrated fuel meter or equivalent method approved in writing by the Executive Officer.~~exemption in accordance with subdivision (h) to verify that the flare operates less than 200 hours per year. For flares that are exempt under the low use provision, monthly recordkeeping of flare use is required and the usage shall be verified via an installed, calibrated, non-resettable totalizing time meter.~~

Recordkeeping: Subparagraphs (g)(5~~2~~)(A~~C~~) through (g)(5~~2~~)(D~~F~~) establish the following recordkeeping requirements for an owner or operator of a flare or flare station to:~~.~~ 1) maintain records of annual throughput attributed to source testing and utility pipeline curtailment for a flare or flare station complying with subparagraph (d)(1)(B); 2) maintain a~~A~~ copy of the manufacturer's distributor's, installer's or maintenance company's written maintenance schedule and instructions; 3)~~ are required to be maintained, and a record of maintenance activity is also required to be retained for at least three years, and presented upon request~~. ~~The model number and rated heat input capacity of flares are required to be displayed on a permanent plate in an accessible location for any flare installed after the date of rule adoption.~~ provide t~~T~~he manufacturer's maintenance instructions, maintenance records, and the source test reports ~~are required to be provided~~ to the Executive Officer upon request; and 4)~~. Lastly,~~ retain all written or electronic records ~~are required to be maintained~~ for at least five years, which shall be ~~and~~ made available~~ upon request~~ no later than five business days from the date requested.

Exemptions – subdivision (h)

Subdivision (h) establishes ~~the criteria for qualifying for an~~ exemption criteria for owners or operators of a flare or flare station~~from either the entirety or portions of PR 1118.1~~.

General Exemptions: Paragraph (h)(1) exempts ~~certain~~ flares or flare stations at ~~facilities from all provisions of the rule. p~~Petroleum refineries, sulfuric acid plants, sulfur recovery plants, asphalt plants, biodiesel plants, and hydrogen production~~s~~ plants fueled in part with refinery gas. Paragraph (h)(1) also exempts a flare or flare station ~~that are subject to SCAQMD Rule 1118, and facilities~~ that routes only propane or butane or a combination of propane and butane directly into the flare burner.~~ will be subject to PR 1109.1[10], are also exempt from PR 1118.1.~~ Similarly, a f~~F~~lare~~s~~ or flare station which route~~s~~ ~~100 percent of the~~ only natural gas directly into the flare burner ~~to oxidize combustible gases or vapors and are~~ subject to SCAQMD Rule 1147 – NOx Reductions from Miscellaneous Sources NOx emission limits, are also exempt from PR 1118.1. Additionally, a flare or flare station at a ~~closed~~ landfill~~s~~ which generate~~s~~ less than 2,000 MMscf of landfill gas per calendar year and has either ceased accepting waste or is

[10] ~~Proposed Rule 1109.1 is a new rule that is identified in the October5, 2018 Rule and Control Measure Forecast as scheduled to undergo rule development in 2019. PR 1109.1 will establish requirements for refineries that are transitioning from RECLAIM to command-and-control. http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-oct5-022.pdf~~

classified by the California Department of Resources Recycling and Recovery as an inert waste disposal site or an asbestos contaminated waste disposal site is ~~are~~ exempt from this rule. Finally, a flare or flare station operating with a various location ~~flares~~permit or combusting regeneration gas are also exempt ~~operating in compliance with SCAQMD rules and regulations are exempt~~ from PR 1118.1.

Low-Emitting Exemption: Paragraph (h)(2) states that owners or operators of flares or flare stations that emit less than 30 pounds of NOx per month are exempt from the requirements of subdivision (d), provided the flare or flare station has a permit that specifies conditions that limit the applicable NOx emissions and operates in compliance with the permit condition.~~emission limits in Table 1-1.~~

Low-Use Exemption: Paragraph (h)(3) states that an owner~~s~~ or operator~~s~~ of a flare~~s~~ or flare station that operate~~s~~ ~~less than~~ 200 hours or less per calendar year, or with an annual throughput limit equivalent to 200 hours per year is ~~are~~ exempt from the requirements in subdivision (d) provided the flare or flare station has a permit that specifies conditions that limit the operating hours or annual throughput and operates in compliance with the permit condition.~~emission limits in Table 1-1.~~

Paragraph (h)(4) states that an owner or operator of a flare or flare station is exempt pursuant to paragraph (h)(2) or (h)(3) shall be subject to the requirements in subdivision (d) in the event the flare or flare station exceeds the applicable limitations in paragraph (h)(2) or (h)(3).

Open Flare Exemption: Paragraph (h)(5~~4~~) exempts an owner~~s~~ or operator~~s~~ of an open flare~~s~~ from the source testing requirements in subdivision (f).

Source Testing, Utility Pipeline Curtailment, and Pilot Light Exemptions: Paragraph (h)(6~~5~~) specifies that gas throughput combusted ~~NOx emissions, and time accrued~~ during source testing pursuant to subdivision (f), utility pipeline curtailment, or operating the pilot light may ~~can~~ be omitted from the annual through limitation in subparagraph (d)(1)(B)~~calculation of percent capacity and from mass emissions and hours accrued for low use exemptions~~.

Produced Gas Exemptions: Paragraph (h)(7) states that gas throughput combusted during source testing pursuant to subdivision (f), utility pipeline curtailment, or operating the pilot light may be omitted from the annual throughput limitation in subparagraph (d)(1)(B).

TECHNOLOGY OVERVIEW

Sites which produce VOCs such as landfills, wastewater treatment plants, anaerobic digesters, oil and gas production facilities, marine loading terminals, etc. need to reduce their VOC emissions by destroying the VOCs. A common technology employed by these industries is combustion device called a flare, which can destroy gases.

Flare Technologies

A flare is a control device that is utilized to control a VOC stream by piping them to a burner that combusts the VOC containing gases. There are a variety of existing flare technologies currently in use at the facilities affected by PR 1118.1: open flares, enclosed flares, low-NOx flares, and other flares.

Open Flares
Early flares were designed as elevated, candlestick-type flares that have an open flame with a specially designed burner tip, and auxiliary fuel to achieve nearly 98 percent VOC destruction. The destruction efficiency is driven by flame temperature, residence time in the combustion zone, and turbulent mixing of the components. Complete combustion results in the conversion of all the VOCs to carbon dioxide and water but also results in the emission of NOx, sulfur oxides, and CO. Open flares have a high rated capacity and long service life. They are low-cost, simple to use, and reliable but they are also noisy, emit smoke, heat radiation and light. There are few open flares remaining in the SCAQMD. Open flares cannot be source tested due to the open flame and absence of a stack.

Enclosed Flares
To mitigate the noise and the visible pollution of the open flame, most non-refinery flares in operation today are enclosed ground flares. In an enclosed flare, the burners are shrouded in a stack that is internally insulated. This stack provides wind protection and reduces noise, luminosity, and heat radiation. Enclosed flares generally have less capacity than open flares, but they are reliable and straightforward to operate. The majority of non-refinery flares subject to PR 1118.1 are enclosed ground flares, while their NOx emissions can be higher, most meet the 1988 BACT NOx limit of 0.06 pound/MMBtu.

Low-NOx Flares
The new generation of low-NOx flare utilizes a pre-mixed gas stream with air-assist combustion and is designed with ultra-low NOx burners resulting in decreased NOx and VOC emissions. These low-NOx flares can achieve NOx emissions of less than 0.025 pounds per million Btu (lb/MMBtu) and they have been available for almost a decade. There are two major manufacturers of these low-NOx flares. John Zink Hamworthy Combustion (John Zink) produces Zink Ultra Low Emissions (ZULE®) flare, which electronically control air-to-fuel ratio within the enclosed flare to provide more efficient destruction and less NOx emissions without an increase of carbon monoxide. The other low-NOx flare is the Certified Ultra-Low Emissions Burner (CEB®) produced by the Aereon Corporation. It incorporates the premixing of gases and patented wire mesh technology that allows for more efficient combustion and retention of heat, with a decrease of NOx emissions. Due to the added complexity in the design of the low-NOx flares, some stakeholders have experienced reliability issues. This is especially true of the early generation flares installed that do not combust a constant gas flow.

Other Flaring
For the Other Flaring category, John Zink produces a NOxSTAR Vapor Combustion System capable of reducing emissions for marine terminal loading and unloading by meeting a stringent 99.99 percent destruction efficiency and a 0.036 pound/MMBtu NOx emission. CEB® flares have also been permitted and installed for use for organic liquid handling.

Beneficial Use Opportunities
PR1118.1 seeks to encourage alternatives to flaring, while at the same time, allowing an existing flare to be maintained if the flare throughput is reduced below capacity thresholds established in the rule. Flare throughput reduction can be achieved by harnessing and conditioning the waste gas for a variety of uses. Alternatives to flaring include utilizing fuel cells to create electricity and hydrogen; using micro-turbines and boilers to create power for the facility; using boilers for heat in anaerobic digesters; selling the gas to be used in transportation; converting the gas to liquids for transportation; and/ or natural gas pipeline injection. Sites such as oil and gas facilities that do not

produce enough gas or are not located near appropriate pipelines for injection could route the gas towards power generation, such as micro-turbines, and/or capture for use in transportation. The flare gas has value and most facilities strive to maximize the use of the gas, the following sections highlight some of the beneficial use options.

Fuel Cells

Fuel cells use a chemical reaction, rather than combustion, to generate electricity. They are very efficient and the fuel cells do not produce NOx emissions, though a small amount of NOx can be produced from associated fuel burners. Fuel cells can utilize biogas or produced gas as the fuel, but the contaminants, especially the siloxanes in biogas, must be removed as they will poison the catalyst. Fuel cells represent a great opportunity for beneficial use and NOx emissions but the technology, and the associated gas clean-up, is costly.

Combined Heat and Power

Combined heat and power (CHP) is an efficient technology that generates electricity and captures the heat that would otherwise be wasted to provide useful thermal energy, such as steam or hot water. Nearly two-thirds of the energy used by conventional electricity generation is wasted in the form of heat discharged to the environment.

Boilers

New power producing technologies, such as the organic Rankine cycle (ORC), has shown the ability to consume the gas that would otherwise be flared and provide a co-benefit by producing power. This technology utilizes heat recovery from gas combustion to operate the ORC loop to make power. For an oil and gas facility, for example, this is accomplished by installing a skid-mounted boiler on site to combust the gas and provide hot water for the ORC. The amount of power generated is not a high enough quantity to sell to the grid, but will be able to meet some of the facility's power needs and/or heat needs. These boilers emit either 9 ppm (at 3 percent oxygen) or 5 ppm (at 3 percent oxygen with selective catalytic reduction), depending on the size, which will result in 40 to 67 percent less NOx emissions than a low-NOx flare. For a wastewater treatment facility that currently utilizes boilers for providing heat to the anaerobic digesters, the same boiler can be utilized to process any excess gas that would otherwise be flared. In addition, a landfill can potentially utilize this technology to generate electricity from landfill gas that would otherwise be flared.

Micro-turbines and Turbines

Micro-turbines and turbines can be powered by gas that would otherwise be flared to generate power. Most systems require gas cleanup but there are with regenerative thermal oxidation that can be used to produce power without the necessity of biogas cleanup. These technologies can be used at each of the source categories and are especially useful at landfills with low methane gas.

Gas Recovery, Processing, Compression, and Transportation

Another alternative to flaring is to compress the gas that would otherwise be flared and either use it on-site or transport the gas for sale or use at another location. The gas can be cleaned up prior to compression and used to create a transportation fueling station or the compressed gas can be transported and injected into the pipeline. This type of system is useful when a natural gas pipeline is not readily accessible.

Gas-to-liquids
Flare gas can also be converted to liquid fuels and sold as transportation fuel or energy generation. This is a way to reduce or eliminate flaring while making a profit of the gas that would otherwise be flared.

SUMMARY OF AFFECTED FACILITIES

There are ~~146~~ 153 facilities and ~~288~~ 295 flares that are potentially subject to the requirements in PR 1118.1. Based on the proposed capacity threshold and current flare emission limits, SCAQMD staff has identified 16 facilities and 25 flares that may need to make physical modifications in order to comply with the requirements in PR 1118.1. Table 1-3 identifies the flares that may be affected by PR 1118.1:

Table 1-3
Potentially Impacted Flares

	Facility ID	Facility Name	Type of Gas Flared	Number of Affected Flares
1	150400	BREITBURN OPERATING L.P.	Produced gas	1
2	150209	BREITBURN OPERATING L.P.	Produced gas	1
3	150201	BREITBURN OPERATING L.P.	Produced gas	1
4	172872	BREITBURN OPERATING L.P.	Produced gas	1
5	119219	CHIQUITA CANYON LLC	Landfill Gas	1
6	139865	CITY OF BURBANK WATER AND POWER	Landfill Gas	1
7	13662	CITY OF WHITTIER LANDFILL	Landfill Gas	1
8	9163	INLAND EMPIRE UTILITIES AGENCY	Digester Gas	1
9	45262	LA COUNTY SANITATION DISTRICT - SCHOLL CANYON	Landfill Gas	4
10	69646	ORANGE COUNTY WASTE & RECYCLING - FRANK R. BOWERMAN	Landfill Gas	5
11	52753	ORANGE COUNTY WASTE & RECYCLING - PRIMA DESHECHA	Landfill Gas	1
12	74413	REDLANDS CITY - CALIFORNIA STREET LANDFILL	Landfill Gas	1
13	156312	ROSECRANS ENERGY	Produced gas	1
14	7068	SAN BERNARDINO COUNTY SOLID WASTE MANAGEMENT	Landfill Gas	2
15	50299	SAN BERNARDINO COUNTY SOLID WASTE MANAGEMENT - MID VALLEY	Landfill Gas	2
16	49111	SUNSHINE CANYON LANDFILL	Landfill Gas	1
			Total Flares	**25**

CHAPTER 2

ENVIRONMENTAL CHECKLIST

INTRODUCTION

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

GENERAL INFORMATION

Project Title:	Final ~~Draft~~ Environmental Assessment for Proposed Rule 1118.1 – Control of Emissions from Non-Refinery Flares
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
CEQA Contact Person:	Mr. Luke Eisenhardt, (909) 396-3443
PR 1118.1 Contact Person	Mr. Steve Tsumura, (909) 396-2549
Project Sponsor's Name:	South Coast Air Quality Management District
Project Sponsor's Address:	21865 Copley Drive Diamond Bar, CA 91765
General Plan Designation:	Not applicable
Zoning:	Not applicable
Description of Project:	PR 1118.1 seeks to reduce NOx and VOC emissions from flaring activities at landfills, wastewater treatment plants, oil and gas production facilities, organic liquid loading stations, and tank farms and to encourage alternatives to flaring. PR 1118.1 establishes emission limits that reflect BARCT standards for flares and provides an exemption for low-use and low-emitting flares. PR 1118.1 also establishes a capacity threshold, based on a flare's maximum rated capacity, to identify flares that would need to be replaced or undergo a flare gas throughput reduction (e.g., use gas beneficially). Additionally, PR 1118.1 establishes requirements for facilities to conduct periodic source tests, monitor and record gas usage, and submit reports. PR 1118.1 is estimated to reduce 0.18 ~~0.2~~ ton per day of NOx. The Final ~~Draft~~ EA did not result in the identification of any environmental topic areas that would be significantly adversely affected by PR 1118.1. ~~One~~ Six of the facilities affected by PR 1118.1 were identified on lists compiled by the California Department of Toxic Substances Control per Government Code Section 65962.5.
Surrounding Land Uses and Setting:	Various
Other Public Agencies Whose Approval is Required:	Not applicable

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

DETERMINATION

On the basis of this initial evaluation:

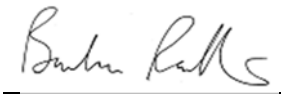
☑ I find the proposed project, in accordance with those findings made pursuant to CEQA Guidelines Section 15252, COULD NOT have a significant effect on the environment, and that an ENVIRONMENTAL ASSESSMENT with no significant impacts has been prepared.

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

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

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

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

Date: October 25, 2018 **Signature:** 

Barbara Radlein
Program Supervisor, CEQA
Planning, Rules, and Area Sources

ENVIRONMENTAL CHECKLIST AND DISCUSSION

PR 1118.1 seeks to reduce NOx and VOC emissions from flaring produced gas, digester gas, landfill gas, and other combustible gases and vapors and to encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit at both RECLAIM and non-RECLAIM facilities, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare gas throughput or replacement with a flare with lower NOx emissions will be required. The capacity threshold varies depending on the type of gas being flared (landfill, digester, produced) and the type of flare equipment (open flare versus a shrouded flare). Further, PR 1118.1 sets additional limits for replacement and new oil and gas production flares. PR 1118.1 provides an exemption for low-use, low-emitting flares, and other special circumstances. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. PR 1118.1 is expected to reduce 0.18 ~~0.2~~ ton of NOx per day from flares located at landfills, wastewater treatment plants, oil and gas production facilities, organic liquid loading stations, and tank farms.

Implementing PR 1118.1 would be expected to result in some facilities either replacing flares to meet emission requirements or developing an alternative project to decrease gas throughput in lieu of flaring; the activities associated with making these physical changes may also create secondary adverse environmental impacts. Similarly, activities associated with conducting source tests and installing fuel meters may also create secondary adverse environmental impacts.

While there are other requirements in PR 1118.1 that are necessary to support compliance with the rule, the following components of PR 1118.1 are administrative or procedural in nature and as such, would not be expected to cause any physical changes at affected facilities: monitoring fuel meters; recordkeeping; sending notifications and reports to the SCAQMD; applying for permit applications; and preparing and submitting source testing protocols. As such, these components of PR 1118.1 would not be expected to create any secondary adverse environmental impacts.

For these reasons, the analysis in this EA focuses on the potential secondary adverse environmental impacts associated with: 1) installing replacement flares; 2) implementing alternative beneficial use projects to lower flare gas throughput; 3) installing fuel meters; and 4) conducting source tests. The effects of implementing these key rule components in PR 1118.1 have been evaluated relative to the environmental topics identified in the following environmental checklist (e.g., aesthetics, agriculture and forestry resources, biological resources, etc.). To evaluate these impacts, several assumptions were relied upon in the foregoing analyses, which are explained below.

Compliance with Emission Limits: There are ~~146~~ 153 facilities and ~~288~~ 295 flares in SCAQMD's jurisdiction that are subject to PR 1118.1. Of these flares, many will be exempt from having to comply with the emission limits in PR 1118.1 because they emit less than 30 pounds/month of NOx, operate less than 200 hours/year, or they are located on a closed landfill which produces less than 2,000 MMscf/year of landfill gas. Additionally, permit information along with three-year average flare throughput data indicates that there are some flares currently operating below their capacity threshold which means that they are already in compliance with PR 1118.1. In addition, there are some facilities currently operating low-NOx flares which are already in compliance with PR 1118.1. Thus, the analysis shows that only 25 flares at 16 facilities will potentially need to be replaced in order to meet the proposed emission limits. Alternatively, a flare

owner/operator could elect to reduce the gas throughput to the flare(s) through implementing a beneficial use project such as turbines, fuel cells, or internal combustion engines.

There are 25 flares that were determined by staff to currently exceed both the capacity thresholds and NOx emission limits, and therefore may potentially require replacement or throughput reduction under PR 1118.1. Unless in compliance with the emission limits in Table 1-1, flare operators have two years to monitor the flare for exceedance of the percent capacity thresholds. After this two year monitoring period, there is a six month allowance period for privately owned facilities and a 12 month allowance period for publicly owned facilities to either notify the SCAQMD of a plan to reduce flare throughput below the percent capacity threshold, or to submit an application to replace the flare with one which meets the emission limits. If the flare owner/operator chooses to reduce flare throughput via beneficial use or otherwise, three years, plus an additional ~~one~~ two year extension ~~or longer~~ (if requested and approved), are provided in order to comply with PR 1118.1. If the owner/operator chooses to replace the flare with an emission compliant flare, they have ~~one year~~ 18 months to install the new flare after the permit is approved, with a possible 12 month extension, ~~or longer~~ if requested and approved. This means that flare operators may have at least 5.5 years (or six years if publicly owned), but possibly ~~6~~ 7.5 years (or eight years if publicly owned)~~or longer~~, if deadline extensions are requested and approved, to comply via flare throughput reduction, or at least ~~3.5~~ four years (or 4.5 years if publicly owned), but ~~4.5~~ five years (or 5.5 years if publicly owned), or longer depending on the time it takes for permit issuance or if deadline extensions are requested and approved, to comply via flare replacement.

Options to Reduce Flare Gas Throughput: Though there are several methods of reducing flare gas throughput, such as developing and constructing a beneficial use project, reducing gas output, or storing gas; however, not all of these options are practical, reasonably foreseeable or physically possible at all facilities because of the wide size range of sites, setting, and logistics unique to individual facility operations. For example, while a large turbine project could substantially reduce flare gas throughput, the high cost of such a project would make it economically infeasible at many sites. Large-scale beneficial use projects are typically capital improvement projects that are heavily influenced by economic and political factors that are beyond the scope of this analysis and decisions to construct these types of projects would likely be made regardless of or in addition to PR 1118.1, but not solely because of PR 1118.1. Further, SCAQMD staff is not aware of any PR 1118.1 facilities that are planning to construct a large-scale beneficial use project in the immediate future and is unable to predict or forecast, when, if at all, any would be built in the long-term. Therefore, in accordance with CEQA Guidelines Section 15145, an evaluation of construction and operation impacts for a large-scale beneficial use project such as large turbine project is concluded to be speculative and will not be evaluated further in this analysis.

However, SCAQMD staff's research has determined that the installation of a fuel cell power production system, along with a gas processing unit and the installation of a backup natural gas compression and a compressed natural gas (CNG) transport system either via truck or pipeline may be a cost-effective, feasible alternative to flaring. SCAQMD staff conducted a survey of affected facilities and most owners/operators indicated that they will likely opt to replace their flare(s). However, because it is possible that some owners/operators may choose to implement the aforementioned fuel cell and gas compression system, it is impossible to accurately forecast or predict how many of these systems would actually be installed. As such, this analysis assumes that 20 existing flares will be replaced with 20 new, lower emitting flares. For the remaining five existing flares, this analysis assumes that owners/operators will elect to reduce their flare gas

throughput by processing that gas, and routing it to a fuel cell and gas processing, compression, and transport system (CNG system).

Source Testing: Of the ~~288~~ 295 flares, a portion will be required to undergo new source testing as a result of PR 1118.1 but most flares already conduct source tests due to other SCAQMD rule requirements. For example, there are 155 flares at landfills that are currently required to undergo annual source tests due to other SCAQMD rule requirements, which is more frequent than the proposed source testing requirement of once per five years in PR 1118.1. Additionally, wastewater treatment plants already undergo periodic source testing no less than every five years. Furthermore, major oil production facilities are already required to source test, no less frequently than every five years, and only minor facilities do not require source testing. Digester gas flares and landfill gas flares would only need additional analysis for NOx and CO, and not require additional source testing. Finally, "other gas" is exempt from source testing under PR 1118.1. For these reasons, the source testing requirements in PR 1118.1 with respect to flares at landfills for digester gas and landfill gas, flares at wastewater treatment plants, and flares at major oil production facilities are not considered activities that would create new, additional source testing impacts beyond the existing setting. Also, because open flares cannot be source tested, they are exempt from the source testing requirements in PR 1118.1. In light of the aforementioned existing source testing obligations and the exemption for open flares, there are only 36 ~~28~~ flares that were not previously required to undergo source testing that would now be expected to undergo source testing once every five years.

Fuel Meter Installations: Of the ~~288~~ 295 flares, some will need fuel meters to be installed, while most are already equipped with fuel meters, because all non-refinery flares that received SCAQMD permits after 1988 were installed with fuel meters. In addition, closed landfill flares with a landfill gas flow of less than 2,000 MMscf/year are exempt from the requirement to be equipped with fuel meters. SCAQMD's database indicates that there are only 10 out of the ~~288~~ 295 flares that received SCAQMD permits prior to 1988. For this reason, this analysis assumes that only 10 new fuel meter installations would be required in order to comply with PR 1118.1 and these installations are required to occur within 90 days of rule adoption.

Conclusion: Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
I.	**AESTHETICS.** Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☑
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☑
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☑
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☑

Significance Criteria

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

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

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

I. a), b), c), & d) No Impact. To replace flares or install a fuel cell and CNG system, construction activities would be expected to occur at affected facilities. Construction will require the use of heavy-duty construction equipment such as forklifts, loaders, cranes, and welders. The

construction equipment is expected to be not substantially visible to the surrounding area due to construction occurring within existing facility's property line, existing fencing along property lines, and existing structures and features currently within the facilities that may buffer the views of the construction activities. Furthermore, the types of facilities that are expected to undergo construction are wastewater treatment plants, oil and gas production facilities, and landfills and all of these facilities currently have heavy duty trucks frequently entering and exiting the site, and construction equipment on site on a day-to-day basis. Thus, any construction activities that may occur as a result of PR 1118.1 will likely be consistent with the character of the existing setting of the affected sites and will not be expected to cause substantial aesthetic differences from existing on-site equipment needed for day-to-day operation activities. In addition, the construction activities are expected to be temporary in nature and will cease following the completion of the project. Once construction is completed, all construction equipment that is not part of the each facilities day-to-day operations will be removed from each facility. Flare replacement is expected to be completed within ~~4.5~~ 5.5 years after the date of rule adoption at all affected facilities; however, construction of each new flare per site is only expected to take approximately eight weeks. Construction of beneficial use projects may take longer, but would expect to be completed within ~~6.5~~ eight years.

In the event that a facility chooses to replace a flare, the new flare will appear to be the same as the existing flare. If the flare being replaced is an open flare with a visible flame, the new flare will be enclosed such that the flame will no longer be visible, which will have the effect of improving what some consider an undesirable existing aesthetic impact. Therefore, replacement flares will either be consistent with the existing visual character of sites, or improve the existing visual character.

Fuel cell and gas compression and transport units installed as alternative beneficial use projects to reduce flaring would likely only be constructed if suitable space were available. Gas compression and transport units are delivered by truck, and are no larger than a semi-truck trailer, and therefore, scenic vistas would not be expected to be altered beyond the existing setting. Similarly, fuel cell plants are modular and generally low in height when compared to existing flares; thus, if a facility elects to install a fuel cell plant, scenic vistas would not be expected to be substantially altered beyond the existing setting. Finally, the fuel cell and gas compression and transport units are industrial in appearance, similar to the existing stationary and mobile equipment on site. For this reason, the additional of fuel cell and gas compression and transport units would not be expected to degrade the existing character of the site, nor adversely affect the visual continuity of the surrounding area of the affected facilities.

PR 1118.1 also contains requirements that would cause fuel meters to be installed and new source tests to be conducted. These activities would be low-profile and limited to occurring within each facility's property and would be expected to blend in with regular day-to-day activities. Furthermore, because fuel meters are relatively small in size and industrial in appearance relative to the size of a flare, the installation of fuel meters will not be visually discernable from other existing equipment onsite and thus, would not be expected to affect any scenic vistas. Further, any potential construction equipment needed to install the fuel meters would be small in scale, likely hand tools, and would not be expected to damage or obstruct scenic resources or degrade the existing visual character of any site in the vicinity of affected facilities. Additional source testing would not affect the visual character of affected facilities. Source testing would only occur once every five years and would blend in with routine site operations. Therefore, it will cause not cause any discernable aesthetic impacts.

PR 1118.1 does not include any components that would require construction activities to occur at night. Further, cities often have their own limitations and prohibitions that restrict construction from occurring during evening hours and weekends. Therefore, no additional temporary construction lighting at the facility would be expected. However, if facility operators determine that the construction schedule requires nighttime activities, temporary lighting may be required. Nonetheless, since construction activities would be completely located within the boundaries of each affected facility, additional temporary lighting is not expected to be discernable from the existing permanent night lighting. Additionally, while the proposed project has no provisions that would require affected equipment to operate at night, some facilities currently operate multiple shifts and existing lighting is utilized during the nighttime shifts. However, operations of replacement flares would not be effectively different than current practices, so no new nighttime operations are expected. Lastly, some open flares, with visible flames will be replaced with shrouded flares, thus eliminating a light source that was previously visible during both the day and night. For these reasons, the proposed project would not create a new source of substantial light or glare at any of the affected facilities in a manner that would adversely affect day or nighttime views in the surrounding areas.

Conclusion

Based upon these considerations, significant adverse aesthetics impacts are not expected from implementing PR 1118.1. Since no significant aesthetics impacts were identified, no mitigation measures are necessary or required.

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

Significance Criteria

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

- The proposed project conflicts with existing zoning or agricultural use or Williamson Act contracts.
- The proposed project will convert prime farmland, unique farmland or farmland of statewide importance as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.
- The proposed project conflicts with existing zoning for, or causes rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined in Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).
- The proposed project would involve changes in the existing environment, which due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use.

Discussion
PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

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

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

Conclusion
Based upon these considerations, significant adverse agriculture and forestry resources impacts are not expected from implementing PR 1118.1. Since no significant agriculture and forestry resources impacts were identified, no mitigation measures are necessary or required.

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

Significance Criteria

To determine whether or not air quality and greenhouse gas impacts from implementing PR 1118.1 are significant, impacts will be evaluated and compared to the criteria in Table 2-1. PR 1118.1 will be considered to have significant adverse impacts if any one of the thresholds in Table 2-1 are equaled or exceeded.

Table 2-1
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

Preface

Subsequent to the circulation of the Draft EA for public comment and review, several changes were made to PR 1118.1 which required updates to the air quality and GHG analysis. Specifically, the estimated NOx reductions from PR 1118.1 were reduced from 0.2 ton/day in the Draft EA to 0.18 ton/day in the Final EA. In the Draft EA, the calculation for determining the overall anticipated NOx emissions~~s~~ reductions for PR 1118.1 of 0.2 ton/day for 25 flares was based on an achieving an average NOx emission reductions of 15.8 pounds/day NOx for each operational replacement flare. However, in this Final EA, the average NOx emission reductions for each operational replacement flare was adjusted 14.4 pounds/day NOx which translates to overall NOx emission reductions of 0.18 ton/day for 25 replacement flares. The analysis which relied on these calculations has been updated to reflect the adjustments to the estimate of overall NOx emission reductions. Nevertheless, the adjusted calculations in this Final EA do not cause an exceedance of the SCAQMD's CEQA air quality significance thresholds during the period of construction only, operation only, or construction and operational overlap. Therefore, this Final EA concluded that the air quality impacts from construction and operation remain less than significant after the adjustments to the analysis have been made.

In addition, PR 1118.1 was updated by increasing the overall length of time allowed for rule compliance, including extensions, by one year for flare replacement projects, and 1.5 years for throughput reduction for beneficial use projects. The effect of this update to PR 1118.1 is expected to result in the construction of replacement flares and beneficial use projects to be spread out over a longer period of time than was initially considered in the Draft EA, whereby reducing the probability of multiple projects occurring concurrently, and reducing the air quality impacts estimated to occur on a peak construction day. As such, the potential air quality impacts analyzed in the Draft EA likely overestimate the actual impacts that may occur as a result of implementing PR 1118.1. Thus, the conclusion of less than significant air quality and GHG impacts in the Draft EA, remain unchanged in the Final EA.

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

III. a) No Impact. The SCAQMD is required by law to prepare a comprehensive district-wide Air Quality Management Plan (AQMP) which includes strategies (e.g., control measures) to reduce emission levels to achieve and maintain state and federal ambient air quality standards, and to ensure that new sources of emissions are planned and operated to be consistent with the

SCAQMD's air quality goals. The AQMP's air pollution reduction strategies include control measures which target stationary, area, mobile and indirect sources. These control measures are based on feasible methods of attaining ambient air quality standards. Pursuant to the provisions of both the state and federal Clean Air Acts, the SCAQMD is also required to attain the state and federal ambient air quality standards for all criteria pollutants.

The most recent regional blueprint for how the SCAQMD will achieve air quality standards and healthful air is outlined in the 2016 AQMP[11] which contains multiple goals of promoting reductions of criteria air pollutants, greenhouse gases, and toxics. In particular, the 2016 AQMP includes control measure CMB-03 which requires reductions of NOx and VOC emissions through the implementation of PR 1118.1. PR 1118.1 will reduce these emissions by setting stricter emission standards on non-refinery flares for new flares and existing non-exempt flares, and by encouraging alternatives to flaring.

For these reasons, PR 1118.1 is not expected to obstruct or conflict with the implementation of the 2016 AQMP because the emission reductions from implementing PR 1118.1 are in accordance with the emission reduction goals in the 2016 AQMP. PR 1118.1 would reduce NOx and VOC emissions, and therefore be consistent with the goals of the 2016 AQMP. Thus, implementing PR 1118.1 to reduce emissions from non-refinery flares would not conflict with or obstruct implementation of the applicable air quality plans.

III. b) and f) Less Than Significant Impact. While PR 1118.1 is designed to reduce NOx and VOC emissions, secondary air quality impacts are expected from its implementation due to physical activities that may need to occur. For example, the requirements in PR 1118.1 for certain flares to meet stricter emission standards would be expected to result in construction activities associated with replacing approximately 25 flares at 16 facilities. Additionally, construction of alternative beneficial use projects to reduce flare usage in lieu of flare replacement, such as a micro-turbine, fuel cell, and a gas processing, compression, and transport system would also require construction activities at facilities that choose this option. These construction activities may contribute to air quality and greenhouse gas (GHG) impacts. Further, additional minor secondary air quality impacts during operation are also expected to occur as a result of facilities conducting source testing and installing fuel meters.

Table 2-2 summarizes the key requirements in PR 1118.1 that may result in secondary adverse air quality and GHG impacts during construction and operation. It should be noted that for the sake of this analysis, and as indicated in Table 2-2, a fuel cell and CNG system project is assumed as the alternative beneficial use project.

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

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

Key Requirements in PR 1118.1	Physical Actions Anticipated During:	
	Construction	**Operation**
Option 1: Flare Emission Limits (Flare Replacement)	1. Possible removal and disposal of old flares and site preparation as needed 2. Vehicle trips for workers and deliveries 3. Installation of new flares	Reduced emissions from new, cleaner flares
Option 2: Flare Throughput Reduction (Beneficial Use)	1. Site preparation for fuel cell, gas processing, compression, and transport equipment 2. Vehicle trips for workers and deliveries 3. Construction activity for installation of equipment	1. Reduced emissions from fuel cell operation 2. Vehicle trips for servicing and replacing parts of gas processing equipment 3. Vehicle trips for gas transport
Fuel Meter Installation	1. Vehicle trips for workers and deliveries 2. Minor installation activities	No new operational impacts
Source Testing	None are needed	Vehicle trips due to periodic source testing

For the purpose of conducting a worst-case CEQA analysis for flare replacement or an alternative beneficial use project, the following assumptions have been made:

Compliance with PR 1118.1 for affected facilities is expected to be met by either replacing an old flare with a low-NOx flare or by decreasing flare gas throughput via an alternative beneficial use project. For the purpose of this analysis, a combination of fuel cell and gas processing, compression, and transport is considered as a feasible beneficial use project. It is assumed that a facility owner/operator will choose either to replace a flare or implement a beneficial use project consisting of a combination of fuel cell and gas processing, compression, and transport.

Because flare replacement will likely incur lower capital costs than a beneficial use project, this analysis assumes that construction of a new flare will be completed more quickly. In particular, the construction impact analysis assumes that installation of a new flare will take up to eight weeks to complete and installation of a fuel cell and gas processing, compression, and transport system will take up to four months to complete. Given the 4.5 year timeframe for flare replacement, and the 6.5 year timeframe for flare gas throughput reduction for facilities to comply with the requirements in PR 1118.1, it is conservatively assumed that the construction phase for some facilities would overlap. Further, it is important to note that of the 25 facilities which will need to make modifications to comply with PR 1118.1, only 23 facilities actually produce enough gas to

make a beneficial use project practical. However, while it is impossible to accurately forecast or predict how many of these 23 facilities would pursue implementing a flare gas throughput reduction over replacing their existing flares, at a minimum, there are two facilities that will be expected to replace their flares instead of implementing a flare gas throughput reduction project. Due to the unknown facility specific factors that may be associated with a facility's decision to implement a flare gas throughput reduction project, this analysis assumes that 20 existing flares will be replaced with 20 new, low-NOx flares. For the remaining facilities with five existing flares, this analysis assumes that owners/operators will elect to reduce their flare gas throughput by processing that gas, and routing it to a fuel cell and CNG system.

Because flare replacement has a shorter timeframe than the flare gas throughput reduction project, most flare replacement projects are assumed to be completed before the start of beneficial use projects. For this analysis, construction and operation activities are separated by phase. Phase 1 consists of the installation of fuel meters within the first 90 days after rule adoption. Phase 2 consists of the installation of 13 new flares which is assumed to occur within the first 3.5 years after rule adoption, with no more than seven being constructed on a peak day. Phase 3 consists of the installation of the seven remaining occurring between three to four and a half years after rule adoption overlapping with the construction of five beneficial use projects occurring between 3.5 to 6.5 years after rule adoption. Phase 3 is assumed to occur after 13 flares from Phase 2 have been constructed and are operational. It is important to note that this analysis is conservative because while some portions of construction will overlap, as a practical matter, it is unlikely that construction of all seven flares will occur concurrently with the construction of all five beneficial use projects during Phase 3.

Construction of Replacement Flares

- Each old flare will be demolished and removed after the each new flare is installed. This is a conservative assumption because some facilities will choose to not to demolish every old flare and instead keep them in place as a backup.
- Each replacement flares will require 600 square feet of cleared area for installation. The typical footprint of a flare is approximately six feet by six feet; however the overall construction footprint will be larger to allow for an extra buffer surrounding the equipment.
- Work will occur in sequential order according to the following phases:
    - Demolition will require one crane and one loader to remove the old flare, plus the use of hand tools, for six hours per day each, for ten days. Five workers will commute to each construction site per day.
    - Site preparation will require one grader and one loader for eight hours each for one day. Five workers will commute to each construction site per day.
    - The construction phase, during which the new flare is installed and hooked up to gas piping and equipment will require one crane operating for four hours per day, one forklift operating for six hours per day, and one welder operating for eight hours per day, over a 30 day construction period. Two workers will commute to each construction site per day.
- Workers will commute to the construction site in light duty automobiles and trucks.
- One vendor trip will occur in one heavy-duty truck each day during the construction phase.

Construction of Fuel Cell Project

- The fuel cell project will require 2,400 square feet of cleared area for installation.
- Work will occur in sequential order according to the following phases:
    - Site Preparation will require one grader and one loader, each operating for eight hours per day for five days. Five workers will commute to each construction site each day.
    - Grading will require one concrete saw operating eight hours per day, one rubber tire dozer operating one hour per day, and two loaders operating six hours per day for two days. Ten workers will commute to each construction site each day.
    - Paving will require four cement mixers operating six hours per day, and one paver, one roller, and one loader each operating seven hours per day for five days. Eighteen workers will commute to each construction site each day.
    - Installation of components and construction will require one crane operating for four hours per day, two forklifts operating for six hours per day, and two loaders operating for eight hours per day for 100 days. Four workers will commute to the construction site each day.
- Workers will commute to the construction site in light duty automobiles and trucks.
- Components of this system will be delivered as skid-mounted modules by truck. One heavy-duty truck vendor trip is assumed to occur each day over the 100 day construction period.

Construction of Gas Processing, Compression, and Transport System

- Components of this system will be delivered by truck and arrive pre-mounted on trailers. No construction equipment or additional workers, aside from the truck driver, are needed for installation because existing employees can handle this work.
- Gas processing equipment from the fuel cell project will be used, so no additional gas processing equipment will be needed for this phase.
- Minor site preparation and grading will be needed. Approximately 6,000 square feet of land will need to be cleared for the delivery and placement of gas transport trucks and other trailer mounted equipment. This site preparation and grading work will need to be completed during the fuel cell site preparation activities; thus, no additional equipment or workers will be required for this task.

Installation of Fuel Meters

- The fuel meter installation can be completed with hand powered and electric powered tools. For this reason, negligible air emissions will be expected to occur during this task.
- Fuel meter installation will require one light duty automobile or truck trip for worker transport, and one medium-duty vendor truck trip to deliver the fuel meter to the construction site.
- Ten new fuel meters will be installed within 90 days of rule adoption. This analysis assumes that the fuel meter installations will not overlap the construction of new flares or fuel cell projects, because the permitting process for new flares or fuel cell projects typically takes longer than 90 days.

- This analysis assume that all ten facilities will install fuel meters on the same day.

Operation of Replacement Flares

To comply with PR 1118.1, this analysis assumes that existing flares will be replaced with new low-NOx flares. A range of emission factors and percent flare throughput utilization capacity exists for currently operating flares. In all cases, the emissions from new replacement flares will be lower than the existing flares, whereby reducing the total amount of operational flare emissions when compared to the baseline. PR 1118.1 is estimated to reduce NOx emissions by ~~0.2~~ 0.18 ton (~~396~~ 360 pounds) per day if all 16 facilities choose to replace all 25 flares.

Operation of Fuel Cell

- Operation of one fuel cell will produce 1.4 megawatt (MW) of power which will offset an equivalent amount of power demand from California's electricity grid.
- One 1.4 MW system is estimated to consume approximately 260,000 scf of natural gas per day. The amount of gas consumed per fuel cell is assumed to displace the remaining amount of gas which would otherwise be flared.
- Fuel cells produce some emissions at the following rates: 0.01 pound per megawatt-hour (lb/MWh) NOx, 0.0001 lb/MWh SOx, and 0.00002 lb/MWh PM10. The increased emissions from operating one fuel cell will be offset by the decreased emissions from one flare.

Operation of Gas Processing, Compression, and Transport System

- The analysis assumes that five CNG system projects will be operating when complete.
- In the event that there is more available gas than one fuel cell can process, gas compression and transport will be necessary for backup so as to avoid having to flare the excess gas. For the purpose of this analysis, 20% of the total gas sent to all affected flares (20% x 21.5 MMscf/day = 4.3 MMscf/day) is assumed to be diverted, processed and transported by the CNG system equipment.
- In order to transport 4.3 MMscf/day of natural gas, the analysis assumes that 43 round trips per day will be needed with each truck transporting 100,000 scf per trip at a distance of 40 miles per trip.
- Emissions that may be generated from the CNG transport trucks were calculated using composite emission factors for heavy-duty diesel from the aggregate truck fleet from 1975 to 2018 per CARB's EMFAC2017 database.
- CNG system equipment will periodically require regular maintenance to change out filter media and conduct safety checks. While it is likely that this work could be performed by the CNG system contractor during normal operations, a worst-case scenario of one light duty truck or automobile trip is assumed to be needed each day, once per year.

Source Testing

Source tests will need to be conducted once every five years for ~~28~~ 36 flares that currently are not required to undergo source testing. Due to the limited number of qualified source testing companies within the SCAQMD, multiple source tests at multiple facilities are not likely to occur on the same day. This analysis assumes that one light duty truck trip will be needed per facility that has equipment undergoing source testing.

Phasing of Construction and Operations

Construction and operation activities associated with the various compliance projects will be completed in phases. During Phase 1, fuel meters will be installed. During Phase 2, construction of 13 replacement flares will occur without any overlapping operational impacts (e.g., operational benefits from new flares operating while construction is occurring). During Phase 3, construction of seven new flares will overlap construction of five beneficial use projects. By the time Phase 3 starts, the 13 flares replaced during Phase 2 will be operational and providing an air quality benefit. During Phase 4, since all construction from the previous phases will have been completed, there will only be operational impacts from all 20 replacement flares and five beneficial use projects, as well as source testing, and servicing of CNG and fuel cell systems. The construction and operational activities of each phase are outlined in Table 2-3:

Table 2-3
Construction and Operational Activities by Phase

Phase	Timeline (after Rule Adoption)	Construction Activities	Operational Activities
1	90 Days	Install Fuel Meters	None
2	0-3.5 Years	Replace 13 Flares	None
3	3.5-6.5 Years	• Replace 7 Flares • Construct 5 CNG/Fuel Cell System Projects	NOx Reductions from 13 Replacement Flares
4	After 6.5 Years	None	• NOx Reductions from 20 Replacement Flares and 5 Beneficial Use Projects • Service CNG/Fuel Cell Systems • Source Testing Every 5 Years • Transport of CNG

Decreased Emissions during Operation

Implementation of PR 1118.1 is estimated to reduce NOx emissions by ~~0.2~~ 0.18 ton per day if 25 flares are replaced with lower emission flares. Typically, NOx emission limits will be reduced from 0.06 pound/MMBtu to 0.025 pound/MMBtu based on a review of existing flares, although some existing flares may have different emission factors. Additionally, oil and gas production facilities will be required to adhere to a stricter standard of 0.018 pound/MMBtu NOx. However, if facilities instead construct beneficial use projects rather than replacement flares, all of the NOx emissions associated with their existing flares will be reduced to zero. Rather than attempt to forecast which specific individual flares will be replaced or have their gas throughput reduced via a beneficial use project, for a conservative estimate, it is assumed that emission reductions will be shared equally by each flare, regardless of individual flare gas throughput. The amount of average NOx emission reductions per existing flare is calculated in Table 2-4 for replacement flares and beneficial use projects.

Table 2-4
Estimated NOx Emission Reductions From Flare Replacements

Compliance Option	NOx Emissions (lbs/day)
Baseline NOx Emissions from 25 Existing Flares	667.4
Average Baseline NOx Emissions per Existing Flare	26.7
Average NOx Emissions from Flaring After Replacement is Completed[a,b]	~~10.9~~ 12.3
Average NOx Emissions Reduction per Existing Flare from PR 1118.1[a,c]	~~15.8~~ 14.4

Notes:

a. This calculation assumes one flare replacement or one beneficial use project will occur for each flare. While the gas throughput varies per flare, this calculation assumes each project will achieve an average emission reduction of NOx across all 25 flares.

b. ~~This calculation assumes that~~ Flare replacement will lower NOx emissions by 58% (from 0.06 lb/MMBtu to 0.025 lb/MMBtu) per flare. However, the average NOx emissions after construction is overestimated because oil and gas flares will need to comply with a more stringent NOx emission limit of 0.018 lb/MMBtu

c. It is assumed that beneficial use projects will reduce emissions by 26.7 lbs/day NOx from each flare diverted, however there will be additional NOx emissions associated with operating the beneficial use project, shown in Table 2-9.

Decreased NOx Emissions by Phase

The estimated NOx emission reductions presented in Table 2-4 will take effect as soon as each flare or beneficial use project is constructed and fully operational. The estimated NOx emission reductions for each of the three phases are presented in Table 2-5.

Table 2-5
NOx Emission Reductions during Operational Phases

Phase	NOx Emission Reductions[a]	
	Replacement Flares[b]	**Beneficial Use Projects[a,e]**
Phase 2: Replacement of 13 Existing Flares	• 14.4 ~~15.8~~ lbs/day after the first flare is replaced • 187.2 ~~205.4~~ lbs/day after all 13 flares are replaced	None
Phase 3: 13 New Flares in Operation, Replacement of 7 Existing Flares and Construction of 5 Beneficial Use Projects to Divert Emissions from 5 Flares	• 187.2 ~~205.4~~ lbs/day from end of Phase 2 • Additional 100.8 ~~110.6~~ lbs/day after 7 more flares are replaced • Total: 288 ~~316.4~~ lbs/day after 20 flares total are replaced	• 26.7 lbs/day after emissions from one flare are diverted to the first beneficial use project • 133.5 lbs/day after 5 flares are replaced
Phase 4: Operation of 20 new flares and 5 Beneficial Use Projects	288 ~~316.4~~ lbs/day	133.5 lbs/day

Notes:
a. Phase 1 does not involve any NOx emission reductions and was not included in this table
b. Each compliance project is assumed to result in an average NOx emission reduction across all flares.
c. The average net NOx emission reductions per new replacement flares is 14.4 ~~15.8~~ lbs/day NOx (see Table 2-4)
d. Beneficial Use Projects are assumed to eliminate an average of 26.7 lbs/day of NOx emissions per flare.
e. This table only considers the NOx reductions from diverted emissions from flares that have been avoided through beneficial use projects. Operation of a CNG System and fuel cell would generate approximately 4.8 lbs/day NOx. See Table 2-9 for overall emissions after considering these impacts.

Construction and Operational Impacts

Criteria pollutant emissions were calculated for all off-road construction equipment and on-road vehicles transporting workers, vendors, and material removal and delivery during construction

using the California Emissions Estimator Model[12]® version 2016.3.2 (CalEEMod). The detailed output reports for the CalEEMod runs are included in Appendix B. The following tables present the results of the construction air quality analysis by phase. Appendix B also contains the spreadsheets with the results and assumptions used for this analysis.

Total operational emissions were estimated using CARB's EMFAC2017[13] for the following mobile sources: heavy-duty diesel fueled trucks used to transport compressed natural gas; light-duty gasoline-fueled passenger vehicles used for transport of workers for fuel cell and gas processing system service calls; and light-duty gasoline fueled passenger vehicles used for source testing trips. Additional operational emissions associated with fuel cell operation were calculated using available emission factors from a *Fuel Cell Energy Sure Source 1500* product specifications sheet[14].

Phase 1

Prior to the construction of new flares and fuel cell and gas processing, compression, and transport projects, fuel meter installations will occur. Because these activities are expected to be completed within the first 90 days after rule adoption, it is not expected that fuel meter installations will overlap with any construction activities associated with installing new flares or beneficial use projects.

Table 2-6 summarizes the peak daily emissions associated with installing fuel meters at all affected facilities. The air quality impacts due to construction do not exceed any significance threshold, thus the air quality construction impacts from Phase 1 is less than significant. Detailed calculations are found in Appendix C.

Table 2-6
Phase 1: Vehicular Construction Emissions from Fuel Meter Installations (pounds/day)[a, b]

	CO	NOx	VOC	SOx	PM10	PM2.5
Ten Delivery Trucks	1.4	2.1	0.3	0.0	0.1	0.1
Ten Worker Trips	1.6	0.1	0.2	0.0	0.0	0.0
Total	**3.0**	**2.2**	**0.5**	**0.0**	**0.2**	**0.1**
Significance Threshold for Construction	550	100	75	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:
a. Installation of one fuel meter will require one delivery truck roundtrip and one worker personal vehicle round trip per facility on a peak day.
b. All 10 facilities were assumed to install fuel meters on the same day.

[12] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects.
[13] The EMFAC emissions model is developed and used by CARB to assess emissions from on-road vehicles including cars, trucks, and buses in California. It should be noted that EMFAC2017 has not yet been approved by U.S. EPA but does provide the latest emission factors available. https://www.arb.ca.gov/msei/categories.htm#onroad_motor_vehicles
[14] Fuel Cell Energy, 2018. Sure Source 1500 Product Specification. Accessed October, 2018 at https://www.fuelcellenergy.com/products

Phase 2

During Phase 2, which is assumed to last for three years after rule adoption, construction will begin for the first 13 new flares. The analysis assumes that a maximum of seven flares, or roughly half of the flares for this phase will undergo construction concurrently, when taking into account the 3.5 year duration of Phase 2, and that flare replacement activities can take up to eight weeks per flare. As presented in Table 2-5, as each new flare is constructed and becomes operational during Phase 2, operational impacts in the form of NOx emission reductions will occur.

Table 2-7 summarizes the peak daily emissions associated with construction at all affected facilities during Phase 2. The air quality impacts due to construction do not exceed any significance threshold, thus the impact is expected to be less than significant. Further calculations are found in Appendix C.

Table 2-7
Phase 2: Peak Daily Construction Emissions by Pollutant (lb/day)

Activity	CO	NOx	VOC	SOx	PM10	PM2.5
Flare Replacement (1 New Flares Constructed on a Peak Day)	4.79	9.78	0.88	0.01	1.00	0.46
Significance Threshold for Construction	550	100	75	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Flare Replacement (7 New Flares Constructed on a Peak Day)[a]	33.55	68.44	6.13	0.07	7.03	3.20
Significance Threshold for Construction	550	100	75	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

a. The peak day for Phase 2 construction during the first 3.5 years is based on the assumption that 7 new flares will be simultaneously under construction.

Phase 3

During Phase 3, construction of the 13 new flares during Phase 2 will have been completed. By the time Phase 3 begins, the operation of these 13 new flares and the corresponding NOx emission reductions will be in effect. During Phase 3, construction of seven new flares and five CNG and fuel cell systems will occur. Given the two year duration of this phase, it is highly unlikely that all seven new flares will undergo construction on the same day as the construction of the five CNG and fuel systems. However, for the purpose of conducting a worst-case analysis to establish peak daily emissions, this analysis assumes that all of these construction activities will occur simultaneously.

Table 2-8 summarizes the peak daily emissions associated with construction and operations at all affected facilities during Phase 3. The air quality impacts due to construction do not exceed any significance threshold during Phase 3, thus less than significant air quality impacts during operation are expected during this phase. Further information and calculations are found in Appendix C.

Table 2-8
Phase 3: Peak Daily Construction and Operational Emissions by Pollutant (lb/day)

Activity	CO	NOx	VOC	SOx	PM10	PM2.5
Flare Replacement (1 Flare)	4.79	9.78	0.88	0.01	1.00	0.46
Fuel Cell and CNG System (1 Project)	8.28	11.17	1.12	0.01	0.49	1.04
NOx Emissions Reductions from Operating 1 Replacement Flare	0.0	-14.4 ~~15.8~~	0.0	0.0	0.0	0.0
Subtotal for 1 Flare Replacement, 1 Fuel Cell and CNG Systems, and 1 Operational Replacement Flare	**13.07**	**6.55** ~~**5.15**~~	**1.99**	**0.02**	**1.49**	**1.50**
Significance Threshold for Overlapping Construction and Operation[a]	550	55	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Flare Replacement (7 Flares)	33.55	68.44	6.13	0.07	7.03	3.20
Fuel Cell and CNG System (5 Project)	41.38	55.84	5.59	0.07	2.44	5.19
NOx Emissions Reductions from Operating 13 Replacement Flares	0.0	-187.2 ~~205.4~~	0.0	0.0	0.0	0.0
Total for 7 Flare Replacements, 5 Fuel Cell and CNG Systems, and 13 Operational Replacement Flares	**74.9**	**-62.9** ~~**81.1**~~	**11.7**	**0.1**	**9.5**	**8.4**
Significance Threshold for Overlapping Construction and Operation[a]	550	55	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Note:
a. When construction and operation phases overlap, the operational significance thresholds are applied instead of the construction significance thresholds.

Phase 4

During Phase 4, all construction activities will have been completed and all flares will have been replaced and all fuel cell and CNG systems will be up and running. Trucks will regularly transport CNG during this phase. In addition, maintenance of gas processing equipment will be conducted annually and source testing will occur every five years during Phase 4.

The total operational emissions were estimated using CARB's EMFAC2017[15] for the following mobile sources: heavy-duty diesel trucks used to transport compressed natural gas; light-duty gasoline-fueled passenger vehicles used for transport of workers for fuel cell and gas processing system service calls; and light-duty gasoline-fueled passenger vehicles used for source testing trips. Additional operational emissions associated with fuel cell operation were calculated using available emission factors from a Fuel Cell Energy Sure Source 1500 product specifications sheet[16].

[15] The EMFAC emissions model is developed and used by CARB to assess emissions from on-road vehicles including cars, trucks, and buses in California. It should be noted that EMFAC2017 has not yet been approved by U.S. EPA but does provide the latest factors developed. https://www.arb.ca.gov/msei/categories.htm#onroad_motor_vehicles

[16] Fuel Cell Energy, 2018. Sure Source 1500 Product Specification. Accessed October, 2018 at https://www.fuelcellenergy.com/products/

Table 2-9 summarizes the peak daily emissions associated with operation activities occurring during Phase 4. Additional details of the assumptions and spreadsheets can be found in Appendix C. Since the total emissions from operational activities during Phase 4 do not exceed any operational air quality significance thresholds, less than significant air quality impacts are expected during operation for this phase.

Table 2-9
Phase 4: Peak Daily Operational Emissions by Pollutant (lb/day)

Activity	CO	NOx	VOC	SOx	PM10	PM2.5
CNG Transport by Truck (One Round-trip)[a]	0.10	0.52	0.02	0.00	0.02	0.01
Fuel Cell Emissions (Operation of one 1.4MW Facility)[b]	NA[f]	1.7	NA[f]	0.0	0.0	0.0[f]
Fuel Cell/CNG System Maintenance Trips[c]	0.2	0.0	0.0	0.0	0.0	0.0
Source Testing Trips[c]	0.2	0.0	0.0	0.0	0.0	0.0
NOx Emissions Reductions from Diverting Flaring to One Beneficial Use Project	0.0	-26.7	0.0	0.0	0.0	0.0
NOx Emissions Reductions from Operating One New flare	0.0	-14.4 ~~15.8~~	0.0	0.0	0.0	0.0
Subtotal	**0.4**	**-38.9 ~~40.3~~**	**0.1**	**0.0**	**0.0**	**0.0**
CNG Transport by 43 Trucks (Operation)	4.44	22.25	0.88	0.06	0.72	0.47
Fuel Cell Emissions (Operation of five 1.4MW Facilities)	NA[f]	1.7	NA[f]	0.0	0.0	0.0[f]
Fuel Cell/CNG System Maintenance Trips[c]	0.2	0.0	0.0	0.0	0.0	0.0
Source Testing Trips[c]	0.2	0.0	0.0	0.0	0.0	0.0
NOx emissions reductions from diverting flaring to 5 Beneficial Use Projects[d]	0.0	133.5	0.0	0.0	0.0	0.0
NOx emissions reductions from operating 20 new flares[e]	0.0	288 ~~316.4~~	0.0	0.0	0.0	0.0
Total (with NOx Reductions Included)	**0.4**	**-461.8 ~~490.2~~[g]**	**0.1**	**0.0**	**0.0**	**0.0**
Significance Threshold for Operation	550	55	55	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:
a. CNG transport assumes that heavy-duty diesel truck trips will travel 40 miles round-trip per day.
b. Fuel cell operation assumes 1.4 MW facilities operating 24 hours per day. The following emission factors were used to calculated emissions: 0.01 lb/day NOx, 0.0001 lb/day SOx, and 0.00002 lb/day PM10 per MWh.
c. Each fuel cell/CNG system maintenance trip and source test trip will require one passenger vehicle trip on a peak day. A peak day assumes one of each trip total.

d. Beneficial use projects are assumed to avoid all NOx emissions from 5 existing flares. The net NOx emission reductions are estimated at an average of 26.7 pounds/day per flare. Emission reductions of other criteria pollutants were not quantified.
e. 20 Flares are assumed to have been replaced with new low-NOx flares by the time peak operations during Phase 4 occur. Flare replacements were estimated in Table 2-4 to reduce NOx emissions by 15.8 lbs/day per flare. Emission reductions of other criteria pollutants were not quantified.
f. N/A indicates emission factors were not available. They are assumed to equal 0. PM2.5 was assumed to equal the available PM10 emission factor.
g. This rule is expected to reduce NOx emissions by ~~396~~ 360pounds/day (0.18 ~~0.2~~ ton/day). NOx emissions could be greater if flaring is diverted to beneficial use projects rather than new flares.

None of the emissions during construction only, operation only, or construction and operational overlap periods exceed the SCAQMD's CEQA air quality significance thresholds. Therefore, the air quality impacts from construction and operation are considered to be less than significant. The proposed project is not expected to result in significant adverse air quality impacts.

III. c) Less Than Significant Impact.

Cumulatively Considerable Impacts

Based on the foregoing analysis, since criteria pollutant project-specific air quality impacts from implementing PR 1118.1 would not be expected to exceed the air quality significance thresholds in Table 2-1, cumulative air quality impacts are also expected to be less than significant. SCAQMD cumulative significance thresholds are the same as project-specific significance thresholds. Therefore, potential adverse impacts from implementing PR 1118.1 would not be "cumulatively considerable" as defined by CEQA Guidelines Section 15064(h)(1) for air quality impacts. Per CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

The SCAQMD's guidance on addressing cumulative impacts for air quality is as follows: "As Lead Agency, the SCAQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR." "Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."[17]

This approach was upheld by the Court in *Citizens for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal. App. 4th 327, 334. The Court determined that where it can be found that a project did not exceed the SCAQMD's established air quality significance thresholds, the City of Chula Vista properly concluded that the project would not cause a significant environmental effect, nor result in a cumulatively considerable increase in these pollutants. The court found this determination to be consistent with CEQA Guidelines Section 15064.7, stating, "The lead agency may rely on a threshold of significance standard to determine whether a project will cause a significant environmental effect." The court found that, "Although

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

the project will contribute additional air pollutants to an existing non-attainment area, these increases are below the significance criteria…" "Thus, we conclude that no fair argument exists that the Project will cause a significant unavoidable cumulative contribution to an air quality impact." As in *Chula Vista*, here the SCAQMD has demonstrated, when using accurate and appropriate data and assumptions, that the project will not exceed the established SCAQMD significance thresholds. See also, *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal. App. 4th 899. Here again the court upheld the SCAQMD's approach to utilizing the established air quality significance thresholds to determine whether the impacts of a project would be cumulatively considerable. Thus, it may be concluded that the proposed project will not contribute to a significant unavoidable cumulative air quality impact.

III. d) Less Than Significant Impact. Diesel powered vehicles will be utilized during construction of new flares and beneficial use projects. Diesel particulate matter is considered a carcinogenic and chronic toxic air contaminant (TAC). The construction activities are expected to be completed within six months at each of the affected facilities; thus, a Health Risk Assessment (HRA) was not conducted, which is consistent with the Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual (2015)[18]. The analysis in Section III b) and f) concluded that the quantity of pollutants that may be generated from implementing the proposed project would be less than significant during construction, operation, and the construction and operation overlap period. Furthermore, though CNG transport trucks were modeled as heavy-duty diesel using most conservative EMFAC 2017 emission factors in Section III b) and f), these transport trucks are actually likely to be fueled by natural gas, instead of diesel fuel. Thus, the quantity of emissions from these transport truck activities as presented in Table 2-9 likely overestimate the air quality impacts. Even so, because the emissions from all activities that may occur as part of implementing PR 1118.1 are at less than significant levels, the emissions that may be generated from implementing the proposed project would not be substantial, regardless of whether sensitive receptors are located near the affected facilities. Therefore, PR 1118.1 is not expected to generate significant adverse TAC impacts from construction or expose sensitive receptors to substantial pollutant concentrations.

III. e) Less Than Significant Impact.

Odor Impacts

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

During construction and operation, diesel-fueled equipment and vehicles will be operated. However, the diesel fuel is required to have a low sulfur content (e.g., 15 ppm by weigh or less) in accordance with SCAQMD Rule 431.2 – Sulfur Content of Liquid Fuels[19], thus the fuel is expected to minimize odor. The operation of construction equipment will occur within the confines of existing affected facilities. It would be expected sufficient dispersion of diesel emissions over

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

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

distance generally occurs such that odors associated with diesel emissions may not be discernable to off-site receptors, depending on the location of the equipment and its distance relative to the nearest off-site receptor. The diesel trucks that will be operated on-site as a part of construction activities will not be allowed to idle longer than five minutes per any one location in accordance with the CARB idling regulation[20], so odors from these vehicles would not be expected. In addition, construction activities with installing new flares and beneficial use projects would be temporary and occur over a short period of time. Though CNG transport would require additional trucks on sites which set up a CNG system, it should be noted that these trucks are expected to be fueled by natural gas, rather than diesel, as previously explained in Section III d). The additional operation of trucks that may be needed to conduct source tests and facility maintenance activities such as filter replacements, etc. would be intermittent and occur over a relatively short period of time. For these reasons, the proposed project would not be expected to generate diesel exhaust odor greater than what is already typically present at the affected facilities. Thus, PR 1118.1 is not expected to create significant adverse objectionable odors during construction or operation. Since no significant impacts were identified for this issue, no mitigation measures for odors are necessary or required.

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

Greenhouse Gas (GHG) Impacts

Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of GHG emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities, appears to be closely associated with global warming. State law defines GHG to include the following: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6) (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[21].

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

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

[21] 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.

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.

The SCAQMD convened a "Greenhouse Gas CEQA Significance Threshold Working Group" to consider a variety of benchmarks and potential significant thresholds to evaluate GHG impacts. On December 5, 2008, the SCAQMD adopted an interim CEQA GHG Significance Threshold for projects where the SCAQMD is the lead agency (SCAQMD 2008). This GHG interim threshold is set at 10,000 metric tons (MT) of CO2 equivalent emissions (CO2e) per year. Projects with incremental increases below this threshold will not be cumulatively considerable. GHG emission impacts from the implementation of PR 1118.1 were calculated at the project-specific level during construction and operational activities.

Table 2-10 summarizes the GHG analysis which shows that PR 1118.1 may result in the generation of 4,863 MT per year of CO2e emissions, which is less than the CEQA significance threshold for GHG emissions. The detailed calculations of GHG emissions can be found in Appendix C.

Table 2-10
Greenhouse Gas Emissions from Affected Facilities

Activity	**CO2e (MT/yr)**
Fuel Meter Installation[a,b]	0.02
Flare Replacement Construction[a]	0.46
CNG and Fuel Cell System Construction[a]	1.17
CNG Transport Truck Trips[c]	1024
Fuel Cell Service Trips[d]	0.07
Source Testing Trips[e]	0.52 ~~0.41~~
Fuel Cell Operation (natural gas)[f]	27,282
Subtotal	28,309
Emissions Avoided by Not Flaring[g]	23,446
Total Emissions	**4,863**
Significance Threshold	10,000
Significant?	**No**

Notes:
a. Flare Replacement, CNG and Fuel Fell System Installation, and Fuel Meter Installation project GHGs are amortized over 30 years.
b. The calculation for fuel meter installations assumes 10 40-mile passenger and delivery round trips each.
c. The calculation for CNG Transport assumes 43 daily 40-mile heavy-duty diesel-fueled truck trips.
d. The calculation for Fuel Cell Service Trips assumes 5 40-mile passenger round trips per year.
e. The calculation for Source Testing Trips assumes ~~28~~ 36 40-mile passenger round trips per year.
f. The calculation for Fuel Cell Operation is assumed to produce 980 lbs/MW of NOx emissions, based on constant operation using natural gas as a fuel with a heating value of 930 Btu/scf. Fuel Cell Energy, 2018. Sure Source 1500 Product Specification. Accessed October 2018 at: https://www.fuelcellenergy.com/products
g. The calculation of natural gas combustion relies on the GHG emission factor of 53 kg CO2e/MMBtu according to US EIA[22].

[22] United States Energy Information Administration. Carbon Dioxide Emission Coefficients. February 2016. Accessed October 2018 at: https://www.eia.gov/environment/emissions/co2_vol_mass.php

As shown in Table 2-10, the CEQA GHG significance threshold for industrial sources would not be exceeded. For this reason, implementing the proposed project would not be expected to generate significant adverse cumulative GHG air quality impacts. Further, as noted in Section III. a), implementation of PR 1118.1 would not be expected to conflict with an applicable plan, policy or regulation adopted for the purpose of reducing criteria pollutants and the same is true for GHG emissions. Therefore, GHG impacts from implementing PR 1118.1 are less than significant.

Conclusion

Based upon these considerations, significant air quality and GHG emissions impacts are not expected from implementing PR 111.81. Since no significant air quality and GHG emissions impacts were identified, no mitigation measures are necessary or required.

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

Significance Criteria

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

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

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

IV. a), b), c), & d) No Impact. Implementation of PR 1118.1 would occur at existing affected facilities, which are located in industrial areas. Thus, PR 1118.1 is not expected to adversely affect in any way habitats that support riparian habitat, federally protected wetlands, or migratory corridors. Similarly, special status plants, animals, or natural communities identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service are not expected to be found on or in close proximity to affected facilities. Therefore, PR 1118.1 would have no direct or indirect impacts that could adversely affect plant or animal species or the habitats on which they rely. PR 1118.1 does not require the acquisition of additional land or further conversions of riparian habitats or sensitive natural communities where endangered or sensitive species may be found. In addition, any construction from the implementation of PR 1118.1 would take place at the existing facilities and would not occur on or near a wetland or in the path of migratory species.

IV. e) & f) No Impact. The proposed project is not expected to conflict with local policies or ordinances protecting biological resources or local, regional, or state conservation plans, because land use and other planning considerations are determined by local governments and no land use or planning requirements would be altered by implementation of PR 1118.1. Additionally, PR 1118.1 would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other relevant habitat conservation plan, and would not create divisions in any existing communities because compliance with PR 1118.1 would occur at existing facilities

in previously disturbed areas which are not typically subject to Habitat or Natural Community Conservation Plans.

Conclusion

Based upon these considerations, significant biological resource impacts are not expected from implementing PR 1118.1. Since no significant biological resource impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
V.	**CULTURAL RESOURCES.** Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5?	☐	☐	☐	☑
c)	Directly or indirectly destroy a unique paleontological resource, site, or feature?	☐	☐	☐	☑
d)	Disturb any human remains, including those interred outside formal cemeteries?	☐	☐	☐	☑
e)	Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074?	☐	☐	☐	☑

Significance Criteria

Impacts to cultural resources will be considered significant if:

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

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (landfill, digester, produced) and the type of flare equipment (open flare versus a shrouded flare). PR 1118.1 provides exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and record keeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require flare replacement to reduce emissions, or alternative projects to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would require additional source testing to meet

source testing requirements; and 10 would require flow meters to comply with monitoring requirements.

V. a) No Impact. There are existing laws in place that are designed to protect and mitigate potential impacts to cultural resources. For example, CEQA Guidelines 15064.5(a)(3) states that generally, a resource shall be considered "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources, which include the following:

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

Buildings, structures, and other potential culturally significant resources that are less than 50 years old are generally excluded from listing in the National Register of Historic Places, unless they are shown to be exceptionally important. Structures that may be affected by PR 1118.1 are existing flares, used for industrial purposes, and would generally not be considered to be historically significant, since they would not have any of the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values. Furthermore, source testing activities would have no effect on historic resources. Therefore, PR 1118.1 is not expected to cause any impacts to significant historic cultural resources.

V. b), c), & d) No Impact. Construction-related activities and source testing are expected to be confined within the affected existing industrial facilities with the implementation of PR 1118.1. Thus, PR 1118.1 is not expected to require physical changes to the environment which may disturb paleontological or archaeological resources. Furthermore, it is envisioned that these areas are already either devoid of significant cultural resources or whose cultural resources have been previously disturbed. Therefore, PR 1118.1 has no potential to cause a substantial adverse change to a historical or archaeological resource, directly or indirectly to destroy a unique paleontological resource or site or unique geologic feature, or to disturb any human remains, including those interred outside formal cemeteries. Implementing PR 1118.1 is, therefore, not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources.

V. e) No Impact. Construction-related activities and operational activities such as source testing are expected to be confined within the affected existing industrial facilities with the implementation of PR 1118.1. Therefore, no impacts to historical or cultural resources are anticipated to occur. PR 1118.1 is not expected to require physical changes to a site, feature, place, cultural landscape, sacred place or object with cultural value to a California Native American Tribe. Furthermore, PR 1118.1 is not expected to result in a physical change to a resource determined to be eligible for inclusion or listed in the California Register of Historical Resources or included in a local register of historical resources. For these reasons, PR 1118.1 is not expected to cause any substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074.

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

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

Conclusion

Based upon these considerations, significant adverse cultural resources impacts are not expected from implementing PR 1118.1. Since no significant cultural resources impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
VI.	**ENERGY.** Would the project:				
a)	Conflict with adopted energy conservation plans?	☐	☐	☐	☑
b)	Result in the need for new or substantially altered power or natural gas utility systems?	☐	☐	☑	☐
c)	Create any significant effects on local or regional energy supplies and on requirements for additional energy?	☐	☐	☑	☐
d)	Create any significant effects on peak and base period demands for electricity and other forms of energy?	☐	☐	☑	☐
e)	Comply with existing energy standards?	☐	☐	☐	☑

Significance Criteria

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

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

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

VI. a) & e) No Impact. PR 1118.1 is not expected to conflict with any adopted energy conservation plans or violate any energy conservation standards because existing facilities would be expected to continue implementing any existing energy conservation plans that are currently in place regardless of whether PR 1118.1 is implemented. Any energy resources that may be necessary to replace existing flares with lower emitting flares, would be used to achieve reductions in NOx, and VOC emissions, and therefore, would not be using non-renewable resources in a wasteful manner. Additionally, any energy resources needed to install fuel meters and conduct source testing would be used to verify emissions reductions, and would not be a wasteful use of non-renewable resources. Furthermore, because PR 1118.1 encourages alternatives to flaring, such as using the flare gases in a beneficial manner (e.g., for energy production), PR 1118.1 will actually create additional opportunities for utilizing renewable energy. For these reasons, PR 1118.1 is not expected to conflict with energy conservation plans or existing energy standards, or use non-renewable resources in a wasteful manner.

VI. b), c), & d) Less Than Significant Impact. PR 1118.1 applies to non-refinery flares which combust gases from landfills, wastewater treatment gas, produced gas, and other gases. These gases are not currently used as an energy source but they could be under PR 1118.1, if facilities choose to decrease flare gas throughput via beneficial use projects such as fuel cells and gas processing, compression, and transport. The additional energy supplies will made available to the region in the form of electricity from fuel cells, or natural gas from the CNG system projects. Though overall, PR 1118.1 could potentially increase electricity supply generated from renewable resources, minor electricity consumption increases will also be expected to occur because any new flares that will be installed will also need electric fans to provide enough air to ensure proper combustion and to achieve lower NOx emissions. Because of these additional fans, new flare installations will create a slight increase in electricity demand compared to the existing flares that currently operate without fans. Additionally the installation of 10 new fuel meters will create minor electricity demands at existing facilities. The projected increased electricity demands that may result from PR 1118.1 are presented in Table 2-11.

Table 2-11
Operational Increases in Electricity Demand

Equipment	Annual Energy Demand (GW-h)[g]
Fuel Meters[a,c]	0.0005
Replacement Flare Fans[b,c]	5.2560
Total	**5.2565**
SCAQMD Basin Electricity End Use Consumption[d,e]	120,210
Total Impact % of Capacity[f]	0.0044%
Significant?	**No**

Notes:
a. The analysis assumes that fuel meters consume 6 watts of electricity, based on Fox Thermal Flow Meter Specs: https://www.foxthermal.com/products/ft1.php
b. The calculations assume that air blower fans that are installed in new flares consume 30 kilowatts of electricity, based on the Aereon CEB-800CA product specifications sheet: http://www.aereon.com/sites/default/files/enclosed_combustion_systems%20-%20CEB%20800%20CA_Product%20Sheet%20FINAL.pdf
c. Fuel meters and replacement flare fans are assumed to operate continuously according to the following equation. Demand = 365 days/yr * 24 hr/day * power consumption rate (watts or kilowatts).
d. 2016 Draft Final SCAQMD Chapter 10, 2012 Electricity use in gigawatt-hour (GW-h), (http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/draft-final-aqmp/strikeout/11ch10-draft-final-120116.pdf).
e. The energy supply is assumed to be equal to energy consumption.
f. SCAQMD's energy threshold for both types of fuel used is 1 percent of supply.
g. GW-h = gigawatt-hour which is equivalent to 1,000 megawatt hours

To implement the physical modifications outlined in Table 2-2, diesel fuel is expected to be needed to operate off-road construction equipment and on-road vehicles (passenger vehicles and trucks) during construction. Gasoline and diesel fuel would be also needed to operate on-road vehicles (passenger vehicles and trucks) during operation. CNG transport trucks will likely be powered by natural gas, potentially directly from the facilities if proper equipment is installed. In this analysis, the energy demands are considered scenarios in which these CNG transport trucks are powered either by diesel or natural gas. The following sections evaluate the various types of energy sources that may be affected by implementing PR 1118.1.

Construction
During construction, diesel fuel will be consumed by portable construction equipment (e.g., welders, forklifts, and etc.) needed to replace flares or install beneficial use projects, gasoline will be consumed by construction workers' vehicles, and additional diesel fuel will be consumed vendor or haul trucks traveling to and from each affected facility.

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

CalEEMod version 2016.3.2 was used to calculate construction emissions which was determined from the default trip lengths for construction worker commute trips (e.g., 29.4 miles per worker round trip to/from the construction site per day) and vendor trips (e.g., 14.7 miles per vendor round trip to/from the construction site per day). Source testing trips, fuel meter installation trips, and CNG transport trips were assumed to be 40 miles. The fuel usage per vehicle used during

construction round trips was then calculated by taking the CalEEMod output and assuming that each: 1) construction workers' and source testers' gasoline-fueled passenger vehicle would get a fuel economy rate of approximately 21 miles per gallon (mpg); 2) vendor diesel truck would get a fuel economy rate of approximately 6.6 mpg; and 3) CNG transport diesel truck would get a fuel economy rate of approximately 5.9 mpg or 5.3 miles diesel gallon equivalent if operating on natural gas. Table 2-12 summarizes the projected fuel use impacts associated with construction activities. Detailed calculations of fuel usage may be found in Appendix C.

Table 2-12
Total Projected Fuel Usage for Construction Activities

Fuel Type	Year 2017 Basin Estimated Fuel Demand (mmgal/yr)[a]	Construction Fuel Usage (mmgal/year)[b]	Total Increase Above Baseline[c]	Significant
Diesel	775	0.00033	0.00004%	No
Gasoline	7,086	0.00088	0.00001%	No

Notes:

a. California Annual Retail Fuel Outlet Report Results (CEC-A15) Spreadsheets, 2017 California Energy Commission (http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). [Accessed October 12, 2018.]

b. Estimated peak fuel usage from construction activities. Diesel usage estimates are based on the usage of portable construction equipment and vendor trips. Gasoline usage estimates are derived from construction workers' vehicle daily trips to and from work.

c. SCAQMD's energy threshold for both types of fuel used is 1% of fuel supply.

The 2017 California Annual Retail Fuel Outlet Report Results from the California Energy Commission (CEC) show that 775 million gallons of diesel and 7,086 million gallons of gasoline were consumed in 2017 in the Basin. Thus, even if an additional 882 gallons of diesel and 332 gallons of gasoline are consumed during construction, the fuel usages are 0.00004% and 0.00001% above the 2017 baseline for diesel and gasoline, respectively, and both projected increases are well below the SCAQMD's significance threshold for fuel supply. Thus, no significant adverse impact on fuel supplies would be expected during construction.

Operation - Fuel Use from Vehicles

Once construction is completed, additional vehicle trips and fuel use are expected to be needed from the following activities during operation: truck trips to transport compressed natural gas; truck trips for source testing every five years at ~~28~~ 36 facilities; and annual truck trips to service CNG and fuel cell system equipment at five facilities. Two scenarios were evaluated for transport of compressed natural gas, heavy-duty diesel trucks, and heavy-duty natural gas powered trucks. The projected fuel demand during operation is presented in Table 2-13.

Table 2-13
Total Projected Fuel Usage for Operation Activities, Two Scenarios

Scenario	Fuel Type	Year 2017 Estimated Fuel Demand (mmgal/yr)[a]	Fuel Usage (mmgal/year)	Total Increase Above Baseline	Significant[b]
1: CNG transport trucks fueled by diesel	Gasoline	7,086	0.00006	0.000001%	No
	Diesel	775	0.11	0.014%	No
	Natural Gas[c]	18	0	0%	No
2: CNG transport trucks fueled by natural gas	Gasoline	7,086	0.00006	0.000001%	No
	Diesel	775	0	0%	No
	Natural Gas[c]	18	0.12	0.65%	No

Notes:
a. California Annual Retail Fuel Outlet Report Results (CEC-A15) Spreadsheets, 2017 California Energy Commission (http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html). [Accessed October 24, 2018.]
b. SCAQMD's energy threshold for fuel used is 1% of fuel supply.
c. Natural gas consumption for California was 45.61 gasoline equivalent gallons. It was assumed that the South Coast Basin uses 40% of the total natural gas supply, as it uses 40% of the states diesel supply. See Appendix C for detailed calculations.

Operational gasoline truck usage is only expected to consume about 63 gallons of gasoline, approximately 0.000001% of the annual gasoline supply. Diesel operated heavy duty truck usage could consume 106,407 gallons of diesel, which is only 0.014% of the annual diesel supply, well under the SCAQMD significance threshold. Alternatively, if CNG transport trucks are powered by natural gas, they could use 118,453 gasoline gallon equivalents. This is potentially 0.65% of the South Coast Basin's annual natural gas vehicular consumption for 2017, which is still under the 1% significance threshold. However, there are much greater stores of natural gas beyond the fuel consumption by vehicles, so a greater supply of natural gas could be made available for vehicles, decreasing the risk of significance. Furthermore, with proper equipment, it is possible to power the CNG transport trucks with the very same gas they carry. If this were the case, operation of these CNG transport trucks would not deplete any of the South Coast Basin's natural gas supply.

Based on the foregoing analyses, the construction and operational-related activities associated with the implementation of PR 1118.1 would not use energy in a wasteful manner and would not result in substantial depletion of existing energy resource supplies, create a significant demand of energy when compared to existing supplies. Thus, there are no significant adverse energy impacts associated with the implementation of PR 1118.1.

Conclusion

Based upon these considerations, significant adverse energy impacts are not expected from implementing PR 1118.1. Since no significant energy impacts were identified, no mitigation measures are necessary or required.

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

Significance Criteria

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

- Topographic alterations would result in significant changes, disruptions, displacement, excavation, compaction or over covering of large amounts of soil.
- Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed project.

- Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction or landslides.
- Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.
- Other geological hazards exist which could adversely affect the facility, e.g., landslides, mudslides.

Discussion
PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

VII. a) No Impact. PR 1118.1 would result in construction activities and source testing at existing affected facilities located in developed industrial settings. Affected facilities are expected to install replacement flares near current existing flares on developed project sites, such that only minor site preparation is anticipated. Further, the proposed project does not cause or require a new facility to be constructed, however facilities may choose to reduce flare gas throughput with alternative beneficial use projects such as the installation of a fuel cell and gas processing, compression, and transport system. Nevertheless, this type of project would only be considered if it were feasible and cost-effective given the current site conditions. A fuel cell project would likely need to be sited on previously cleared, geologically inactive, and stable land, and would not require substantial site preparation. Therefore, PR 1118.1 is not expected to significantly adversely affect geophysical conditions in the SCAQMD.

Southern California is an area of known seismic activity. As part of the issuance of building permits, local jurisdictions are responsible for assuring that the Uniform Building Code is adhered to and can conduct inspections to ensure compliance. The Uniform Building code is considered to be a standard safeguard against major structural failures and loss of life. The basic formulas used for the Uniform building Code seismic design require determination of the seismic zone and site coefficient, which represents the foundation condition at the site. The Uniform Building Code requirements also consider liquefaction potential and establish stringent requirements for building foundations in areas potentially subject to liquefaction. The replacement of up to 25 flares would be expected to conform to the Uniform Building Code and all other applicable state and local building codes. Structures must be designed to comply with the Uniform Building Code Zone 4 requirements if they are located in a seismically active area. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. Thus, PR

1118.1 would not alter the exposure of people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. Furthermore, as the structures considered are flares, no people would be inside of the flare shrouding structure, except for repairs, which would be extremely infrequent. As a result, substantial exposure of people or structures to the risk of loss, injury, or death involving the rupture of an earthquake fault, seismic ground shaking, ground failure or landslides is not anticipated.

VII. b) Less than Significant Impact. Since 1118.1 may result in the construction of new flares and beneficial use projects such the installation of a fuel cell and gas processing, compression, and transport system, such that construction activities such as minor grading may be necessary to prepare a level foundation. As such, minimal, temporary erosion resulting from grading activities may be expected if soil stabilizers are not used. However, these grading activities and any associated temporary erosion that may occur are expected to be relatively minimal since the existing facilities have previously been graded and paved, and construction is expected to occur on flat areas of the facilities, near existing industrial equipment. Furthermore, a project like this would only be considered if it were feasible given the current site conditions. Since source tests and fuel meter installations would only require the minimal use of equipment, these activities would not be expected to create erosion or contribute to the loss of topsoil. For these reasons, no unstable earth conditions or changes in geologic substructures are expected to result from implementing PR 1118.1. Therefore, impacts to the loss of topsoil and soil erosion are less than significant.

VII. c) Less than Significant Impact. Since PR 1118.1 will affect existing facilities, it is expected that the soil types present at the affected facilities will not be made further susceptible to expansion or liquefaction. Furthermore, subsidence is not anticipated to be a problem since only minor construction for flare replacement or fuel cell and gas compression and transport projects is expected to occur at affected facilities. The areas where the existing facilities are located are not envisioned to be prone to new landslide impacts or have unique geologic features since the existing facilities are currently operational. Though some facilities such as landfills are located in foothill, mountain, or canyon regions with steep slopes, construction is expected to occur only in developed and previously graded areas. Thus, the proposed project would not be expected to increase or exacerbate any existing risks at the affected facility locations. Implementation of PR 1118.1 would not require locating facilities on a geologic unit or soil that is unstable or that would become unstable as a result of the project; therefore, it would not be expected to potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. As such, no impacts to this topic area are anticipated.

VII. d) & e) No Impact. The implementation of PR 1118.1 includes replacing flares, potentially constructing beneficial use projects, conducting source testing, and installing fuel meters. These activities are expected to be confined within the affected existing industrial facilities. Further, PR 1118.1 would not require the installation of septic tanks or other alternative wastewater disposal systems since each affected facility would be expected to have an existing sewer system. Therefore, no persons or property will be exposed to new impacts related to expansive soils or soils incapable of supporting water disposal. Thus, the implementation of PR 1118.1 will not adversely affect soils associated with a installing a new septic system or alternative wastewater disposal system or modifying an existing sewer.

Conclusion

Based upon these considerations, significant adverse geology and soils impacts are not expected from the implementation of PR 1118.1. Since no significant geology and soils impacts were identified, no mitigation measures are necessary or required.

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

Significance Criteria

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

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

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

VIII. a) & b) Less than Significant Impact. PR 1118.1 will reduce emissions of NOx and VOCs and in turn, reduce the potential for the public and the environment to be exposed to these compounds. The purpose of flares and the partial purpose of beneficial use projects which use flare gas to create energy is to oxidize VOCs into carbon dioxide and water. This effectively reduces hazardous impacts of flare gas. NOx emissions will decrease when replacement flares are installed or if clean alternative beneficial use projects such as fuel cells are implemented.

There are no requirements in PR 1118.1 that would require facilities to change their current hazardous waste handling practices. Thus, no new significant hazards are expected to the public or environment through the continued routine operations at non-refinery flares. However, if a facility operator chooses to install a gas processing, compression, and transport system using trucks to transport compressed natural gas, this will increase the amount of hazardous material transported. Natural gas is considered highly flammable. Additionally, natural gas can cause irritation, dizziness, or asphyxiation if inhaled in high enough concentrations. Compressed natural gas is routinely transported without incident. Though additional compressed natural gas truck trips may occur as a result of PR 1118.1, drivers and operators will be required to comply will all appropriate safety precautions, no release of hazardous materials would be expected to occur through a reasonable foreseeable upset condition.

For the reasons described above, PR 1118.1 is not expected to create a new significant hazard to the public or environment through routine use and transport or hazardous materials, nor reasonably foreseeable upset conditions involving the release of hazardous materials into the environment.

VIII. c) Less than Significant Impact. Of the ~~146~~ 153 facilities expected to be affected by this rule, there are five facilities located within one-quarter mile of a school. None of these facilities are expected to undergo physical modifications including flare replacement or alternative beneficial use projects as a result of this rule. These facilities and their proximities to schools are identified in Appendix D. PR 1118.1, if adopted, will reduce exposure to NOx, VOCs, and CO by setting stricter emission limits for flares. PR 1118.1 does not include new requirements of alter existing requirements for hazardous waste disposal. For this reason, all ~~146~~ 153 facilities, including the five that are located within one-quarter mile of a school, are expected to continue to take the appropriate and required actions to ensure proper handling of existing quantities of hazardous or acutely hazardous materials, substances or wastes that are currently generated.

VIII. d) No Impact. Government Code Section 65962.5 refers to hazardous waste handling practices at facilities subject to the Resources Conservation and Recovery Act (RCRA). One of the ~~146~~ 153 facilities, BKK landfill, presented in Appendix D, is identified on lists of California Department of Toxics Substances Control (DTSC) hazardous waste facilities per Government Code Section 65962.5. Subsequent to the release of the Draft EA for public comment and review, additional facilities were added to the list in Appendix D and five of these were identified as California DTSC hazardous waste facilities. No physical impacts are expected to occur at the facility initially identified in the Draft EA or the five additional facilities identified in this Final EA as a result of PR 1118.1. As such, there will be no additional public health hazard from this rule. Implementation of PR 1118.1 is not expected to interfere with existing hazardous waste management programs since facilities handling hazardous waste would be expected to continue to manage any and all hazardous materials and hazardous waste, in accordance with applicable federal, state, and local rules and regulations. Therefore, compliance with PR 1118.1 would not create a new significant hazard to the public or environment.

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

While there are 14 of ~~146~~ 153 facilities as identified in Appendix D that are located within two miles of an airport, of the 16 facilities which are expected to require flare replacements or alternative beneficial use projects, none are located within two miles of an airport. Furthermore, flare replacement projects and alternative projects such as fuel cell systems are not expected to exceed 24 feet in height, which is well below the 200 feet limit specified in 14 CFR Part 77. Furthermore, source testing is not expected to impact airports in any way. Therefore, implementation of PR 1118.1 is not expected to increase or create any new safety hazards to peoples working or residing in the vicinity of public/private airports.

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

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

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

Emergency response plans are typically prepared in coordination with the local city or county emergency plans to ensure the safety of not only the public (surrounding local communities), but the facility employees as well. The proposed project would not impair the implementation of, or physically interfere with any adopted emergency response plans or emergency evacuation plans that may be in place at existing facilities. The flare replacements or possible beneficial use projects in accordance with PR 1118.1 may require an update of each affected facility's existing emergency response plan to reflect the physical modifications; however, the act of modifying an emergency response plan to reflect these anticipated building modifications will not create any environmental impacts. Therefore, PR 1118.1 is not expected to impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

VIII. g) No Impact. The facilities affected by PR 1118.1 are typically located in existing industrial use areas and are not located near wildlands. However some facilities, mainly landfills are located in foothills or canyon areas. No provision of PR 1118.1 would require expansion of facilities outside current site boundaries. Any new construction activities and source testing activities would be expected to occur onsite in developed areas. These activities would not disturb existing wildlands, nor increase the risk of fire in wildlands. Therefore, PR 1118.1 is not expected to be significant for exposing people or structures to risk of loss, injury or death involving wildland fires.

VIII. h) Less Than Significant Impact. The Uniform Fire Code and Uniform Building Code set standards intended to minimize risks from flammable or otherwise hazardous materials. Local jurisdictions are required to adopt the uniform codes or comparable regulations. Local fire agencies require permits for the use or storage of hazardous materials and permit modifications for proposed increases in their use. Permit conditions depend on the type and quantity of the hazardous materials at the facility. Permit conditions may include, but are not limited to, specifications for sprinkler systems, electrical systems, ventilation, and containment. The fire departments make annual business inspections to ensure compliance with permit conditions and other appropriate regulations. Further, businesses are required to report increases in the storage or use of flammable and otherwise hazardous materials to local fire departments. Local fire departments ensure that adequate permit conditions are in place to protect against the potential risk of upset. PR 1118.1 would not change the existing requirements and permit conditions for the proper handling of flammable materials. Further, PR 1118.1 does not contain any requirements that would prompt facility owners/operators to begin using new flammable materials. In addition, the National Fire Protection Association has special designations for deflagrations (e.g., explosion prevention) when using materials that may be explosive. Therefore, operators of facilities that process and combust natural gas and other flare gases are already required to have reliable, economical and effective means of explosion. Additional information pertaining to these types of protective measures is available in Chapter 8 of the *Industrial Ventilation, A Manual for Recommended Practice for Design*, 28th Edition, published by the American Conference of Governmental Industrial Hygienists, ©2013.

Conclusion

Based upon these considerations, significant adverse hazards and hazardous materials impacts are not expected from implementing PR 1118.1. Since no significant hazards and hazardous materials impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
IX.	**HYDROLOGY AND WATER QUALITY.** Would the project:				
a)	Violate any water quality standards, waste discharge requirements, exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, or otherwise substantially degrade water quality?	☐	☐	☑	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☑	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in substantial erosion or siltation on- or off-site or flooding on- or off-site?	☐	☐	☐	☑
d)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☑
e)	Place housing or other structures within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, which would impede or redirect flood flows?	☐	☐	☐	☑

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
f)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑
g)	Require or result in the construction of new water or wastewater treatment facilities or new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☑	☐
h)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☑	☐
i)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑	☑

Significance Criteria

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

Water Demand:

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

Water Quality:

- The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.
- The project will cause the degradation of surface water substantially affecting current or future uses.

- The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.
- The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.
- The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.
- The project results in alterations to the course or flow of floodwaters.

Discussion
PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

IX. a), b), g), h), &i) Less than Significant Impact. PR 1118.1 contains no requirements regarding the new usage of water or the new generation of wastewater, though water may be used and wastewater generated through normal existing operations at facilities which operate flares. Flares do not require water to operate, nor do they generate wastewater during normal operations, though a small amount of wastewater may be generated if moisture removal is used on the flare gas. Additionally, source testing and installation of fuel meters is not expected to require any water nor generate any wastewater. However, beneficial use projects from landfill gas and biogas typically require moisture removal before the gas can be used in equipment such as fuel cells, turbines, or other projects. These gases contain approximately 150 to 300 pounds of water per MMscf (19 to 38 gallons per MMscf) of gas that will be removed before utilization in a beneficial use project. A larger project may use approximately five MMscf gas per day, which would produce about 95 to 190 gallons of wastewater per day.

If facility operators choose to construct and operate a fuel cell system, there will be an increase in the need for water, as well as an increase in wastewater generation. In particular, a 1.4 MW fuel cell is expected to require water on average, 4.5 gallons per minute, or 6,480 gallons per day. Additionally, this same fuel cell would be expected to generate wastewater at a rate of 2.25 gallons per minute, or 3,240 gallons per day. In total, if five facilities installed fuel cell and gas processing systems, the water demand would be approximately 32,400 gallons/day, which is well below the significance thresholds of 262,820 gallons per day for potable water and five million gallons per day of total water, respectively. Additionally, the generation of up to 190 gallons/day from potential gas treatment as described earlier, as well as an additional 6,480 gallons per day of

wastewater to be generated by a fuel cell system are not expected to result in a significant strain on current wastewater treatment plants or require additional facilities for the treatment of this water.

For these reasons, implementing PR 1118.1 would not be expected to violate any water quality standards, waste discharge requirements, exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, or otherwise substantially degrade water quality, substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level, require or result in the construction of new water or wastewater treatment facilities or new storm water drainage facilities, or expansion of existing facilities, nor would it result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. Finally, due to the relative small amount of water that may be needed, sufficient water supplies are available to serve the project from existing entitlements and resources.

IX. c) & d) No Impact. Implementation of PR 1118.1 will take place at existing affected facilities. In particular, PR 1118.1 would require facilities to replace flares or reduce flaring, possibly through beneficial use projects. As part of constructing these beneficial use projects, the operator may also install swales, rain drains, or other stormwater conveyances to connect to each facility's existing storm drain system. Currently, no operations of the existing facilities nor any of the potential beneficial use projects require stormwater conveyances as part of the day-to-day function.

For these reasons, implementation of PR 1118.1 would not be expected to substantially alter the existing drainage pattern of the site or area beyond what currently exists at existing facilities. No streams or rivers are expected to run through existing facilities, because these facilities operate in urban industrial areas. Thus, PR 1118.1 would not cause an alteration of the course of a stream or river. Construction to complete beneficial use projects may require some minor earthwork to prepare affected areas at the affected facility. Any construction activities, however would not be expected to permanently create unpaved areas that would be vulnerable to surface runoff in a manner that would result in substantial erosion or siltation on- or off-site or flooding on- or off-site. In addition, PR 1118.1 would not create new or contribute to existing runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff, because PR 1118.1 does not contain any requirements that would change existing drainage patterns or the procedures for how surface runoff is handled.

IX. e) & f) No Impact. As previously explained in Section IV – Biological Resources, PR 1118.1 would not require new development in undeveloped areas. Replacement of flares and construction of beneficial use projects at affected facilities would be short-term and take place within existing facility settings. Therefore, PR 1118.1 would not be expected to cause placing housing or structures to be placed within 100-year flood hazard areas as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, which would impede or redirect flood flows. Similarly, PR 1118.1 would also not be expected to expose people or structures to a significant risk of loss, injury or death involving flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami, or mudflow because any flood event of this

nature would be part of the existing setting or topography that is present for reasons unrelated to PR 1118.1.

Conclusion

Based upon these considerations, significant adverse hydrology and water quality impacts are not expected from implementing PR 1118.1. Since no significant hydrology and water quality impacts were identified, no mitigation measures are necessary or required.

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

Significance Criteria

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

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

X. a) & b) No Impact. PR 1118.1 does not require the construction of new facilities and the physical effects that will result from PR 1118.1 will occur at existing facilities located industrial areas and would not be expected to go beyond existing boundaries. For this reason, implementation of PR 1118.1 is not expected to physically divide an established community. Therefore, no impacts are anticipated.

Further, land use and other planning considerations are determined by local governments and PR 1118.1 does not alter any land use or planning requirements. Compliance with PR 1118.1 would take place within existing facilities. Thus, it would not be expected to affect or conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project

(including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Conclusion

Based upon these considerations, significant adverse land use and planning impacts are not expected from implementing PR 1118.1. Since no significant land use and planning impacts were identified, no mitigation measures are necessary or required.

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

Significance Criteria

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

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

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

XI. a) & b) No Impact. There are no provisions in PR 1118.1 that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plan

or other land use plan. Some examples of mineral resources are gravel, asphalt, bauxite, and gypsum, which are commonly used for construction activities or industrial processes. The proposed project would require source testing, and either the replacement of flares, or the reduction in flaring through construction of beneficial use projects such as boilers, turbines, or fuel cells which would have no effects on the use of important minerals, such as those described above. Therefore, no new demand on mineral resources is expected to occur and significant adverse mineral resources impacts from implementing PR 1118.1 are not anticipated.

Conclusion

Based upon these considerations, significant adverse mineral resource impacts are not expected from implementing PR 1118.1. Since no significant mineral resource impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XII.	**NOISE.** Would the project result in:				
a)	Exposure of persons to or generation of permanent noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☑	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☑	☐
c)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☑	☐
d)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public use airport or private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☑	☐

Significance Criteria

Noise impact will be considered significant if:

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

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing,

monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

XII. a), b), & c) Less than Significant Impact. The facilities that may be affected by PR 1118.1 are located in urbanized industrial areas. The existing noise environment at each of the facilities is typically dominated by noise from existing equipment on-site, vehicular traffic around the facilities, and trucks entering and existing facility premises. Large, potentially noise-intensive construction equipment would be needed temporarily to replace flares or construct beneficial use projects to reduce flaring as part of implementing PR 1118.1. Operation of the construction equipment would be expected to comply with all existing noise control laws and ordinances, as would source testing. Since the facilities are located in industrial areas, which have a higher background noise level when compared to other areas, the noise generated during construction will likely be indistinguishable from the background noise levels at the property line. Additionally, Occupational Safety and Health Administration (OSHA) and California-OSHA have established noise standards to protect worker health both indoors and outdoors, which would be adhered to during any construction activities. Furthermore, compliance with local noise ordinances typically limit the hours of construction to reduce the temporary noise impacts from construction to sensitive and offsite receptors. These potential noise increases would only be temporary until construction is completed and would be expected to be within the allowable noise levels established by the local noise ordinances for industrial areas; thus, impacts are expected to be less than significant.

XII. d) Less than Significant Impact. As stated in Section VIII e), 14 of the ~~146~~ 153 facilities identified in Appendix C are located within two miles of an airport. The existing noise environment at each of these facilities is dominated by noise from existing equipment on-site, vehicular traffic around the facilities, and trucks entering and exiting facility premises. Thus, any new noise impacts would from construction activities would be temporary and likely to generate noise that is indistinguishable from the background levels at the property line. Additionally, replacement flares would not cause additional noise impacts when compared to existing flares. Further, alternative use projects such as a fuel cell and gas processing, compression and transport system are not expected to generate significant noise during operation. Thus, PR 1118.1 is not expected to expose persons residing or working within two miles of a public airport or private airstrip to excessive noise levels.

Conclusion

Based upon these considerations, significant adverse noise impacts are not expected from the implementing PR 1118.1. Since no significant noise impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	☐	☐	☐	☑
b) Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑

Significance Criteria

Impacts of the proposed project on population and housing will be considered significant if the following criteria are exceeded:

- The demand for temporary or permanent housing exceeds the existing supply.
- The proposed project produces additional population, housing or employment inconsistent with adopted plans either in terms of overall amount or location.

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

XIII. a) No Impact. The construction activities associated with flare replacement and beneficial use projects that are expected to occur at 16 facilities are not expected to involve or require the relocation of individuals, require new housing or commercial facilities, or change the distribution of the population. As explained in Section III, only a handful workers per facility may be needed to perform construction activities to comply with PR 1118.1 and these workers can be supplied from the existing labor pool in the local Southern California area. The operation of beneficial use projects may result in the hiring of permanent employees. In the event that new employees are

hired, it is expected that the number of new employees hired at any one facility would be relatively small, perhaps no more than one or two per facility. Regardless of implementing PR 1118.1, human population within the jurisdiction of the SCAQMD. As such, PR 1118.1 is not anticipated to not result in changes in population densities, population distribution, or induce significant growth in population.

XIII. b) No Impact. PR 1118.1 would result in construction activities within the confines of existing facilities. No housing would be displaced during construction. Additional source testing requirements would not be expected to substantially alter existing operations at non-refinery flare facilities. Consequently, PR 1118.1 is not expected to result in the creation of any industry that would affect population growth, directly or indirectly induce the construction of single- or multiple-family units, or require the displacement of persons or housing elsewhere within the SCAQMD's jurisdiction.

Conclusion
Based upon these considerations, significant adverse population and housing impacts are not expected from implementing PR 1118.1. Since no significant population and housing impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES. Would the proposal result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
a) Fire protection?	☐	☐	☑	☐
b) Police protection?	☐	☐	☐	☑
c) Schools?	☐	☐	☐	☑
d) Other public facilities?	☐	☐	☐	☑

Significance Criteria

Impacts on public services will be considered significant if the project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time or other performance objectives.

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

XIV. a) Less Than Significant Impact. Implementation of PR 1118.1 is expected to cause the flares to be replaced or alternative beneficial use projects to be implemented in order to reduce flaring. In the event that facilities choose to install a gas processing, compression, and transport system, additional natural gas may be temporarily stored onsite and transported. Though natural gas is a hazardous material due to its high flammability and ability to cause irritation, dizziness, and asphyxiation hazards from inhalation, as noted in Section VIII, a release caused by PR 1118.1 is unlikely during normal operations when following proper safety precautions. Therefore, natural gas processing, compression, and transport is not expected to significantly impact the hazardous material ("Haz Mat") response capabilities of the applicable fire protection services for each facility. For these reasons, implementation of PR 1118.1 is not expected to substantially alter or increase the need or demand for additional public services (e.g., fire and related emergency services, etc.) above current levels, so no significant impact to these existing services is anticipated.

XIV. b), c) & d) No Impact. As explained in Section XIII a), PR 1118.1 is not anticipated to generate any significant effects, either direct or indirect, on the population or population distribution within SCAQMD's jurisdiction as no additional workers are anticipated to be required to comply with PR 1118.1. Because PR 1118.1 is not expected to induce population growth in any way, and because the local labor pool (e.g., workforce) would remain the same since PR 1118.1 would not trigger changes to current usage practices, no additional schools would need to be constructed as a result of implementing PR 1118.1. Any construction activities would be temporary. Therefore, since no increase in local population would be anticipated as a result of implementing PR 1118.1, there would be no corresponding impacts to local schools and there would be no corresponding need for new or physically altered public facilities in order to maintain acceptable service ratios, response times, or other performance objectives. Therefore, no impacts would be expected to schools or other public facilities.

Conclusion

Based upon these considerations, significant adverse public services impacts are not expected from implementing PR 1118.1. Since no significant public services impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XV. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment or recreational services?	☐	☐	☐	☑

Significance Criteria

Impacts to recreation will be considered significant if:

- The project results in an increased demand for neighborhood or regional parks or other recreational facilities.
- The project adversely affects existing recreational opportunities.

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

XV. a) & b) No Impact. As previously explained in Section XIII – Population and Housing, PR 1118.1 is not expected to affect population growth or distribution within the SCAQMD's jurisdiction because workers needed to conduct construction activities to comply with PR 1118.1 can be supplied by the existing labor pool in the local Southern California area and no additional employees are expected long-term to comply with operational requirements. Further, all facilities subject to PR 1118.1 currently have existing air pollution control devices or systems with onsite

personnel trained to maintain the equipment. As such, PR 1118.1 is not anticipated to generate any significant adverse effects, either indirectly or directly on population growth within the SCAQMD's jurisdiction or population distribution, thus no additional demand for recreational facilities would be expected. Further, no provisions in PR 1118.1 could increase the demand for or use of existing neighborhood and regional parks or other recreational facilities or require the construction of new or expansion of existing recreational facilities that might have an adverse physical effect on the environment because it would not directly or indirectly increase or redistribute population.

Conclusion

Based upon these considerations, significant adverse recreation impacts are not expected from implementing PR 1118.1. Since no significant recreation impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVI. SOLID AND HAZARDOUS WASTE. Would the project:				
a) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☑	☐
b) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	☐	☐	☑	☐

Significance Criteria

The proposed project impacts on solid and hazardous waste will be considered significant if the following occurs:

- The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

XVI. a & b) Less Than Significant Impact. PR 1118.1 may cause some minor construction activities to occur at 16 facilities, and these activities may result in the generation of some solid construction waste that may need to be disposed of in a landfill. PR 1118.1 does not contain any requirements that would cause existing practices for disposing of solid and hazardous waste to change. For this reason, facilities that currently comply with all applicable local, state, or federal waste disposal regulations would not be expected to change their current practices if PR 1118.1 is implemented. If a facility does choose to construct an alternative beneficial use project to reduce flare gas throughput such as a fuel cell and gas processing, compression, and transport system there is a possibility that small amounts of waste will be generated from replacement of parts during routine servicing and maintenance of the system. The amount of waste generated would be negligible when considering the facilities regular waste generation from ordinary operations.

Thus, implementation of PR 1118.1 is not expected to interfere with any affected facility's ability to comply with applicable local, state, or federal waste disposal regulations in a manner that would cause a significant adverse solid and hazardous impact.

Conclusion

Based upon these considerations, significant adverse solid and hazardous waste impacts are not expected from implementing PR 1118.1. Since no significant solid and hazardous waste impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION AND TRAFFIC. Would the project:					
a)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☑	☐
b)	Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☑	☐
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☑
d)	Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☐	☑
e)	Result in inadequate emergency access?	☐	☐	☐	☑
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☑

Significance Criteria

Impacts on transportation and traffic will be considered significant if any of the following criteria apply:

- Peak period levels on major arterials are disrupted to a point where level of service (LOS) is reduced to D, E or F for more than one month.
- An intersection's volume to capacity ratio increase by 0.02 (two percent) or more when the LOS is already D, E or F.
- A major roadway is closed to all through traffic, and no alternate route is available.
- The project conflicts with applicable policies, plans or programs establishing measures of effectiveness, thereby decreasing the performance or safety of any mode of transportation.
- There is an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.
- The demand for parking facilities is substantially increased.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.
- The need for more than 350 employees.
- An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day.
- Increase customer traffic by more than 700 visits per day.

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

XVII. a) & b) Less than Significant Impact. As previously discussed in Section III – Air Quality and Greenhouse Gas Emissions, compliance with PR 1118.1 would require construction activities related to replacing flares or constructing beneficial use projects as well as source testing, and regular trips to transport compressed natural gas. On a peak day, 12 facilities were assumed to undergo overlapping construction activities and if all the affected facilities complete their requirements on the same day, 125 light duty trucks would be used. A peak operational day, which

would include 43 heavy-duty trucks for CNG transport and possibly one or two more passenger vehicle trips associated with conducting source test or CNG system equipment maintenance, would generate fewer trips than during construction. In either scenario, the number of round trips that may occur on a peak day as a result of implementing PR 1118.1 are less than the significance threshold of 350 round trips. Traffic and transportation activities occurring during construction and operation are not expected to cause any significant adverse impacts to traffic and transportation.

XVII. c) No Impact. As explained previously in Section VIII – Hazards and Hazardous Materials, there are 14 facilities located within two miles of an airport, however no provisions of PR 1118.1 will result in a change in location of any airport, and increase in air traffic levels, or a change in in air traffic. Further, as explained in Section XIII – Population and Housing, since implementation of PR 1118.1 is not expected to require a substantial amount of additional workers on a temporary or permanent basis, no additional air traffic is anticipated. Therefore, implementation of PR 1118.1 is not expected to adversely affect air traffic patterns.

XVII. d) & e) No Impact. PR 1118.1 does not involve or require the construction of new roadways, alter existing roadways, or introduce incompatible uses to existing roadways, because the focus of the proposed rule is to control NOx, VOC, and CO emissions from non-refinery flares. Thus, there will be no change to current public roadway designs that could increase traffic hazards. Further, PR 1118.1 is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the facilities. Construction-related activities associated with flare replacements or alternative beneficial use projects are expected to be temporary and are expected to involve short-term construction activities such as delivery truck trips which would cease after construction is completed. The proposed project is not expected to alter the existing long–term circulation patterns within the areas of each affected facility during construction. Similarly, during operation, the projected increase of additional vehicle trips that may be needed at each affected facility would be at less than significant levels individually and cumulatively such that the implementation of the proposed project is not expected to require a modification to traffic circulation. Thus, no long-term impacts on the traffic circulation system are expected to occur during construction or operation. Further, impacts to existing emergency access at the affected facilities would also not be affected because PR 1118.1 does not contain any requirements specific to emergency access points and each facility would be expected to continue to maintain their existing emergency access. As a result, PR 1118.1 is not expected to adversely impact emergency access.

XVII. f) No Impact. Since implementation of PR 1118.1 is not expected to require permanent additional workers as discussed in Section XIII – Population and Housing a), no operational traffic impacts are expected to occur and consequently. Parking may be necessary at the 28 facilities that require periodic source testing when workers are visiting the facilities, however, it would be expected only one to two workers would visit during a source test. Therefore, PR 1118.1 is not expected to adversely impact on- or off-site parking capacity. PR 1118.1 has no provisions that would conflict with alternative transportation, such as bus turnouts, bicycle racks, etcetera. Further, affected facilities would still be expected to comply with, and not interfere with adopted policies, plans, or programs supporting alternative transportation (e.g., bicycles or buses) that exist in their respective cities. In addition, implementing PR 1118.1 would be expected to occur at existing facilities and thus, would not have an impact on each facility's ability to comply with any applicable alternative transportation plans or policies.

Conclusion

Based upon these considerations, significant adverse transportation and traffic impacts are not expected from implementing PR 1118.1. Since no significant transportation and traffic impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☑
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☐	☑	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☑	☐

Discussion

PR 1118.1 will reduce NOx and VOC emissions from non-refinery flares and encourage alternatives to flaring. PR 1118.1 applies to owners and operators of flares that require a SCAQMD permit, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms. The proposed rule includes NOx, CO, and VOC emission limits that reflect BARCT standards and a capacity threshold that seeks to identify routine flaring. For flares that exceed the capacity threshold, either a reduction in flare throughput or replacement with a flare with lower emissions will be required. The capacity threshold varies depending on the type of gas being flared (e.g., landfill, digester, produced) and the type of flare equipment (e.g., open flare versus a shrouded flare). PR 1118.1 provides an exemption for low-use and low-emitting flares. Additionally, PR 1118.1 establishes provisions for source testing, monitoring, reporting, and recordkeeping. Of the ~~288~~ 295 flares at ~~146~~ 153 facilities affected by PR 1118.1: 25 flares at 16 facilities would require either a flare replacement to reduce emissions, or an alternative project to reduce flare gas throughput such as the installation of a fuel cell, gas

processing, and gas compression and transport system; ~~28~~ 36 flares would need to undergo additional source testing; and 10 flares would need to have flow meters installed.

XVIII. a) No Impact. As explained in Section IV - Biological Resources, PR 1118.1 is not expected to significantly adversely affect plant or animal species or the habitat on which they rely because any construction and operational activities associated with the facilities are expected to occur entirely within the boundaries of existing developed facilities in areas that have been greatly disturbed and that currently do not support any species of concern or the habitat on which they rely. For these reasons, PR 1118.1 is not expected to reduce or eliminate any plant or animal species or destroy prehistoric records of the past.

XVIII. b) Less Than Significant Impact. Based on the foregoing analyses, PR 1118.1 would not result in significant adverse project-specific environmental impacts. Potential adverse impacts from implementing PR 1118.1 would not be "cumulatively considerable" as defined by CEQA Guidelines Section 15064(h)(1) for any environmental topic because there are no, or only minor incremental project-specific impacts that were concluded to be less than significant. Per CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulative considerable. SCAQMD cumulative significant thresholds are the same as project-specific significance thresholds.

Therefore, there is no potential for significant adverse cumulative or cumulatively considerable impacts to be generated by PR 1118.1 for any environmental topic area.

XVIII. c) Less Than Significant Impact. Based on the foregoing analyses, PR 1118.1 is not expected to cause adverse effects on human beings for any environmental topic, either directly or indirectly because: 1) aesthetic impacts were determined to be less than significant as analyzed in Section I - Aesthetics; 2) the air quality and GHG impacts were determined to be less than the significance thresholds as analyzed in Section III – Air Quality and Greenhouse Gases; 3) energy impacts were determined to be less than significant as analyzed in Section VI – Energy; 4) geological and soil impacts were determined to be less than significant as analyzed in VII – Geology and Soils; 5) the hazards and hazardous materials impacts were determined to be less than significant as analyzed in Section VIII – Hazards and Hazardous Materials; 6) the increased water usage and wastewater was determined to be less than significant as analyzed in Section IX – Hydrology and Water Quality; 7) the noise impacts were determined to be less than significant as analyzed in Section XII – Noise; 8) public services such as fire protection and police protection were determined to be less than the significance thresholds as analyzed in Section XIV – Public Services; 9) solid and hazardous waste impacts were determined to be less than significant as analyzed in Section XVI – Solid and Hazardous Waste; and 10) transportation and traffic impacts were determined to be less than the significant as analyzed in Section XVII – Transportation and Traffic. In addition, the analysis concluded that there would be no significant environmental impacts for the remaining environmental impact topic areas: agriculture and forestry resources, biological resources, cultural resources, land use and planning, mineral resources, population and housing, recreation, and solid and hazardous waste.

Conclusion

As previously discussed in environmental topics I through XVIII, the proposed project has no potential to cause significant adverse environmental effects. Since no mitigation measures are necessary or required.

APPENDICES

APPENDIX A

Proposed Rule 1118.1 – Control of Emissions from Non-Refinery Flares

In order to save space and avoid repetition, please refer to the latest version of PR 1118.1 located elsewhere in the Governing Board Package (meeting date January 4, 2019). The version of PR 1118.1 that was circulated with the Draft EA and released on October 26, 2018 for a 32-day public review and comment period ending on November 27, 2018 was identified as "Proposed Rule 1118.1: Preliminary Draft Rule Language (9/21/2018)." Original hard copies of the Draft EA, which include the draft version of the proposed amended rule listed above, can be obtained by visiting the Public Information Center at SCAQMD Headquarters located at 21865 Copley Drive, Diamond Bar, CA 91765, by contacting Fabian Wesson, Public Advisor by phone at (909) 396-2039 or by email at PICrequests@aqmd.gov.

APPENDIX B

CalEEMod Files

APPENDIX B-1

CalEEMod Files – Flare Replacement

1118.1 Flare Replacement - South Coast Air Basin, Annual

1118.1 Flare Replacement

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	11			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - 6 Weeks construction to install up to 4 new CEB/ZULE flares

Off-road Equipment - 1 A-frame truck crane needed to remove old flare. 1 Backhoe needed for demolition.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment is skid mounted. Crane and forklift and welder needed for installation.

Demolition -

1118.1 Flare Replacement - South Coast Air Basin, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	30.00
tblConstructionPhase	PhaseEndDate	3/7/2019	11/29/2018
tblOffRoadEquipment	HorsePower	231.00	247.00
tblOffRoadEquipment	LoadFactor	0.29	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Cranes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

2.0 Emissions Summary

1118.1 Flare Replacement - South Coast Air Basin, 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					
2018	0.0178	0.1487	0.0884	1.6000e-004	1.0300e-003	7.8900e-003	8.9200e-003	2.3000e-004	7.4000e-003	7.6300e-003	0.0000	13.7445	13.7445	3.6800e-003	0.0000	13.8366
Maximum	**0.0178**	**0.1487**	**0.0884**	**1.6000e-004**	**1.0300e-003**	**7.8900e-003**	**8.9200e-003**	**2.3000e-004**	**7.4000e-003**	**7.6300e-003**	**0.0000**	**13.7445**	**13.7445**	**3.6800e-003**	**0.0000**	**13.8366**

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					
2018	0.0178	0.1487	0.0884	1.6000e-004	1.0300e-003	7.8900e-003	8.9200e-003	2.3000e-004	7.4000e-003	7.6300e-003	0.0000	13.7445	13.7445	3.6800e-003	0.0000	13.8366
Maximum	**0.0178**	**0.1487**	**0.0884**	**1.6000e-004**	**1.0300e-003**	**7.8900e-003**	**8.9200e-003**	**2.3000e-004**	**7.4000e-003**	**7.6300e-003**	**0.0000**	**13.7445**	**13.7445**	**3.6800e-003**	**0.0000**	**13.8366**

	ROG	NOx	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**

1118.1 Flare Replacement - South Coast Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

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	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Energy	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	35.7408	35.7408	8.2000e-004	2.4000e-004	35.8328
Mobile	2.9100e-003	0.0166	0.0441	1.5000e-004	0.0126	1.6000e-004	0.0128	3.3800e-003	1.5000e-004	3.5300e-003	0.0000	14.2703	14.2703	7.1000e-004	0.0000	14.2880
Waste						0.0000	0.0000		0.0000	0.0000	1.2585	0.0000	1.2585	0.0744	0.0000	3.1180
Water						0.0000	0.0000		0.0000	0.0000	0.3668	8.3854	8.7522	0.0379	9.3000e-004	9.9764
Total	**0.0238**	**0.0210**	**0.0479**	**1.8000e-004**	**0.0126**	**5.0000e-004**	**0.0131**	**3.3800e-003**	**4.9000e-004**	**3.8700e-003**	**1.6254**	**58.3966**	**60.0219**	**0.1138**	**1.1700e-003**	**63.2152**

1118.1 Flare Replacement - South Coast Air Basin, Annual

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	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Energy	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	35.7408	35.7408	8.2000e-004	2.4000e-004	35.8328
Mobile	2.9100e-003	0.0166	0.0441	1.5000e-004	0.0126	1.6000e-004	0.0128	3.3800e-003	1.5000e-004	3.5300e-003	0.0000	14.2703	14.2703	7.1000e-004	0.0000	14.2880
Waste						0.0000	0.0000		0.0000	0.0000	1.2585	0.0000	1.2585	0.0744	0.0000	3.1180
Water						0.0000	0.0000		0.0000	0.0000	0.3668	8.3854	8.7522	0.0379	9.3000e-004	9.9764
Total	**0.0238**	**0.0210**	**0.0479**	**1.8000e-004**	**0.0126**	**5.0000e-004**	**0.0131**	**3.3800e-003**	**4.9000e-004**	**3.8700e-003**	**1.6254**	**58.3966**	**60.0219**	**0.1138**	**1.1700e-003**	**63.2152**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/2/2018	10/15/2018	5	10	
2	Site Preparation	Site Preparation	10/16/2018	10/16/2018	5	1	
3	Building Construction	Building Construction	10/19/2018	11/29/2018	5	30	

1118.1 Flare Replacement - South Coast Air Basin, Annual

Acres of Grading (Site Preparation Phase): 0.5

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

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Cranes	1	6.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	3	2.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

1118.1 Flare Replacement - South Coast Air Basin, Annual

3.2 Demolition - 2018

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					4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1500e-003	0.0476	0.0227	4.0000e-005		2.3300e-003	2.3300e-003		2.1400e-003	2.1400e-003	0.0000	3.9771	3.9771	1.2400e-003	0.0000	4.0081
Total	**4.1500e-003**	**0.0476**	**0.0227**	**4.0000e-005**	**4.0000e-005**	**2.3300e-003**	**2.3700e-003**	**1.0000e-005**	**2.1400e-003**	**2.1500e-003**	**0.0000**	**3.9771**	**3.9771**	**1.2400e-003**	**0.0000**	**4.0081**

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	1.3000e-004	1.1000e-004	1.1700e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2634	0.2634	1.0000e-005	0.0000	0.2636
Total	**1.3000e-004**	**1.1000e-004**	**1.1700e-003**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2634**	**0.2634**	**1.0000e-005**	**0.0000**	**0.2636**

1118.1 Flare Replacement - South Coast Air Basin, Annual

3.2 Demolition - 2018

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					4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1500e-003	0.0476	0.0227	4.0000e-005		2.3300e-003	2.3300e-003		2.1400e-003	2.1400e-003	0.0000	3.9771	3.9771	1.2400e-003	0.0000	4.0081
Total	**4.1500e-003**	**0.0476**	**0.0227**	**4.0000e-005**	**4.0000e-005**	**2.3300e-003**	**2.3700e-003**	**1.0000e-005**	**2.1400e-003**	**2.1500e-003**	**0.0000**	**3.9771**	**3.9771**	**1.2400e-003**	**0.0000**	**4.0081**

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	1.3000e-004	1.1000e-004	1.1700e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2634	0.2634	1.0000e-005	0.0000	0.2636
Total	**1.3000e-004**	**1.1000e-004**	**1.1700e-003**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2634**	**0.2634**	**1.0000e-005**	**0.0000**	**0.2636**

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3.3 Site Preparation - 2018

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					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9000e-004	4.8800e-003	2.1300e-003	0.0000		2.1000e-004	2.1000e-004		1.9000e-004	1.9000e-004	0.0000	0.4458	0.4458	1.4000e-004	0.0000	0.4492
Total	**3.9000e-004**	**4.8800e-003**	**2.1300e-003**	**0.0000**	**2.7000e-004**	**2.1000e-004**	**4.8000e-004**	**3.0000e-005**	**1.9000e-004**	**2.2000e-004**	**0.0000**	**0.4458**	**0.4458**	**1.4000e-004**	**0.0000**	**0.4492**

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	1.0000e-005	1.0000e-005	1.2000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0263	0.0263	0.0000	0.0000	0.0264
Total	**1.0000e-005**	**1.0000e-005**	**1.2000e-004**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0263**	**0.0263**	**0.0000**	**0.0000**	**0.0264**

1118.1 Flare Replacement - South Coast Air Basin, Annual

3.3 Site Preparation - 2018

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					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9000e-004	4.8800e-003	2.1300e-003	0.0000		2.1000e-004	2.1000e-004		1.9000e-004	1.9000e-004	0.0000	0.4458	0.4458	1.4000e-004	0.0000	0.4492
Total	**3.9000e-004**	**4.8800e-003**	**2.1300e-003**	**0.0000**	**2.7000e-004**	**2.1000e-004**	**4.8000e-004**	**3.0000e-005**	**1.9000e-004**	**2.2000e-004**	**0.0000**	**0.4458**	**0.4458**	**1.4000e-004**	**0.0000**	**0.4492**

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	1.0000e-005	1.0000e-005	1.2000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0263	0.0263	0.0000	0.0000	0.0264
Total	**1.0000e-005**	**1.0000e-005**	**1.2000e-004**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0263**	**0.0263**	**0.0000**	**0.0000**	**0.0264**

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3.4 Building Construction - 2018

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	0.0129	0.0941	0.0604	1.0000e-004		5.3300e-003	5.3300e-003		5.0400e-003	5.0400e-003	0.0000	8.3432	8.3432	2.2600e-003	0.0000	8.3997
Total	**0.0129**	**0.0941**	**0.0604**	**1.0000e-004**		**5.3300e-003**	**5.3300e-003**		**5.0400e-003**	**5.0400e-003**	**0.0000**	**8.3432**	**8.3432**	**2.2600e-003**	**0.0000**	**8.3997**

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	7.0000e-005	1.8600e-003	4.9000e-004	0.0000	9.0000e-005	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3727	0.3727	3.0000e-005	0.0000	0.3734
Worker	1.6000e-004	1.3000e-004	1.4000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3161	0.3161	1.0000e-005	0.0000	0.3163
Total	**2.3000e-004**	**1.9900e-003**	**1.8900e-003**	**0.0000**	**4.2000e-004**	**1.0000e-005**	**4.4000e-004**	**1.2000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**0.6888**	**0.6888**	**4.0000e-005**	**0.0000**	**0.6897**

3.4 Building Construction - 2018

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	0.0129	0.0941	0.0604	1.0000e-004		5.3300e-003	5.3300e-003		5.0400e-003	5.0400e-003	0.0000	8.3432	8.3432	2.2600e-003	0.0000	8.3997
Total	**0.0129**	**0.0941**	**0.0604**	**1.0000e-004**		**5.3300e-003**	**5.3300e-003**		**5.0400e-003**	**5.0400e-003**	**0.0000**	**8.3432**	**8.3432**	**2.2600e-003**	**0.0000**	**8.3997**

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	7.0000e-005	1.8600e-003	4.9000e-004	0.0000	9.0000e-005	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3727	0.3727	3.0000e-005	0.0000	0.3734
Worker	1.6000e-004	1.3000e-004	1.4000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3161	0.3161	1.0000e-005	0.0000	0.3163
Total	**2.3000e-004**	**1.9900e-003**	**1.8900e-003**	**0.0000**	**4.2000e-004**	**1.0000e-005**	**4.4000e-004**	**1.2000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**0.6888**	**0.6888**	**4.0000e-005**	**0.0000**	**0.6897**

4.0 Operational Detail - Mobile

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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	2.9100e-003	0.0166	0.0441	1.5000e-004	0.0126	1.6000e-004	0.0128	3.3800e-003	1.5000e-004	3.5300e-003	0.0000	14.2703	14.2703	7.1000e-004	0.0000	14.2880
Unmitigated	2.9100e-003	0.0166	0.0441	1.5000e-004	0.0126	1.6000e-004	0.0128	3.3800e-003	1.5000e-004	3.5300e-003	0.0000	14.2703	14.2703	7.1000e-004	0.0000	14.2880

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	7.50	7.50	7.50	33,212	33,212
Total	7.50	7.50	7.50	33,212	33,212

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
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.550339	0.043800	0.200255	0.122233	0.016799	0.005871	0.020633	0.029727	0.002027	0.001932	0.004726	0.000704	0.000955

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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	30.9114	30.9114	7.3000e-004	1.5000e-004	30.9746
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	30.9114	30.9114	7.3000e-004	1.5000e-004	30.9746
NaturalGas Mitigated	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581
NaturalGas Unmitigated	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581

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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					
General Heavy Industry	90500	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581
Total		**4.9000e-004**	**4.4400e-003**	**3.7300e-003**	**3.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**4.8294**	**4.8294**	**9.0000e-005**	**9.0000e-005**	**4.8581**

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					
General Heavy Industry	90500	4.9000e-004	4.4400e-003	3.7300e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.8294	4.8294	9.0000e-005	9.0000e-005	4.8581
Total		**4.9000e-004**	**4.4400e-003**	**3.7300e-003**	**3.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.4000e-004**	**3.4000e-004**	**0.0000**	**4.8294**	**4.8294**	**9.0000e-005**	**9.0000e-005**	**4.8581**

1118.1 Flare Replacement - South Coast Air Basin, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	55500	30.9114	7.3000e-004	1.5000e-004	30.9746
Total		**30.9114**	**7.3000e-004**	**1.5000e-004**	**30.9746**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	55500	30.9114	7.3000e-004	1.5000e-004	30.9746
Total		**30.9114**	**7.3000e-004**	**1.5000e-004**	**30.9746**

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	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	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Unmitigated	0.0204	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-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	tons/yr										MT/yr					
Architectural Coating	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Total	**0.0204**	**0.0000**	**6.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2000e-004**	**1.2000e-004**	**0.0000**	**0.0000**	**1.3000e-004**

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.3200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0181					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	6.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2000e-004	1.2000e-004	0.0000	0.0000	1.3000e-004
Total	**0.0204**	**0.0000**	**6.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2000e-004**	**1.2000e-004**	**0.0000**	**0.0000**	**1.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.7522	0.0379	9.3000e-004	9.9764
Unmitigated	8.7522	0.0379	9.3000e-004	9.9764

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	1.15625 / 0	8.7522	0.0379	9.3000e-004	9.9764
Total		**8.7522**	**0.0379**	**9.3000e-004**	**9.9764**

1118.1 Flare Replacement - South Coast Air Basin, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	1.15625 / 0	8.7522	0.0379	9.3000e-004	9.9764
Total		**8.7522**	**0.0379**	**9.3000e-004**	**9.9764**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.2585	0.0744	0.0000	3.1180
Unmitigated	1.2585	0.0744	0.0000	3.1180

1118.1 Flare Replacement - South Coast Air Basin, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	6.2	1.2585	0.0744	0.0000	3.1180
Total		**1.2585**	**0.0744**	**0.0000**	**3.1180**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	6.2	1.2585	0.0744	0.0000	3.1180
Total		**1.2585**	**0.0744**	**0.0000**	**3.1180**

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

1118.1 Flare Replacement - South Coast Air Basin, Summer

1118.1 Flare Replacement

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	11			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - 6 Weeks construction to install up to 4 new CEB/ZULE flares

Off-road Equipment - 1 A-frame truck crane needed to remove old flare. 1 Backhoe needed for demolition.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment is skid mounted. Crane and forklift and welder needed for installation.

Demolition -

1118.1 Flare Replacement - South Coast Air Basin, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	30.00
tblConstructionPhase	PhaseEndDate	3/7/2019	11/29/2018
tblOffRoadEquipment	HorsePower	231.00	247.00
tblOffRoadEquipment	LoadFactor	0.29	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Cranes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

2.0 Emissions Summary

1118.1 Flare Replacement - South Coast Air Basin, 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					
2018	0.8757	9.7765	4.7922	0.0104	0.5861	0.4667	1.0046	0.0721	0.4294	0.4570	0.0000	1,043.6473	1,043.6473	0.3080	0.0000	1,051.3476
Maximum	**0.8757**	**9.7765**	**4.7922**	**0.0104**	**0.5861**	**0.4667**	**1.0046**	**0.0721**	**0.4294**	**0.4570**	**0.0000**	**1,043.6473**	**1,043.6473**	**0.3080**	**0.0000**	**1,051.3476**

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					
2018	0.8757	9.7765	4.7922	0.0104	0.5861	0.4667	1.0046	0.0721	0.4294	0.4570	0.0000	1,043.6473	1,043.6473	0.3080	0.0000	1,051.3476
Maximum	**0.8757**	**9.7765**	**4.7922**	**0.0104**	**0.5861**	**0.4667**	**1.0046**	**0.0721**	**0.4294**	**0.4570**	**0.0000**	**1,043.6473**	**1,043.6473**	**0.3080**	**0.0000**	**1,051.3476**

	ROG	NOx	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**

1118.1 Flare Replacement - South Coast Air Basin, 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	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Mobile	0.0169	0.0866	0.2553	8.9000e-004	0.0706	8.6000e-004	0.0715	0.0189	8.1000e-004	0.0197		89.9044	89.9044	4.3300e-003		90.0126
Total	**0.1313**	**0.1109**	**0.2762**	**1.0400e-003**	**0.0706**	**2.7100e-003**	**0.0733**	**0.0189**	**2.6600e-003**	**0.0216**		**119.0755**	**119.0755**	**4.8900e-003**	**5.3000e-004**	**119.3572**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Mobile	0.0169	0.0866	0.2553	8.9000e-004	0.0706	8.6000e-004	0.0715	0.0189	8.1000e-004	0.0197		89.9044	89.9044	4.3300e-003		90.0126
Total	**0.1313**	**0.1109**	**0.2762**	**1.0400e-003**	**0.0706**	**2.7100e-003**	**0.0733**	**0.0189**	**2.6600e-003**	**0.0216**		**119.0755**	**119.0755**	**4.8900e-003**	**5.3000e-004**	**119.3572**

1118.1 Flare Replacement - South Coast Air Basin, 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	10/2/2018	10/15/2018	5	10	
2	Site Preparation	Site Preparation	10/16/2018	10/16/2018	5	1	
3	Building Construction	Building Construction	10/19/2018	11/29/2018	5	30	

Acres of Grading (Site Preparation Phase): 0.5

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

1118.1 Flare Replacement - South Coast Air Basin, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Cranes	1	6.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	3	2.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

1118.1 Flare Replacement - South Coast Air Basin, Summer

3.2 Demolition - 2018

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					8.5600e-003	0.0000	8.5600e-003	1.3000e-003	0.0000	1.3000e-003			0.0000			0.0000
Off-Road	0.8309	9.5170	4.5421	8.7100e-003		0.4663	0.4663		0.4290	0.4290		876.8018	876.8018	0.2730		883.6258
Total	**0.8309**	**9.5170**	**4.5421**	**8.7100e-003**	**8.5600e-003**	**0.4663**	**0.4748**	**1.3000e-003**	**0.4290**	**0.4303**		**876.8018**	**876.8018**	**0.2730**		**883.6258**

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	0.0267	0.0193	0.2502	6.1000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		60.9360	60.9360	2.0800e-003		60.9881
Total	**0.0267**	**0.0193**	**0.2502**	**6.1000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**60.9360**	**60.9360**	**2.0800e-003**		**60.9881**

1118.1 Flare Replacement - South Coast Air Basin, Summer

3.2 Demolition - 2018

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					8.5600e-003	0.0000	8.5600e-003	1.3000e-003	0.0000	1.3000e-003			0.0000			0.0000
Off-Road	0.8309	9.5170	4.5421	8.7100e-003		0.4663	0.4663		0.4290	0.4290	0.0000	876.8018	876.8018	0.2730		883.6258
Total	**0.8309**	**9.5170**	**4.5421**	**8.7100e-003**	**8.5600e-003**	**0.4663**	**0.4748**	**1.3000e-003**	**0.4290**	**0.4303**	**0.0000**	**876.8018**	**876.8018**	**0.2730**		**883.6258**

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	0.0267	0.0193	0.2502	6.1000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		60.9360	60.9360	2.0800e-003		60.9881
Total	**0.0267**	**0.0193**	**0.2502**	**6.1000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**60.9360**	**60.9360**	**2.0800e-003**		**60.9881**

1118.1 Flare Replacement - South Coast Air Basin, Summer

3.3 Site Preparation - 2018

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846		982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.5303**	**0.4180**	**0.9483**	**0.0573**	**0.3846**	**0.4418**		**982.7113**	**982.7113**	**0.3059**		**990.3596**

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	0.0267	0.0193	0.2502	6.1000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		60.9360	60.9360	2.0800e-003		60.9881
Total	**0.0267**	**0.0193**	**0.2502**	**6.1000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**60.9360**	**60.9360**	**2.0800e-003**		**60.9881**

1118.1 Flare Replacement - South Coast Air Basin, Summer

3.3 Site Preparation - 2018

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846	0.0000	982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.5303**	**0.4180**	**0.9483**	**0.0573**	**0.3846**	**0.4418**	**0.0000**	**982.7113**	**982.7113**	**0.3059**		**990.3596**

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	0.0267	0.0193	0.2502	6.1000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		60.9360	60.9360	2.0800e-003		60.9881
Total	**0.0267**	**0.0193**	**0.2502**	**6.1000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**60.9360**	**60.9360**	**2.0800e-003**		**60.9881**

1118.1 Flare Replacement - South Coast Air Basin, Summer

3.4 Building Construction - 2018

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	0.8607	6.2732	4.0284	6.5800e-003		0.3554	0.3554		0.3360	0.3360		613.1174	613.1174	0.1661		617.2693
Total	**0.8607**	**6.2732**	**4.0284**	**6.5800e-003**		**0.3554**	**0.3554**		**0.3360**	**0.3360**		**613.1174**	**613.1174**	**0.1661**		**617.2693**

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	4.3000e-003	0.1215	0.0308	2.6000e-004	6.4000e-003	8.9000e-004	7.2900e-003	1.8400e-003	8.5000e-004	2.6900e-003		27.7009	27.7009	1.9100e-003		27.7488
Worker	0.0107	7.7000e-003	0.1001	2.4000e-004	0.0224	1.8000e-004	0.0225	5.9300e-003	1.7000e-004	6.0900e-003		24.3744	24.3744	8.3000e-004		24.3952
Total	**0.0150**	**0.1292**	**0.1309**	**5.0000e-004**	**0.0288**	**1.0700e-003**	**0.0298**	**7.7700e-003**	**1.0200e-003**	**8.7800e-003**		**52.0753**	**52.0753**	**2.7400e-003**		**52.1440**

3.4 Building Construction - 2018

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	0.8607	6.2732	4.0284	6.5800e-003		0.3554	0.3554		0.3360	0.3360	0.0000	613.1174	613.1174	0.1661		617.2693
Total	**0.8607**	**6.2732**	**4.0284**	**6.5800e-003**		**0.3554**	**0.3554**		**0.3360**	**0.3360**	**0.0000**	**613.1174**	**613.1174**	**0.1661**		**617.2693**

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	4.3000e-003	0.1215	0.0308	2.6000e-004	6.4000e-003	8.9000e-004	7.2900e-003	1.8400e-003	8.5000e-004	2.6900e-003		27.7009	27.7009	1.9100e-003		27.7488
Worker	0.0107	7.7000e-003	0.1001	2.4000e-004	0.0224	1.8000e-004	0.0225	5.9300e-003	1.7000e-004	6.0900e-003		24.3744	24.3744	8.3000e-004		24.3952
Total	**0.0150**	**0.1292**	**0.1309**	**5.0000e-004**	**0.0288**	**1.0700e-003**	**0.0298**	**7.7700e-003**	**1.0200e-003**	**8.7800e-003**		**52.0753**	**52.0753**	**2.7400e-003**		**52.1440**

4.0 Operational Detail - Mobile

1118.1 Flare Replacement - South Coast Air Basin, Summer

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	0.0169	0.0866	0.2553	8.9000e-004	0.0706	8.6000e-004	0.0715	0.0189	8.1000e-004	0.0197		89.9044	89.9044	4.3300e-003		90.0126
Unmitigated	0.0169	0.0866	0.2553	8.9000e-004	0.0706	8.6000e-004	0.0715	0.0189	8.1000e-004	0.0197		89.9044	89.9044	4.3300e-003		90.0126

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	7.50	7.50	7.50	33,212	33,212
Total	7.50	7.50	7.50	33,212	33,212

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
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.550339	0.043800	0.200255	0.122233	0.016799	0.005871	0.020633	0.029727	0.002027	0.001932	0.004726	0.000704	0.000955

1118.1 Flare Replacement - South Coast Air Basin, Summer

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
NaturalGas Unmitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434

1118.1 Flare Replacement - South Coast Air Basin, Summer

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					
General Heavy Industry	247.945	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Total		**2.6700e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1700**	**29.1700**	**5.6000e-004**	**5.3000e-004**	**29.3434**

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					
General Heavy Industry	0.247945	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Total		**2.6700e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1700**	**29.1700**	**5.6000e-004**	**5.3000e-004**	**29.3434**

6.0 Area Detail

6.1 Mitigation Measures Area

1118.1 Flare Replacement - South Coast Air Basin, 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	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Unmitigated	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0990					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1118**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

1118.1 Flare Replacement - South Coast Air Basin, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0990					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1118**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

1118.1 Flare Replacement - South Coast Air Basin, Summer

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

1118.1 Flare Replacement - South Coast Air Basin, Winter

1118.1 Flare Replacement

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	11			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - 6 Weeks construction to install up to 4 new CEB/ZULE flares

Off-road Equipment - 1 A-frame truck crane needed to remove old flare. 1 Backhoe needed for demolition.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Equipment is skid mounted. Crane and forklift and welder needed for installation.

Demolition -

1118.1 Flare Replacement - South Coast Air Basin, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	30.00
tblConstructionPhase	PhaseEndDate	3/7/2019	11/29/2018
tblOffRoadEquipment	HorsePower	231.00	247.00
tblOffRoadEquipment	LoadFactor	0.29	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Cranes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

2.0 Emissions Summary

1118.1 Flare Replacement - South Coast Air Basin, 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					
2018	0.8769	9.7784	4.7700	0.0103	0.5861	0.4667	1.0046	0.0721	0.4294	0.4570	0.0000	1,039.8739	1,039.8739	0.3079	0.0000	1,047.5711
Maximum	**0.8769**	**9.7784**	**4.7700**	**0.0103**	**0.5861**	**0.4667**	**1.0046**	**0.0721**	**0.4294**	**0.4570**	**0.0000**	**1,039.8739**	**1,039.8739**	**0.3079**	**0.0000**	**1,047.5711**

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					
2018	0.8769	9.7784	4.7700	0.0103	0.5861	0.4667	1.0046	0.0721	0.4294	0.4570	0.0000	1,039.8739	1,039.8739	0.3079	0.0000	1,047.5711
Maximum	**0.8769**	**9.7784**	**4.7700**	**0.0103**	**0.5861**	**0.4667**	**1.0046**	**0.0721**	**0.4294**	**0.4570**	**0.0000**	**1,039.8739**	**1,039.8739**	**0.3079**	**0.0000**	**1,047.5711**

	ROG	NOx	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**

1118.1 Flare Replacement - South Coast Air Basin, 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	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Mobile	0.0163	0.0892	0.2380	8.4000e-004	0.0706	8.7000e-004	0.0715	0.0189	8.2000e-004	0.0197		85.3364	85.3364	4.2900e-003		85.4436
Total	**0.1307**	**0.1135**	**0.2590**	**9.9000e-004**	**0.0706**	**2.7200e-003**	**0.0733**	**0.0189**	**2.6700e-003**	**0.0216**		**114.5075**	**114.5075**	**4.8500e-003**	**5.3000e-004**	**114.7881**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Mobile	0.0163	0.0892	0.2380	8.4000e-004	0.0706	8.7000e-004	0.0715	0.0189	8.2000e-004	0.0197		85.3364	85.3364	4.2900e-003		85.4436
Total	**0.1307**	**0.1135**	**0.2590**	**9.9000e-004**	**0.0706**	**2.7200e-003**	**0.0733**	**0.0189**	**2.6700e-003**	**0.0216**		**114.5075**	**114.5075**	**4.8500e-003**	**5.3000e-004**	**114.7881**

1118.1 Flare Replacement - South Coast Air Basin, 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	10/2/2018	10/15/2018	5	10	
2	Site Preparation	Site Preparation	10/16/2018	10/16/2018	5	1	
3	Building Construction	Building Construction	10/19/2018	11/29/2018	5	30	

Acres of Grading (Site Preparation Phase): 0.5

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

1118.1 Flare Replacement - South Coast Air Basin, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Cranes	1	6.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	3	2.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

1118.1 Flare Replacement - South Coast Air Basin, Winter

3.2 Demolition - 2018

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					8.5600e-003	0.0000	8.5600e-003	1.3000e-003	0.0000	1.3000e-003			0.0000			0.0000
Off-Road	0.8309	9.5170	4.5421	8.7100e-003		0.4663	0.4663		0.4290	0.4290		876.8018	876.8018	0.2730		883.6258
Total	**0.8309**	**9.5170**	**4.5421**	**8.7100e-003**	**8.5600e-003**	**0.4663**	**0.4748**	**1.3000e-003**	**0.4290**	**0.4303**		**876.8018**	**876.8018**	**0.2730**		**883.6258**

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	0.0293	0.0212	0.2280	5.7000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		57.1626	57.1626	1.9600e-003		57.2116
Total	**0.0293**	**0.0212**	**0.2280**	**5.7000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**57.1626**	**57.1626**	**1.9600e-003**		**57.2116**

1118.1 Flare Replacement - South Coast Air Basin, Winter

3.2 Demolition - 2018

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					8.5600e-003	0.0000	8.5600e-003	1.3000e-003	0.0000	1.3000e-003			0.0000			0.0000
Off-Road	0.8309	9.5170	4.5421	8.7100e-003		0.4663	0.4663		0.4290	0.4290	0.0000	876.8018	876.8018	0.2730		883.6258
Total	**0.8309**	**9.5170**	**4.5421**	**8.7100e-003**	**8.5600e-003**	**0.4663**	**0.4748**	**1.3000e-003**	**0.4290**	**0.4303**	**0.0000**	**876.8018**	**876.8018**	**0.2730**		**883.6258**

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	0.0293	0.0212	0.2280	5.7000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		57.1626	57.1626	1.9600e-003		57.2116
Total	**0.0293**	**0.0212**	**0.2280**	**5.7000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**57.1626**	**57.1626**	**1.9600e-003**		**57.2116**

1118.1 Flare Replacement - South Coast Air Basin, Winter

3.3 Site Preparation - 2018

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846		982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.5303**	**0.4180**	**0.9483**	**0.0573**	**0.3846**	**0.4418**		**982.7113**	**982.7113**	**0.3059**		**990.3596**

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	0.0293	0.0212	0.2280	5.7000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		57.1626	57.1626	1.9600e-003		57.2116
Total	**0.0293**	**0.0212**	**0.2280**	**5.7000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**57.1626**	**57.1626**	**1.9600e-003**		**57.2116**

1118.1 Flare Replacement - South Coast Air Basin, Winter

3.3 Site Preparation - 2018

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846	0.0000	982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.5303**	**0.4180**	**0.9483**	**0.0573**	**0.3846**	**0.4418**	**0.0000**	**982.7113**	**982.7113**	**0.3059**		**990.3596**

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	0.0293	0.0212	0.2280	5.7000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		57.1626	57.1626	1.9600e-003		57.2116
Total	**0.0293**	**0.0212**	**0.2280**	**5.7000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**57.1626**	**57.1626**	**1.9600e-003**		**57.2116**

1118.1 Flare Replacement - South Coast Air Basin, Winter

3.4 Building Construction - 2018

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	0.8607	6.2732	4.0284	6.5800e-003		0.3554	0.3554		0.3360	0.3360		613.1174	613.1174	0.1661		617.2693
Total	**0.8607**	**6.2732**	**4.0284**	**6.5800e-003**		**0.3554**	**0.3554**		**0.3360**	**0.3360**		**613.1174**	**613.1174**	**0.1661**		**617.2693**

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	4.4800e-003	0.1218	0.0341	2.5000e-004	6.4000e-003	9.0000e-004	7.3000e-003	1.8400e-003	8.6000e-004	2.7000e-003		26.9641	26.9641	2.0500e-003		27.0153
Worker	0.0117	8.4600e-003	0.0912	2.3000e-004	0.0224	1.8000e-004	0.0225	5.9300e-003	1.7000e-004	6.0900e-003		22.8651	22.8651	7.8000e-004		22.8846
Total	**0.0162**	**0.1302**	**0.1252**	**4.8000e-004**	**0.0288**	**1.0800e-003**	**0.0298**	**7.7700e-003**	**1.0300e-003**	**8.7900e-003**		**49.8292**	**49.8292**	**2.8300e-003**		**49.8999**

1118.1 Flare Replacement - South Coast Air Basin, Winter

3.4 Building Construction - 2018

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	0.8607	6.2732	4.0284	6.5800e-003		0.3554	0.3554		0.3360	0.3360	0.0000	613.1174	613.1174	0.1661		617.2693
Total	**0.8607**	**6.2732**	**4.0284**	**6.5800e-003**		**0.3554**	**0.3554**		**0.3360**	**0.3360**	**0.0000**	**613.1174**	**613.1174**	**0.1661**		**617.2693**

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	4.4800e-003	0.1218	0.0341	2.5000e-004	6.4000e-003	9.0000e-004	7.3000e-003	1.8400e-003	8.6000e-004	2.7000e-003		26.9641	26.9641	2.0500e-003		27.0153
Worker	0.0117	8.4600e-003	0.0912	2.3000e-004	0.0224	1.8000e-004	0.0225	5.9300e-003	1.7000e-004	6.0900e-003		22.8651	22.8651	7.8000e-004		22.8846
Total	**0.0162**	**0.1302**	**0.1252**	**4.8000e-004**	**0.0288**	**1.0800e-003**	**0.0298**	**7.7700e-003**	**1.0300e-003**	**8.7900e-003**		**49.8292**	**49.8292**	**2.8300e-003**		**49.8999**

4.0 Operational Detail - Mobile

1118.1 Flare Replacement - South Coast Air Basin, Winter

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	0.0163	0.0892	0.2380	8.4000e-004	0.0706	8.7000e-004	0.0715	0.0189	8.2000e-004	0.0197		85.3364	85.3364	4.2900e-003		85.4436
Unmitigated	0.0163	0.0892	0.2380	8.4000e-004	0.0706	8.7000e-004	0.0715	0.0189	8.2000e-004	0.0197		85.3364	85.3364	4.2900e-003		85.4436

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	7.50	7.50	7.50	33,212	33,212
Total	7.50	7.50	7.50	33,212	33,212

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
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.550339	0.043800	0.200255	0.122233	0.016799	0.005871	0.020633	0.029727	0.002027	0.001932	0.004726	0.000704	0.000955

1118.1 Flare Replacement - South Coast Air Basin, Winter

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
NaturalGas Unmitigated	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434

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					
General Heavy Industry	247.945	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Total		**2.6700e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1700**	**29.1700**	**5.6000e-004**	**5.3000e-004**	**29.3434**

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					
General Heavy Industry	0.247945	2.6700e-003	0.0243	0.0204	1.5000e-004		1.8500e-003	1.8500e-003		1.8500e-003	1.8500e-003		29.1700	29.1700	5.6000e-004	5.3000e-004	29.3434
Total		**2.6700e-003**	**0.0243**	**0.0204**	**1.5000e-004**		**1.8500e-003**	**1.8500e-003**		**1.8500e-003**	**1.8500e-003**		**29.1700**	**29.1700**	**5.6000e-004**	**5.3000e-004**	**29.3434**

6.0 Area Detail

6.1 Mitigation Measures Area

1118.1 Flare Replacement - South Coast Air Basin, 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	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Unmitigated	0.1118	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0990					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1118**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

1118.1 Flare Replacement - South Coast Air Basin, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0990					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1118**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

1118.1 Flare Replacement - South Coast Air Basin, Winter

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

Fuel Cell and Gas Processing System

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

1118.1 Fuel Cell and Compressed Natural Gas System Project

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.40	1000sqft	0.06	2,400.00	0
Other Asphalt Surfaces	6.00	1000sqft	0.14	6,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	11			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips -

Fleet Mix -

Table Name	Column Name	Default Value	New Value

2.0 Emissions Summary

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, 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					
2018	0.0348	0.3496	0.2496	3.8000e-004	2.6600e-003	0.0221	0.0248	8.8000e-004	0.0204	0.0213	0.0000	34.8514	34.8514	0.0102	0.0000	35.1054
2019	0.0221	0.2189	0.1746	2.8000e-004	1.5000e-003	0.0132	0.0147	4.0000e-004	0.0122	0.0126	0.0000	24.6210	24.6210	7.2300e-003	0.0000	24.8018
Maximum	**0.0348**	**0.3496**	**0.2496**	**3.8000e-004**	**2.6600e-003**	**0.0221**	**0.0248**	**8.8000e-004**	**0.0204**	**0.0213**	**0.0000**	**34.8514**	**34.8514**	**0.0102**	**0.0000**	**35.1054**

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					
2018	0.0348	0.3496	0.2496	3.8000e-004	2.6600e-003	0.0221	0.0248	8.8000e-004	0.0204	0.0213	0.0000	34.8514	34.8514	0.0102	0.0000	35.1053
2019	0.0221	0.2189	0.1746	2.8000e-004	1.5000e-003	0.0132	0.0147	4.0000e-004	0.0122	0.0126	0.0000	24.6209	24.6209	7.2300e-003	0.0000	24.8017
Maximum	**0.0348**	**0.3496**	**0.2496**	**3.8000e-004**	**2.6600e-003**	**0.0221**	**0.0248**	**8.8000e-004**	**0.0204**	**0.0213**	**0.0000**	**34.8514**	**34.8514**	**0.0102**	**0.0000**	**35.1053**

	ROG	NOx	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**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-4-2018	1-3-2019	0.3991	0.3991
2	1-4-2019	4-3-2019	0.2292	0.2292
		Highest	0.3991	0.3991

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	0.0103	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.2000e-004
Energy	2.3000e-004	2.1300e-003	1.7900e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	17.1556	17.1556	3.9000e-004	1.2000e-004	17.1997
Mobile	1.4000e-003	7.9400e-003	0.0212	7.0000e-005	6.0500e-003	8.0000e-005	6.1300e-003	1.6200e-003	7.0000e-005	1.6900e-003	0.0000	6.8498	6.8498	3.4000e-004	0.0000	6.8582
Waste						0.0000	0.0000		0.0000	0.0000	0.6049	0.0000	0.6049	0.0358	0.0000	1.4987
Water						0.0000	0.0000		0.0000	0.0000	0.1761	4.0250	4.2010	0.0182	4.5000e-004	4.7887
Total	**0.0119**	**0.0101**	**0.0231**	**8.0000e-005**	**6.0500e-003**	**2.4000e-004**	**6.2900e-003**	**1.6200e-003**	**2.3000e-004**	**1.8500e-003**	**0.7810**	**28.0305**	**28.8115**	**0.0547**	**5.7000e-004**	**30.3455**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

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	0.0103	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.2000e-004
Energy	2.3000e-004	2.1300e-003	1.7900e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	17.1556	17.1556	3.9000e-004	1.2000e-004	17.1997
Mobile	1.4000e-003	7.9400e-003	0.0212	7.0000e-005	6.0500e-003	8.0000e-005	6.1300e-003	1.6200e-003	7.0000e-005	1.6900e-003	0.0000	6.8498	6.8498	3.4000e-004	0.0000	6.8582
Waste						0.0000	0.0000		0.0000	0.0000	0.6049	0.0000	0.6049	0.0358	0.0000	1.4987
Water						0.0000	0.0000		0.0000	0.0000	0.1761	4.0250	4.2010	0.0182	4.5000e-004	4.7887
Total	**0.0119**	**0.0101**	**0.0231**	**8.0000e-005**	**6.0500e-003**	**2.4000e-004**	**6.2900e-003**	**1.6200e-003**	**2.3000e-004**	**1.8500e-003**	**0.7810**	**28.0305**	**28.8115**	**0.0547**	**5.7000e-004**	**30.3455**

	ROG	NOx	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

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	10/4/2018	10/4/2018	5	1	
2	Grading	Grading	10/5/2018	10/8/2018	5	2	
3	Building Construction	Building Construction	10/9/2018	2/25/2019	5	100	
4	Paving	Paving	2/26/2019	3/4/2019	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.14

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	4.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2018

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					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9000e-004	4.8800e-003	2.1300e-003	0.0000		2.1000e-004	2.1000e-004		1.9000e-004	1.9000e-004	0.0000	0.4458	0.4458	1.4000e-004	0.0000	0.4492
Total	**3.9000e-004**	**4.8800e-003**	**2.1300e-003**	**0.0000**	**2.7000e-004**	**2.1000e-004**	**4.8000e-004**	**3.0000e-005**	**1.9000e-004**	**2.2000e-004**	**0.0000**	**0.4458**	**0.4458**	**1.4000e-004**	**0.0000**	**0.4492**

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3.2 Site Preparation - 2018

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	1.0000e-005	1.0000e-005	1.2000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0263	0.0263	0.0000	0.0000	0.0264
Total	**1.0000e-005**	**1.0000e-005**	**1.2000e-004**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0263**	**0.0263**	**0.0000**	**0.0000**	**0.0264**

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					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.9000e-004	4.8800e-003	2.1300e-003	0.0000		2.1000e-004	2.1000e-004		1.9000e-004	1.9000e-004	0.0000	0.4458	0.4458	1.4000e-004	0.0000	0.4492
Total	**3.9000e-004**	**4.8800e-003**	**2.1300e-003**	**0.0000**	**2.7000e-004**	**2.1000e-004**	**4.8000e-004**	**3.0000e-005**	**1.9000e-004**	**2.2000e-004**	**0.0000**	**0.4458**	**0.4458**	**1.4000e-004**	**0.0000**	**0.4492**

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3.2 Site Preparation - 2018

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	1.0000e-005	1.0000e-005	1.2000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0263	0.0263	0.0000	0.0000	0.0264
Total	**1.0000e-005**	**1.0000e-005**	**1.2000e-004**	**0.0000**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0263**	**0.0263**	**0.0000**	**0.0000**	**0.0264**

3.3 Grading - 2018

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					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0600e-003	9.4300e-003	7.7800e-003	1.0000e-005		6.2000e-004	6.2000e-004		5.9000e-004	5.9000e-004	0.0000	1.0608	1.0608	2.0000e-004	0.0000	1.0659
Total	**1.0600e-003**	**9.4300e-003**	**7.7800e-003**	**1.0000e-005**	**7.5000e-004**	**6.2000e-004**	**1.3700e-003**	**4.1000e-004**	**5.9000e-004**	**1.0000e-003**	**0.0000**	**1.0608**	**1.0608**	**2.0000e-004**	**0.0000**	**1.0659**

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3.3 Grading - 2018

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	5.0000e-005	4.0000e-005	4.7000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1054	0.1054	0.0000	0.0000	0.1054
Total	**5.0000e-005**	**4.0000e-005**	**4.7000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1054**	**0.1054**	**0.0000**	**0.0000**	**0.1054**

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					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0600e-003	9.4300e-003	7.7800e-003	1.0000e-005		6.2000e-004	6.2000e-004		5.9000e-004	5.9000e-004	0.0000	1.0608	1.0608	2.0000e-004	0.0000	1.0659
Total	**1.0600e-003**	**9.4300e-003**	**7.7800e-003**	**1.0000e-005**	**7.5000e-004**	**6.2000e-004**	**1.3700e-003**	**4.1000e-004**	**5.9000e-004**	**1.0000e-003**	**0.0000**	**1.0608**	**1.0608**	**2.0000e-004**	**0.0000**	**1.0659**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

3.3 Grading - 2018

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	5.0000e-005	4.0000e-005	4.7000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1054	0.1054	0.0000	0.0000	0.1054
Total	**5.0000e-005**	**4.0000e-005**	**4.7000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1054**	**0.1054**	**0.0000**	**0.0000**	**0.1054**

3.4 Building Construction - 2018

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	0.0325	0.3310	0.2325	3.4000e-004		0.0213	0.0213		0.0196	0.0196	0.0000	31.2035	31.2035	9.7100e-003	0.0000	31.4464
Total	**0.0325**	**0.3310**	**0.2325**	**3.4000e-004**		**0.0213**	**0.0213**		**0.0196**	**0.0196**	**0.0000**	**31.2035**	**31.2035**	**9.7100e-003**	**0.0000**	**31.4464**

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3.4 Building Construction - 2018

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	3.7200e-003	9.7000e-004	1.0000e-005	1.9000e-004	3.0000e-005	2.2000e-004	5.0000e-005	3.0000e-005	8.0000e-005	0.0000	0.7455	0.7455	5.0000e-005	0.0000	0.7468
Worker	6.4000e-004	5.2000e-004	5.6100e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.2642	1.2642	4.0000e-005	0.0000	1.2653
Total	**7.7000e-004**	**4.2400e-003**	**6.5800e-003**	**2.0000e-005**	**1.5100e-003**	**4.0000e-005**	**1.5500e-003**	**4.0000e-004**	**4.0000e-005**	**4.4000e-004**	**0.0000**	**2.0097**	**2.0097**	**9.0000e-005**	**0.0000**	**2.0121**

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	0.0325	0.3310	0.2325	3.4000e-004		0.0213	0.0213		0.0196	0.0196	0.0000	31.2035	31.2035	9.7100e-003	0.0000	31.4463
Total	**0.0325**	**0.3310**	**0.2325**	**3.4000e-004**		**0.0213**	**0.0213**		**0.0196**	**0.0196**	**0.0000**	**31.2035**	**31.2035**	**9.7100e-003**	**0.0000**	**31.4463**

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3.4 Building Construction - 2018

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	3.7200e-003	9.7000e-004	1.0000e-005	1.9000e-004	3.0000e-005	2.2000e-004	5.0000e-005	3.0000e-005	8.0000e-005	0.0000	0.7455	0.7455	5.0000e-005	0.0000	0.7468
Worker	6.4000e-004	5.2000e-004	5.6100e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.2642	1.2642	4.0000e-005	0.0000	1.2653
Total	**7.7000e-004**	**4.2400e-003**	**6.5800e-003**	**2.0000e-005**	**1.5100e-003**	**4.0000e-005**	**1.5500e-003**	**4.0000e-004**	**4.0000e-005**	**4.4000e-004**	**0.0000**	**2.0097**	**2.0097**	**9.0000e-005**	**0.0000**	**2.0121**

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	0.0192	0.1964	0.1509	2.3000e-004		0.0121	0.0121		0.0111	0.0111	0.0000	20.4601	20.4601	6.4700e-003	0.0000	20.6219
Total	**0.0192**	**0.1964**	**0.1509**	**2.3000e-004**		**0.0121**	**0.0121**		**0.0111**	**0.0111**	**0.0000**	**20.4601**	**20.4601**	**6.4700e-003**	**0.0000**	**20.6219**

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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	8.0000e-005	2.3400e-003	6.0000e-004	1.0000e-005	1.3000e-004	2.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4925	0.4925	3.0000e-005	0.0000	0.4933
Worker	3.9000e-004	3.1000e-004	3.3400e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.8162	0.8162	3.0000e-005	0.0000	0.8168
Total	**4.7000e-004**	**2.6500e-003**	**3.9400e-003**	**2.0000e-005**	**1.0100e-003**	**3.0000e-005**	**1.0200e-003**	**2.7000e-004**	**2.0000e-005**	**2.9000e-004**	**0.0000**	**1.3087**	**1.3087**	**6.0000e-005**	**0.0000**	**1.3102**

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	0.0192	0.1964	0.1509	2.3000e-004		0.0121	0.0121		0.0111	0.0111	0.0000	20.4601	20.4601	6.4700e-003	0.0000	20.6219
Total	**0.0192**	**0.1964**	**0.1509**	**2.3000e-004**		**0.0121**	**0.0121**		**0.0111**	**0.0111**	**0.0000**	**20.4601**	**20.4601**	**6.4700e-003**	**0.0000**	**20.6219**

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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	8.0000e-005	2.3400e-003	6.0000e-004	1.0000e-005	1.3000e-004	2.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4925	0.4925	3.0000e-005	0.0000	0.4933
Worker	3.9000e-004	3.1000e-004	3.3400e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.8162	0.8162	3.0000e-005	0.0000	0.8168
Total	**4.7000e-004**	**2.6500e-003**	**3.9400e-003**	**2.0000e-005**	**1.0100e-003**	**3.0000e-005**	**1.0200e-003**	**2.7000e-004**	**2.0000e-005**	**2.9000e-004**	**0.0000**	**1.3087**	**1.3087**	**6.0000e-005**	**0.0000**	**1.3102**

3.5 Paving - 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	2.0700e-003	0.0196	0.0179	3.0000e-005		1.1100e-003	1.1100e-003		1.0300e-003	1.0300e-003	0.0000	2.3931	2.3931	6.8000e-004	0.0000	2.4102
Paving	1.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2500e-003**	**0.0196**	**0.0179**	**3.0000e-005**		**1.1100e-003**	**1.1100e-003**		**1.0300e-003**	**1.0300e-003**	**0.0000**	**2.3931**	**2.3931**	**6.8000e-004**	**0.0000**	**2.4102**

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3.5 Paving - 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	2.2000e-004	1.7000e-004	1.8800e-003	1.0000e-005	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4591	0.4591	1.0000e-005	0.0000	0.4595
Total	**2.2000e-004**	**1.7000e-004**	**1.8800e-003**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4591**	**0.4591**	**1.0000e-005**	**0.0000**	**0.4595**

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	2.0700e-003	0.0196	0.0179	3.0000e-005		1.1100e-003	1.1100e-003		1.0300e-003	1.0300e-003	0.0000	2.3931	2.3931	6.8000e-004	0.0000	2.4102
Paving	1.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2500e-003**	**0.0196**	**0.0179**	**3.0000e-005**		**1.1100e-003**	**1.1100e-003**		**1.0300e-003**	**1.0300e-003**	**0.0000**	**2.3931**	**2.3931**	**6.8000e-004**	**0.0000**	**2.4102**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

3.5 Paving - 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	2.2000e-004	1.7000e-004	1.8800e-003	1.0000e-005	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4591	0.4591	1.0000e-005	0.0000	0.4595
Total	**2.2000e-004**	**1.7000e-004**	**1.8800e-003**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4591**	**0.4591**	**1.0000e-005**	**0.0000**	**0.4595**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	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	1.4000e-003	7.9400e-003	0.0212	7.0000e-005	6.0500e-003	8.0000e-005	6.1300e-003	1.6200e-003	7.0000e-005	1.6900e-003	0.0000	6.8498	6.8498	3.4000e-004	0.0000	6.8582
Unmitigated	1.4000e-003	7.9400e-003	0.0212	7.0000e-005	6.0500e-003	8.0000e-005	6.1300e-003	1.6200e-003	7.0000e-005	1.6900e-003	0.0000	6.8498	6.8498	3.4000e-004	0.0000	6.8582

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.60	3.60	3.60	15,942	15,942
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	3.60	3.60	3.60	15,942	15,942

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
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	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
General Heavy Industry	0.550339	0.043800	0.200255	0.122233	0.016799	0.005871	0.020633	0.029727	0.002027	0.001932	0.004726	0.000704	0.000955
Other Asphalt Surfaces	0.550339	0.043800	0.200255	0.122233	0.016799	0.005871	0.020633	0.029727	0.002027	0.001932	0.004726	0.000704	0.000955

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

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	14.8375	14.8375	3.5000e-004	7.0000e-005	14.8678
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	14.8375	14.8375	3.5000e-004	7.0000e-005	14.8678
NaturalGas Mitigated	2.3000e-004	2.1300e-003	1.7900e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.3181	2.3181	4.0000e-005	4.0000e-005	2.3319
NaturalGas Unmitigated	2.3000e-004	2.1300e-003	1.7900e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.3181	2.3181	4.0000e-005	4.0000e-005	2.3319

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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					
General Heavy Industry	43440	2.3000e-004	2.1300e-003	1.7900e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.3181	2.3181	4.0000e-005	4.0000e-005	2.3319
Other Asphalt Surfaces	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		**2.3000e-004**	**2.1300e-003**	**1.7900e-003**	**1.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**	**0.0000**	**2.3181**	**2.3181**	**4.0000e-005**	**4.0000e-005**	**2.3319**

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					
General Heavy Industry	43440	2.3000e-004	2.1300e-003	1.7900e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.3181	2.3181	4.0000e-005	4.0000e-005	2.3319
Other Asphalt Surfaces	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		**2.3000e-004**	**2.1300e-003**	**1.7900e-003**	**1.0000e-005**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**	**0.0000**	**2.3181**	**2.3181**	**4.0000e-005**	**4.0000e-005**	**2.3319**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	26640	14.8375	3.5000e-004	7.0000e-005	14.8678
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**14.8375**	**3.5000e-004**	**7.0000e-005**	**14.8678**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	26640	14.8375	3.5000e-004	7.0000e-005	14.8678
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**14.8375**	**3.5000e-004**	**7.0000e-005**	**14.8678**

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	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	0.0103	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.2000e-004
Unmitigated	0.0103	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.0600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.2000e-004
Total	**0.0103**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.1000e-004**	**2.1000e-004**	**0.0000**	**0.0000**	**2.2000e-004**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.0600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.2000e-004
Total	**0.0103**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.1000e-004**	**2.1000e-004**	**0.0000**	**0.0000**	**2.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.2010	0.0182	4.5000e-004	4.7887
Unmitigated	4.2010	0.0182	4.5000e-004	4.7887

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.555 / 0	4.2010	0.0182	4.5000e-004	4.7887
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.2010**	**0.0182**	**4.5000e-004**	**4.7887**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.555 / 0	4.2010	0.0182	4.5000e-004	4.7887
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.2010**	**0.0182**	**4.5000e-004**	**4.7887**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.6049	0.0358	0.0000	1.4987
Unmitigated	0.6049	0.0358	0.0000	1.4987

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	2.98	0.6049	0.0358	0.0000	1.4987
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.6049**	**0.0358**	**0.0000**	**1.4987**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	2.98	0.6049	0.0358	0.0000	1.4987
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.6049**	**0.0358**	**0.0000**	**1.4987**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, 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

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

1118.1 Fuel Cell and Compressed Natural Gas System Project

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.40	1000sqft	0.06	2,400.00	0
Other Asphalt Surfaces	6.00	1000sqft	0.14	6,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	11			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips -

Fleet Mix -

Table Name	Column Name	Default Value	New Value

2.0 Emissions Summary

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, 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					
2018	1.1177	11.1685	8.2765	0.0132	0.8645	0.7099	1.4882	0.4434	0.6532	1.0385	0.0000	1,291.2223	1,291.2223	0.3605	0.0000	1,296.9618
2019	0.9907	9.9491	7.9540	0.0134	0.2012	0.6065	0.6576	0.0534	0.5580	0.5717	0.0000	1,267.6474	1,267.6474	0.3601	0.0000	1,275.3547
Maximum	**1.1177**	**11.1685**	**8.2765**	**0.0134**	**0.8645**	**0.7099**	**1.4882**	**0.4434**	**0.6532**	**1.0385**	**0.0000**	**1,291.2223**	**1,291.2223**	**0.3605**	**0.0000**	**1,296.9618**

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					
2018	1.1177	11.1685	8.2765	0.0132	0.8645	0.7099	1.4882	0.4434	0.6532	1.0385	0.0000	1,291.2223	1,291.2223	0.3605	0.0000	1,296.9618
2019	0.9907	9.9491	7.9540	0.0134	0.2012	0.6065	0.6576	0.0534	0.5580	0.5717	0.0000	1,267.6474	1,267.6474	0.3601	0.0000	1,275.3547
Maximum	**1.1177**	**11.1685**	**8.2765**	**0.0134**	**0.8645**	**0.7099**	**1.4882**	**0.4434**	**0.6532**	**1.0385**	**0.0000**	**1,291.2223**	**1,291.2223**	**0.3605**	**0.0000**	**1,296.9618**

	ROG	NOx	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**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, 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	0.0563	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003
Energy	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848
Mobile	8.1200e-003	0.0416	0.1225	4.3000e-004	0.0339	4.2000e-004	0.0343	9.0700e-003	3.9000e-004	9.4500e-003		43.1541	43.1541	2.0800e-003		43.2061
Total	**0.0657**	**0.0533**	**0.1332**	**5.0000e-004**	**0.0339**	**1.3100e-003**	**0.0352**	**9.0700e-003**	**1.2800e-003**	**0.0103**		**57.1576**	**57.1576**	**2.3500e-003**	**2.6000e-004**	**57.2929**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0563	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003
Energy	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848
Mobile	8.1200e-003	0.0416	0.1225	4.3000e-004	0.0339	4.2000e-004	0.0343	9.0700e-003	3.9000e-004	9.4500e-003		43.1541	43.1541	2.0800e-003		43.2061
Total	**0.0657**	**0.0533**	**0.1332**	**5.0000e-004**	**0.0339**	**1.3100e-003**	**0.0352**	**9.0700e-003**	**1.2800e-003**	**0.0103**		**57.1576**	**57.1576**	**2.3500e-003**	**2.6000e-004**	**57.2929**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, 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	Site Preparation	Site Preparation	10/4/2018	10/4/2018	5	1	
2	Grading	Grading	10/5/2018	10/8/2018	5	2	
3	Building Construction	Building Construction	10/9/2018	2/25/2019	5	100	
4	Paving	Paving	2/26/2019	3/4/2019	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.14

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

OffRoad Equipment

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	4.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

3.2 Site Preparation - 2018

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846		982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.5303**	**0.4180**	**0.9483**	**0.0573**	**0.3846**	**0.4418**		**982.7113**	**982.7113**	**0.3059**		**990.3596**

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	0.0267	0.0193	0.2502	6.1000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		60.9360	60.9360	2.0800e-003		60.9881
Total	**0.0267**	**0.0193**	**0.2502**	**6.1000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**60.9360**	**60.9360**	**2.0800e-003**		**60.9881**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

3.2 Site Preparation - 2018

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846	0.0000	982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.5303**	**0.4180**	**0.9483**	**0.0573**	**0.3846**	**0.4418**	**0.0000**	**982.7113**	**982.7113**	**0.3059**		**990.3596**

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	0.0267	0.0193	0.2502	6.1000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		60.9360	60.9360	2.0800e-003		60.9881
Total	**0.0267**	**0.0193**	**0.2502**	**6.1000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**60.9360**	**60.9360**	**2.0800e-003**		**60.9881**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

3.3 Grading - 2018

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					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	1.0643	9.4295	7.7762	0.0120		0.6228	0.6228		0.5943	0.5943		1,169.3502	1,169.3502	0.2254		1,174.9857
Total	**1.0643**	**9.4295**	**7.7762**	**0.0120**	**0.7528**	**0.6228**	**1.3755**	**0.4138**	**0.5943**	**1.0081**		**1,169.3502**	**1,169.3502**	**0.2254**		**1,174.9857**

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	0.0534	0.0385	0.5003	1.2200e-003	0.1118	9.0000e-004	0.1127	0.0296	8.3000e-004	0.0305		121.8720	121.8720	4.1700e-003		121.9761
Total	**0.0534**	**0.0385**	**0.5003**	**1.2200e-003**	**0.1118**	**9.0000e-004**	**0.1127**	**0.0296**	**8.3000e-004**	**0.0305**		**121.8720**	**121.8720**	**4.1700e-003**		**121.9761**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

3.3 Grading - 2018

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					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	1.0643	9.4295	7.7762	0.0120		0.6228	0.6228		0.5943	0.5943	0.0000	1,169.3502	1,169.3502	0.2254		1,174.9857
Total	**1.0643**	**9.4295**	**7.7762**	**0.0120**	**0.7528**	**0.6228**	**1.3755**	**0.4138**	**0.5943**	**1.0081**	**0.0000**	**1,169.3502**	**1,169.3502**	**0.2254**		**1,174.9857**

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	0.0534	0.0385	0.5003	1.2200e-003	0.1118	9.0000e-004	0.1127	0.0296	8.3000e-004	0.0305		121.8720	121.8720	4.1700e-003		121.9761
Total	**0.0534**	**0.0385**	**0.5003**	**1.2200e-003**	**0.1118**	**9.0000e-004**	**0.1127**	**0.0296**	**8.3000e-004**	**0.0305**		**121.8720**	**121.8720**	**4.1700e-003**		**121.9761**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

3.4 Building Construction - 2018

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	1.0848	11.0316	7.7512	0.0114		0.7087	0.7087		0.6520	0.6520		1,146.5323	1,146.5323	0.3569		1,155.4555
Total	**1.0848**	**11.0316**	**7.7512**	**0.0114**		**0.7087**	**0.7087**		**0.6520**	**0.6520**		**1,146.5323**	**1,146.5323**	**0.3569**		**1,155.4555**

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	4.3000e-003	0.1215	0.0308	2.6000e-004	6.4000e-003	8.9000e-004	7.2900e-003	1.8400e-003	8.5000e-004	2.6900e-003		27.7009	27.7009	1.9100e-003		27.7488
Worker	0.0214	0.0154	0.2001	4.9000e-004	0.0447	3.6000e-004	0.0451	0.0119	3.3000e-004	0.0122		48.7488	48.7488	1.6700e-003		48.7905
Total	**0.0257**	**0.1369**	**0.2310**	**7.5000e-004**	**0.0511**	**1.2500e-003**	**0.0524**	**0.0137**	**1.1800e-003**	**0.0149**		**76.4497**	**76.4497**	**3.5800e-003**		**76.5392**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

3.4 Building Construction - 2018

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	1.0848	11.0316	7.7512	0.0114		0.7087	0.7087		0.6520	0.6520	0.0000	1,146.5323	1,146.5323	0.3569		1,155.4555
Total	**1.0848**	**11.0316**	**7.7512**	**0.0114**		**0.7087**	**0.7087**		**0.6520**	**0.6520**	**0.0000**	**1,146.5323**	**1,146.5323**	**0.3569**		**1,155.4555**

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	4.3000e-003	0.1215	0.0308	2.6000e-004	6.4000e-003	8.9000e-004	7.2900e-003	1.8400e-003	8.5000e-004	2.6900e-003		27.7009	27.7009	1.9100e-003		27.7488
Worker	0.0214	0.0154	0.2001	4.9000e-004	0.0447	3.6000e-004	0.0451	0.0119	3.3000e-004	0.0122		48.7488	48.7488	1.6700e-003		48.7905
Total	**0.0257**	**0.1369**	**0.2310**	**7.5000e-004**	**0.0511**	**1.2500e-003**	**0.0524**	**0.0137**	**1.1800e-003**	**0.0149**		**76.4497**	**76.4497**	**3.5800e-003**		**76.5392**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

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	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569		1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**		**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

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	3.9000e-003	0.1148	0.0283	2.6000e-004	6.4000e-003	7.6000e-004	7.1600e-003	1.8400e-003	7.3000e-004	2.5700e-003		27.4512	27.4512	1.8500e-003		27.4974
Worker	0.0194	0.0136	0.1792	4.7000e-004	0.0447	3.5000e-004	0.0451	0.0119	3.2000e-004	0.0122		47.2145	47.2145	1.4800e-003		47.2515
Total	**0.0233**	**0.1284**	**0.2075**	**7.3000e-004**	**0.0511**	**1.1100e-003**	**0.0522**	**0.0137**	**1.0500e-003**	**0.0148**		**74.6657**	**74.6657**	**3.3300e-003**		**74.7488**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

3.4 Building Construction - 2019

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	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569	0.0000	1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**	**0.0000**	**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

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	3.9000e-003	0.1148	0.0283	2.6000e-004	6.4000e-003	7.6000e-004	7.1600e-003	1.8400e-003	7.3000e-004	2.5700e-003		27.4512	27.4512	1.8500e-003		27.4974
Worker	0.0194	0.0136	0.1792	4.7000e-004	0.0447	3.5000e-004	0.0451	0.0119	3.2000e-004	0.0122		47.2145	47.2145	1.4800e-003		47.2515
Total	**0.0233**	**0.1284**	**0.2075**	**7.3000e-004**	**0.0511**	**1.1100e-003**	**0.0522**	**0.0137**	**1.0500e-003**	**0.0148**		**74.6657**	**74.6657**	**3.3300e-003**		**74.7488**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

3.5 Paving - 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	0.8300	7.8446	7.1478	0.0113		0.4425	0.4425		0.4106	0.4106		1,055.1823	1,055.1823	0.3016		1,062.7231
Paving	0.0734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9033**	**7.8446**	**7.1478**	**0.0113**		**0.4425**	**0.4425**		**0.4106**	**0.4106**		**1,055.1823**	**1,055.1823**	**0.3016**		**1,062.7231**

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	0.0874	0.0612	0.8063	2.1300e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		212.4651	212.4651	6.6600e-003		212.6315
Total	**0.0874**	**0.0612**	**0.8063**	**2.1300e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**212.4651**	**212.4651**	**6.6600e-003**		**212.6315**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

3.5 Paving - 2019

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	0.8300	7.8446	7.1478	0.0113		0.4425	0.4425		0.4106	0.4106	0.0000	1,055.1823	1,055.1823	0.3016		1,062.7231
Paving	0.0734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9033**	**7.8446**	**7.1478**	**0.0113**		**0.4425**	**0.4425**		**0.4106**	**0.4106**	**0.0000**	**1,055.1823**	**1,055.1823**	**0.3016**		**1,062.7231**

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	0.0874	0.0612	0.8063	2.1300e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		212.4651	212.4651	6.6600e-003		212.6315
Total	**0.0874**	**0.0612**	**0.8063**	**2.1300e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**212.4651**	**212.4651**	**6.6600e-003**		**212.6315**

4.0 Operational Detail - Mobile

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

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	8.1200e-003	0.0416	0.1225	4.3000e-004	0.0339	4.2000e-004	0.0343	9.0700e-003	3.9000e-004	9.4500e-003		43.1541	43.1541	2.0800e-003		43.2061
Unmitigated	8.1200e-003	0.0416	0.1225	4.3000e-004	0.0339	4.2000e-004	0.0343	9.0700e-003	3.9000e-004	9.4500e-003		43.1541	43.1541	2.0800e-003		43.2061

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.60	3.60	3.60	15,942	15,942
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	3.60	3.60	3.60	15,942	15,942

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
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.550339	0.043800	0.200255	0.122233	0.016799	0.005871	0.020633	0.029727	0.002027	0.001932	0.004726	0.000704	0.000955
Other Asphalt Surfaces	0.550339	0.043800	0.200255	0.122233	0.016799	0.005871	0.020633	0.029727	0.002027	0.001932	0.004726	0.000704	0.000955

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	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848
NaturalGas Unmitigated	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848

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					
General Heavy Industry	119.014	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848
Other Asphalt Surfaces	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		**1.2800e-003**	**0.0117**	**9.8000e-003**	**7.0000e-005**		**8.9000e-004**	**8.9000e-004**		**8.9000e-004**	**8.9000e-004**		**14.0016**	**14.0016**	**2.7000e-004**	**2.6000e-004**	**14.0848**

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					
General Heavy Industry	0.119014	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848
Other Asphalt Surfaces	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		**1.2800e-003**	**0.0117**	**9.8000e-003**	**7.0000e-005**		**8.9000e-004**	**8.9000e-004**		**8.9000e-004**	**8.9000e-004**		**14.0016**	**14.0016**	**2.7000e-004**	**2.6000e-004**	**14.0848**

6.0 Area Detail

6.1 Mitigation Measures Area

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, 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	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0563	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003
Unmitigated	0.0563	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.5500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0497					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-005	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003
Total	**0.0563**	**1.0000e-005**	**8.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.8400e-003**	**1.8400e-003**	**0.0000**		**1.9600e-003**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.5500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0497					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-005	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003
Total	**0.0563**	**1.0000e-005**	**8.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.8400e-003**	**1.8400e-003**	**0.0000**		**1.9600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Summer

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

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

1118.1 Fuel Cell and Compressed Natural Gas System Project

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.40	1000sqft	0.06	2,400.00	0
Other Asphalt Surfaces	6.00	1000sqft	0.14	6,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	11			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

Project Characteristics -

Land Use -

Construction Phase -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Vehicle Trips -

Fleet Mix -

Table Name	Column Name	Default Value	New Value

2.0 Emissions Summary

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, 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					
2018	1.1229	11.1703	8.2322	0.0131	0.8645	0.7100	1.4882	0.4434	0.6532	1.0385	0.0000	1,283.6755	1,283.6755	0.3606	0.0000	1,289.4088
2019	0.9993	9.9506	7.8803	0.0133	0.2012	0.6065	0.6576	0.0534	0.5580	0.5717	0.0000	1,254.4724	1,254.4724	0.3602	0.0000	1,262.1695
Maximum	**1.1229**	**11.1703**	**8.2322**	**0.0133**	**0.8645**	**0.7100**	**1.4882**	**0.4434**	**0.6532**	**1.0385**	**0.0000**	**1,283.6755**	**1,283.6755**	**0.3606**	**0.0000**	**1,289.4088**

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					
2018	1.1229	11.1703	8.2322	0.0131	0.8645	0.7100	1.4882	0.4434	0.6532	1.0385	0.0000	1,283.6755	1,283.6755	0.3606	0.0000	1,289.4088
2019	0.9993	9.9506	7.8803	0.0133	0.2012	0.6065	0.6576	0.0534	0.5580	0.5717	0.0000	1,254.4724	1,254.4724	0.3602	0.0000	1,262.1695
Maximum	**1.1229**	**11.1703**	**8.2322**	**0.0133**	**0.8645**	**0.7100**	**1.4882**	**0.4434**	**0.6532**	**1.0385**	**0.0000**	**1,283.6755**	**1,283.6755**	**0.3606**	**0.0000**	**1,289.4088**

	ROG	NOx	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**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, 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	0.0563	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003
Energy	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848
Mobile	7.8300e-003	0.0428	0.1143	4.0000e-004	0.0339	4.2000e-004	0.0343	9.0700e-003	3.9000e-004	9.4600e-003		40.9615	40.9615	2.0600e-003		41.0129
Total	**0.0654**	**0.0545**	**0.1249**	**4.7000e-004**	**0.0339**	**1.3100e-003**	**0.0352**	**9.0700e-003**	**1.2800e-003**	**0.0104**		**54.9649**	**54.9649**	**2.3300e-003**	**2.6000e-004**	**55.0997**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0563	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003
Energy	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848
Mobile	7.8300e-003	0.0428	0.1143	4.0000e-004	0.0339	4.2000e-004	0.0343	9.0700e-003	3.9000e-004	9.4600e-003		40.9615	40.9615	2.0600e-003		41.0129
Total	**0.0654**	**0.0545**	**0.1249**	**4.7000e-004**	**0.0339**	**1.3100e-003**	**0.0352**	**9.0700e-003**	**1.2800e-003**	**0.0104**		**54.9649**	**54.9649**	**2.3300e-003**	**2.6000e-004**	**55.0997**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, 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	Site Preparation	Site Preparation	10/4/2018	10/4/2018	5	1	
2	Grading	Grading	10/5/2018	10/8/2018	5	2	
3	Building Construction	Building Construction	10/9/2018	2/25/2019	5	100	
4	Paving	Paving	2/26/2019	3/4/2019	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.14

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

OffRoad Equipment

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	4.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

3.2 Site Preparation - 2018

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846		982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.5303**	**0.4180**	**0.9483**	**0.0573**	**0.3846**	**0.4418**		**982.7113**	**982.7113**	**0.3059**		**990.3596**

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	0.0293	0.0212	0.2280	5.7000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		57.1626	57.1626	1.9600e-003		57.2116
Total	**0.0293**	**0.0212**	**0.2280**	**5.7000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**57.1626**	**57.1626**	**1.9600e-003**		**57.2116**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

3.2 Site Preparation - 2018

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					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846	0.0000	982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.5303**	**0.4180**	**0.9483**	**0.0573**	**0.3846**	**0.4418**	**0.0000**	**982.7113**	**982.7113**	**0.3059**		**990.3596**

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	0.0293	0.0212	0.2280	5.7000e-004	0.0559	4.5000e-004	0.0563	0.0148	4.1000e-004	0.0152		57.1626	57.1626	1.9600e-003		57.2116
Total	**0.0293**	**0.0212**	**0.2280**	**5.7000e-004**	**0.0559**	**4.5000e-004**	**0.0563**	**0.0148**	**4.1000e-004**	**0.0152**		**57.1626**	**57.1626**	**1.9600e-003**		**57.2116**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

3.3 Grading - 2018

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					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	1.0643	9.4295	7.7762	0.0120		0.6228	0.6228		0.5943	0.5943		1,169.3502	1,169.3502	0.2254		1,174.9857
Total	**1.0643**	**9.4295**	**7.7762**	**0.0120**	**0.7528**	**0.6228**	**1.3755**	**0.4138**	**0.5943**	**1.0081**		**1,169.3502**	**1,169.3502**	**0.2254**		**1,174.9857**

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	0.0586	0.0423	0.4559	1.1500e-003	0.1118	9.0000e-004	0.1127	0.0296	8.3000e-004	0.0305		114.3253	114.3253	3.9200e-003		114.4231
Total	**0.0586**	**0.0423**	**0.4559**	**1.1500e-003**	**0.1118**	**9.0000e-004**	**0.1127**	**0.0296**	**8.3000e-004**	**0.0305**		**114.3253**	**114.3253**	**3.9200e-003**		**114.4231**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

3.3 Grading - 2018

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					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	1.0643	9.4295	7.7762	0.0120		0.6228	0.6228		0.5943	0.5943	0.0000	1,169.3502	1,169.3502	0.2254		1,174.9857
Total	**1.0643**	**9.4295**	**7.7762**	**0.0120**	**0.7528**	**0.6228**	**1.3755**	**0.4138**	**0.5943**	**1.0081**	**0.0000**	**1,169.3502**	**1,169.3502**	**0.2254**		**1,174.9857**

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	0.0586	0.0423	0.4559	1.1500e-003	0.1118	9.0000e-004	0.1127	0.0296	8.3000e-004	0.0305		114.3253	114.3253	3.9200e-003		114.4231
Total	**0.0586**	**0.0423**	**0.4559**	**1.1500e-003**	**0.1118**	**9.0000e-004**	**0.1127**	**0.0296**	**8.3000e-004**	**0.0305**		**114.3253**	**114.3253**	**3.9200e-003**		**114.4231**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

3.4 Building Construction - 2018

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	1.0848	11.0316	7.7512	0.0114		0.7087	0.7087		0.6520	0.6520		1,146.5323	1,146.5323	0.3569		1,155.4555
Total	**1.0848**	**11.0316**	**7.7512**	**0.0114**		**0.7087**	**0.7087**		**0.6520**	**0.6520**		**1,146.5323**	**1,146.5323**	**0.3569**		**1,155.4555**

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	4.4800e-003	0.1218	0.0341	2.5000e-004	6.4000e-003	9.0000e-004	7.3000e-003	1.8400e-003	8.6000e-004	2.7000e-003		26.9641	26.9641	2.0500e-003		27.0153
Worker	0.0234	0.0169	0.1824	4.6000e-004	0.0447	3.6000e-004	0.0451	0.0119	3.3000e-004	0.0122		45.7301	45.7301	1.5700e-003		45.7693
Total	**0.0279**	**0.1387**	**0.2164**	**7.1000e-004**	**0.0511**	**1.2600e-003**	**0.0524**	**0.0137**	**1.1900e-003**	**0.0149**		**72.6942**	**72.6942**	**3.6200e-003**		**72.7845**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

3.4 Building Construction - 2018

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	1.0848	11.0316	7.7512	0.0114		0.7087	0.7087		0.6520	0.6520	0.0000	1,146.5323	1,146.5323	0.3569		1,155.4555
Total	**1.0848**	**11.0316**	**7.7512**	**0.0114**		**0.7087**	**0.7087**		**0.6520**	**0.6520**	**0.0000**	**1,146.5323**	**1,146.5323**	**0.3569**		**1,155.4555**

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	4.4800e-003	0.1218	0.0341	2.5000e-004	6.4000e-003	9.0000e-004	7.3000e-003	1.8400e-003	8.6000e-004	2.7000e-003		26.9641	26.9641	2.0500e-003		27.0153
Worker	0.0234	0.0169	0.1824	4.6000e-004	0.0447	3.6000e-004	0.0451	0.0119	3.3000e-004	0.0122		45.7301	45.7301	1.5700e-003		45.7693
Total	**0.0279**	**0.1387**	**0.2164**	**7.1000e-004**	**0.0511**	**1.2600e-003**	**0.0524**	**0.0137**	**1.1900e-003**	**0.0149**		**72.6942**	**72.6942**	**3.6200e-003**		**72.7845**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

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	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569		1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**		**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

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	4.0700e-003	0.1149	0.0314	2.5000e-004	6.4000e-003	7.7000e-004	7.1700e-003	1.8400e-003	7.4000e-004	2.5800e-003		26.7139	26.7139	1.9800e-003		26.7633
Worker	0.0213	0.0149	0.1628	4.4000e-004	0.0447	3.5000e-004	0.0451	0.0119	3.2000e-004	0.0122		44.2867	44.2867	1.3900e-003		44.3214
Total	**0.0254**	**0.1299**	**0.1941**	**6.9000e-004**	**0.0511**	**1.1200e-003**	**0.0522**	**0.0137**	**1.0600e-003**	**0.0148**		**71.0006**	**71.0006**	**3.3700e-003**		**71.0847**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

3.4 Building Construction - 2019

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	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569	0.0000	1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**	**0.0000**	**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

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	4.0700e-003	0.1149	0.0314	2.5000e-004	6.4000e-003	7.7000e-004	7.1700e-003	1.8400e-003	7.4000e-004	2.5800e-003		26.7139	26.7139	1.9800e-003		26.7633
Worker	0.0213	0.0149	0.1628	4.4000e-004	0.0447	3.5000e-004	0.0451	0.0119	3.2000e-004	0.0122		44.2867	44.2867	1.3900e-003		44.3214
Total	**0.0254**	**0.1299**	**0.1941**	**6.9000e-004**	**0.0511**	**1.1200e-003**	**0.0522**	**0.0137**	**1.0600e-003**	**0.0148**		**71.0006**	**71.0006**	**3.3700e-003**		**71.0847**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

3.5 Paving - 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	0.8300	7.8446	7.1478	0.0113		0.4425	0.4425		0.4106	0.4106		1,055.1823	1,055.1823	0.3016		1,062.7231
Paving	0.0734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9033**	**7.8446**	**7.1478**	**0.0113**		**0.4425**	**0.4425**		**0.4106**	**0.4106**		**1,055.1823**	**1,055.1823**	**0.3016**		**1,062.7231**

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	0.0960	0.0672	0.7326	2.0000e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		199.2901	199.2901	6.2500e-003		199.4463
Total	**0.0960**	**0.0672**	**0.7326**	**2.0000e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**199.2901**	**199.2901**	**6.2500e-003**		**199.4463**

3.5 Paving - 2019

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	0.8300	7.8446	7.1478	0.0113		0.4425	0.4425		0.4106	0.4106	0.0000	1,055.1823	1,055.1823	0.3016		1,062.7231
Paving	0.0734					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9033**	**7.8446**	**7.1478**	**0.0113**		**0.4425**	**0.4425**		**0.4106**	**0.4106**	**0.0000**	**1,055.1823**	**1,055.1823**	**0.3016**		**1,062.7231**

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	0.0960	0.0672	0.7326	2.0000e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		199.2901	199.2901	6.2500e-003		199.4463
Total	**0.0960**	**0.0672**	**0.7326**	**2.0000e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4500e-003**	**0.0548**		**199.2901**	**199.2901**	**6.2500e-003**		**199.4463**

4.0 Operational Detail - Mobile

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

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	7.8300e-003	0.0428	0.1143	4.0000e-004	0.0339	4.2000e-004	0.0343	9.0700e-003	3.9000e-004	9.4600e-003		40.9615	40.9615	2.0600e-003		41.0129
Unmitigated	7.8300e-003	0.0428	0.1143	4.0000e-004	0.0339	4.2000e-004	0.0343	9.0700e-003	3.9000e-004	9.4600e-003		40.9615	40.9615	2.0600e-003		41.0129

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.60	3.60	3.60	15,942	15,942
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	3.60	3.60	3.60	15,942	15,942

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
General Heavy Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.550339	0.043800	0.200255	0.122233	0.016799	0.005871	0.020633	0.029727	0.002027	0.001932	0.004726	0.000704	0.000955
Other Asphalt Surfaces	0.550339	0.043800	0.200255	0.122233	0.016799	0.005871	0.020633	0.029727	0.002027	0.001932	0.004726	0.000704	0.000955

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	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848
NaturalGas Unmitigated	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

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					
General Heavy Industry	119.014	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848
Other Asphalt Surfaces	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		**1.2800e-003**	**0.0117**	**9.8000e-003**	**7.0000e-005**		**8.9000e-004**	**8.9000e-004**		**8.9000e-004**	**8.9000e-004**		**14.0016**	**14.0016**	**2.7000e-004**	**2.6000e-004**	**14.0848**

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					
General Heavy Industry	0.119014	1.2800e-003	0.0117	9.8000e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004		14.0016	14.0016	2.7000e-004	2.6000e-004	14.0848
Other Asphalt Surfaces	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		**1.2800e-003**	**0.0117**	**9.8000e-003**	**7.0000e-005**		**8.9000e-004**	**8.9000e-004**		**8.9000e-004**	**8.9000e-004**		**14.0016**	**14.0016**	**2.7000e-004**	**2.6000e-004**	**14.0848**

6.0 Area Detail

6.1 Mitigation Measures Area

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, 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	0.0563	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003
Unmitigated	0.0563	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.5500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0497					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-005	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003
Total	**0.0563**	**1.0000e-005**	**8.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.8400e-003**	**1.8400e-003**	**0.0000**		**1.9600e-003**

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.5500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0497					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-005	1.0000e-005	8.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.8400e-003	1.8400e-003	0.0000		1.9600e-003
Total	**0.0563**	**1.0000e-005**	**8.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.8400e-003**	**1.8400e-003**	**0.0000**		**1.9600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

1118.1 Fuel Cell and Compressed Natural Gas System Project - South Coast Air Basin, Winter

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 C

Calculations and Assumptions

APPENDIX C-1

Construction and Operation Emissions

Pollutant and GHG Emissions from Vehicles and Fuel Cell

Peak Daily Construction Emissions for Flare Replacement and Fuel Cell

GHG Emission Calculations and Conversions

2018 EMFAC Vehicle Emission Factors (pounds/mile)

	CO	NOx	VOC	SOx	PM10	PM2.5	CO2	CH4
Delivery trucks	0.00338	0.00519	0.00077	1.9E-05	0.00035	0.0002	2	0.000042
Passenger Vehicles	0.004	0.00034	0.00042	8E-06	0.0001	4.4E-05	1	0.000043
Heavy Duty Trucks	0.00258	0.01293	0.00051	3.4E-05	0.00042	0.00027	4	0.000026

Vehicular Construction Emissions from Fuel Meter Installation (pounds/day)

	CO	NOx	VOC	SOx	PM10	PM2.5	GHG Emissions CO2	GHG Emissions CH4
Delivery Truck	1.4	2.1	0.3	0.0	0.1	0.1	786	0.02
Worker Trip	1.6	0.1	0.2	0.0	0.0	0.0	325	0.02
Total	**3.0**	**2.2**	**0.5**	**0.0**	**0.2**	**0.1**	1,111	0.03
Significance Threshold for Construction	550	100	75	150	150	55		
Significant?	**No**	**No**	**No**	**No**	**No**	**No**		

Assumptions

Dist (RT)	# Vehicles
40	10
40	10

Vehicular Operational Emissions from CNG Transport (pounds/day)

	CO	NOx	VOC	SOx	PM10	PM2.5	GHG Emissions CO2	GHG Emissions CH4
Heavy Duty Truck (43/day, 40 miles round trip)	4.4	22.2	0.9	0.1	0.7	0.5	6,179	0.04
Significance Threshold for Operation	550	55	55	150	150	55	NA	NA
Significant?	**No**	**No**	**No**	**No**	**No**	**No**		

Assumptions

Dist (RT)	# Vehicles
40	43

Fuel Cell Operational Emissions

	CO	NOx	VOC	SOx	PM10	PM2.5	GHG Emissions CO2	GHG Emissions CH4
Fuel Cell Emission Factors (pounds/MWh)		0.01		0.0001	0.00002		980	
Fuel Cell Emissions (24 hours per day at 7 MW total)	NA	1.68	NA	0.0168	0.00336	NA	164,640	
Significance Threshold for Operation	550	55	55	150	150	55		
Significant?	**NA**	**No**	**NA**	**No**	**No**	**NA**		

MW total	CO2e total
7	27282.49

All Operation Emissions - Peak Day (pounds/day)

	CO	NOx	VOC	SOx	PM10	PM2.5	GHG Emissions	
CNG Transport	4.4	22.2	0.9	0.1	0.7	0.5	6,179	0.04
Fuel Cell Operation	NA	1.7	NA	0.0	0.0	NA	164,640	0.00
Fuel Cell/CNG Service Trips	0.2	0.0	0.0	0.0	0.0	0.0	32	0.00
Source Testing	0.2	0.0	0.0	0.0	0.0	0.0	32	0.00
Total	**4.8**	**24.0**	**0.9**	**0.1**	**0.7**	**0.5**		
Significance Threshold for Operation	550	55	55	150	150	55		
Significant?	**No**	**No**	**No**	**No**	**No**	**No**		

Notes:

CNG transport assumes 43 truck trips of 40 miles round-trip per day

Fuel cell operation assumes five 1.4 MW facilities

Flare replacements will reduce Nox by 15.8 lbs/day

Fuel cell/CNG service trips and source testing trips will require one 40 mile passenger vehicle round-trip each on a peak day

1 of Each Project: Peak Daily Construction Emissions by Pollutant (lb/day)

Project	CO	NOx	VOC	SOx	PM10	PM2.5
Flare Replacement	4.79	9.78	0.88	0.01	1.00	0.46
Fuel Cell and Compressed Natural Gas System	8.28	11.17	1.12	0.01	0.49	1.04

CO2 Calculations and Conversions into Annual Emission Rates

Activity	CO2 lbs/day	CH4 lbs/day	CO2e lbs/day (CH4 = 25*CO2e)	CO2e lbs/project	CO2e MT/yr	Notes
Flare Replacement	-	-	-	13.8366	0.46122	ammortized over 30 years
CNG and Fuel Cell Installation	-	-	-	35.1054	1.17018	ammortized over 30 years
CNG Transport Truck	6179.111228	0.044861155	6180.232757		1024.12637	43 Daily diesel truck trips, 365 days/yr
Fuel Cell Service Trips	162.2763996	0.008627693	162.4920919		0.07377141	5 service trips per year
Source Testing	908.7478375	0.048315081	909.9557145		0.41311989	Assume all source tests happen in one year
Fuel Meter Installation	1110.960579	0.034030016	1111.81133		0.01682541	ammortized over 30 years
Fuel Cell Operation (natural gas)					27282.4944	Based on SureSource emission factor
Emissions Avoided by Not Flaring					23,445.68	Emissions from flaring equivalent gas as fuel cell (see below)

Emissions avoided by not flaring

Flare Operation Emission Factor	53	kg CO2/mmBTU	https://www.eia.gov/environment/emissions/co2_vol_mass.php
Fuel Cell gas use	181	scfm	
Assumed heat value	930	btu/ft3	
Fuel Cell heat flow rate /min	168330	btu/min	
Fuel Cell heat flow rate /day	242,395,200	btu/day	
Fuel Cell heat flow rate /year	88,474	MMBTU/yr	
CO2e released from equivalent gas flaring	4,689.14	MT CO2 saved per fuel cell	
CO2e released from equivalent gas flaring of 5 Fuel Cells	23,445.68	MT CO2 saved with 5 fuel cells	

APPENDIX C-2

Fuel Consumption

Off-road Construction Equipment Fuel Usage

On-Road Vehicle Fuel Usage

South Coast Basin Estimated Vehicular Natural Gas Supply

Off Road Construction Equipment Fuel Usage

Phase	Equipment Type	#	Hours	HP	LF	Days	Total Hour	EMFAC Off Road Fuel Usage Rate (lbs/hr)	Pounds Diesel	Gallons Diesel (6.943 lbs/gal)
Construction	Welders	1	8	46	0.45	30	240	1.194799556	286.7518935	
Construction	Cranes	1	4	231	0.29	30	120	3.301602635	396.1923162	
Construction	Forklifts	1	6	89	0.2	30	180	0.854990628	153.898313	
Site Prep	Graders	1	8	187	0.41	1	8	4.593410125	36.747281	
Demolition	Cranes	1	6	247	0.4	10	60	3.301602635	198.0961581	
Demolition	Tractors/Loaders/Backhoes	1	6	97	0.37	10	60	1.591673415	95.5004049	
Site Prep	Tractors/Loaders/Backhoes	1	8	97	0.37	1	8	1.591673415	12.73338732	
Site Prep	Graders	1	8	187	0.41	1	8	4.593410125	36.747281	
Site Prep	Loaders	1	8	97	0.37	1	8	1.591673415	12.73338732	
Grading	Concrete/Industrial Saw	1	8	81	0.73	2	16	1.385867896	22.17388633	
Grading	Rubber	1	1	247	0.4	2	2	4.403073138	8.806146277	
Grading	Tractors/Loaders/Backhoes	2	6	97	0.37	2	24	1.591673415	38.20016196	
Building	Cranes	1	4	231	0.29	100	400	3.301602635	1320.641054	
Building	Forklifts	2	6	89	0.2	100	1200	0.854990628	1025.988753	
Building	Loaders	2	8	97	0.37	100	1600	1.591673415	2546.677464	
Paving	Cement Mixer	4	6	9	0.56	5	120	0.330370149	39.64441788	
Paving	Pavers	1	7	130	0.42	5	35	3.380720519	118.3252182	
Paving	Rollers	1	7	80	0.38	5	35	1.693079104	59.25776863	
Paving	Tractors/Loaders/Backhoes	1	7	97	0.37	5	35	1.591673415	55.70856952	
Total									6464.823862	931.1283108

On Road Vehicle Fuel Usage

Activity	Vehicle Type	Phase	trip numbe	days	trip length 1 way	mpg	fuel	gallons
Delivery Trips - Fuel Cell/CNG Project	Delivery	construction	1	100	6.9	6.6	diesel	209
Delivery Trips - Flare Replacement	Delivery	construction	1	30	6.9	6.6	diesel	63
Fuel Meter Installation Delivery Trips	Delivery	installation	10	1	20	6.6	diesel	61
CNG Transport Truck Trips	Heavy Duty	operation	43	365	20	5.9	diesel	106407
CNG Transport Truck Trips	Heavy Duty	operation	43	365	20	5.3	CNG	118453
Worker Trips - Fuel Cell/CNG Project	Passenger	site prep	5	1	14.7	21	gasoline	7
Worker Trips - Fuel Cell/CNG Project	Passenger	grading	10	2	14.7	21	gasoline	28
Worker Trips - Fuel Cell/CNG Project	Passenger	construction	4	100	14.7	21	gasoline	560
Worker Trips - Fuel Cell/CNG Project	Passenger	paving	18	5	14.7	21	gasoline	126
Worker Trips - Flare Replacement	Passenger	demolition	5	10	14.7	21	gasoline	70
Worker Trips - Flare Replacement	Passenger	site prep	5	1	14.7	21	gasoline	7
Worker Trips - Flare Replacement	Passenger	construction	2	30	14.7	21	gasoline	84
Fuel Meter Installation Worker Trips	Passenger	installation	10	1	20	21	gasoline	19
Source Testing Trips	Passenger	source testing	28	1	20	21	gasoline	53
Fuel Cell Service Trips	Passenger	service	5	1	20	21	gasoline	10

Estimated South Coast Natural Gas Supply

CA Total Diesel	1937	MMgal
South Coast Basin Diesel	775	MMgal
South Coast Diesel Fraction	0.40	
CA Total Gasoline	15584	MMgal
South Coast Gasoline	7086	
South Coast Gasoline Fraction	0.45	
Estimated South Coast Natural Gas Fraction	0.40	
CA Total Natural Gas Vehicle Usage	45.61	Diesel MMgal equivalent
South Coast Estimated Natural Gas Supply	18.25	Diesel MMgal equivalent

Note: assume that South Coast natural gas supply is same fraction as diesel supply

APPENDIX D

List of Affected Facilities

Facilities with Non-Refinery Flares in the SCAQMD

Facility ID	Facility Name	Address	Gas Flared	On List per Government Code 65962.5 (Envirostor)?	Distance to Sensitive Receptor (miles)	Located Within Two Miles of an Airport?	Located Within 1/4 Mile of a School?
1179	INLAND EMPIRE UTL AGEN, A MUN WATER DIS	16400 EL PRADO CHINO 91710	Digester Gas	No	0.54	No	No
1703	EASTERN MUNICIPAL WATER DISTRICT	27401 DIAZ RD/42565 AV ALVARAD TEMECULA 92590	Digester Gas	No	0.86	No	No
2537	CORONA CITY, DEPT OF WATER & POWER	1904 W CLEARWATER DR CORONA 92880	Digester Gas	No	0.84	Yes	No
3866	SO ORANGE CO. WASTEWATER AUTHORITY	34152 DEL OBISPO ST DANA POINT 92629	Digester Gas	No	0.11	No	No
7417	EASTERN MUNICIPAL WATER DIST	26560 WATSON RD & 1301 CASE RD PERRIS 92570	Digester Gas	No	0.28	No	No
9163	INLAND EMPIRE UTL AGEN, A MUN WATER DIS	2450 PHILADELPHIA AVE ONTARIO 91761	Digester Gas	No	0.51	Yes	No
9961	RIVERSIDE CITY, WATER QUALITY CONTROL	5950 ACORN ST RIVERSIDE 92504	Digester Gas	No	0.61	No	No
10198	VALLEY SANITARY DIST	45-500 VAN BUREN ST INDIO 92201	Digester Gas	No	0.03	No	No
10245	LA CITY, TERMINAL ISLAND TREATMENT PLANT	445 FERRY ST SAN PEDRO 90731	Digester Gas	No	1.24	No	No
10983	EASTERN MUNICIPAL WATER DIST.	Various Locations	Digester Gas	No	NA	No	No
11301	SAN BERNARDINO CITY MUN WATER DEPT (WRP)	399 CHANDLER PL SAN BERNARDINO 92408	Digester Gas	No	0.62	No	No
12923	RIALTO CITY	501 E SANTA ANA AV BLOOMINGTON 92316	Digester Gas	No	1.24	No	No
13088	EASTERN MUNICIPAL WATER DISTRICT	17010 PERRIS BL/17140 KITCHING MORENO VALLEY 92551	Digester Gas	No	0.16	Yes	No
13433	SO ORANGE CO WASTEWATER AUTHORITY-RTP	29200-01 LA PAZ RD LAGUNA NIGUEL 92677	Digester Gas	No	0.53	No	Yes
13596	COLTON CITY WASTEWATER	1201 S RANCHO AV COLTON 92324	Digester Gas	No	0.25	No	Yes
14898	PALM SPRINGS WASTEWATER	4375 MESQUITE AV PALM SPRINGS 92264	Digester Gas	No	0.14	Yes	No
16642	ANHEUSER-BUSCH LLC., (LA BREWERY)	15800 ROSCOE BLVD. VAN NUYS 91406	Digester Gas	No	0.05	Yes	No
17301	ORANGE COUNTY SANITATION DISTRICT	10844 ELLIS AVE. FOUNTAIN VALLEY 92708	Digester Gas	No	0.22	No	No
19159	EASTERN MUNICIPAL WATER DIST	22251 SANDERSON AVE SAN JACINTO 92582	Digester Gas	No	0.75	No	No
20237	SAN CLEMENTE CITY, WASTEWATER DIV	380 AVENIDA PICO SAN CLEMENTE 92672	Digester Gas	No	0.27	No	No
20561	WATSON LAND COMPANY	1711 ALAMEDA WILMINGTON 90744	Digester Gas	No	0.23	No	No

Facilities with Non-Refinery Flares in the SCAQMD

Facility ID	Facility Name	Address	Gas Flared	On List per Government Code 65962.5 (Envirostor)?	Distance to Sensitive Receptor (miles)	Located Within Two Miles of an Airport?	Located Within 1/4 Mile of a School?
20604	RALPHS GROCERY CO	2201-15 S WILMINGTON AV COMPTON 90220	Digester Gas	No	0.48	No	No
22674	L.A. COUNTY SANITATION DIST VALENCIA PLT	28185 THE OLD ROAD VALENCIA 91355	Digester Gas	No	1.36	No	No
29110	ORANGE COUNTY SANITATION DISTRICT	22212 BROOKHURST ST HUNTINGTON BEACH 92646	Digester Gas	No	0.13	No	No
50402	YUCAIPA VALLEY WATER DISTRICT	880 W COUNTY LINE RD YUCAIPA 92399	Digester Gas	No	0.14	No	Yes
51304	SANTA MARGARITA WATER DIST	28793 ORTEGA HWY SAN JUAN CAPISTRANO 92675	Digester Gas	No	0.19	No	No
89186	COCA-COLA	1650 S VINTAGE AV ONTARIO 91761	Digester Gas	No	1.35	No	No
94009	LAS VIRGENES WATER DIST.	3700 LAS VIRGENES ROAD CALABASAS 91302	Digester Gas	No	0.09	No	No
109608	CR & R INC	1706 GOETZ RD. PERRIS 92570	Digester Gas	No	0.21	No	No
118526	WESTERN MUNICIPAL WATER DIST.	22751 NANDINA AVE RIVERSIDE 92518	Digester Gas	No	0.62	No	No
147371	INLAND EMPIRE UTILITIES AGENCY	6063 KIMBALL AVE CHINO 91710	Digester Gas	No	0.64	No	No
150667	VENTURA FOODS	2900 E JURUPA AVE ONTARIO 91761	Digester Gas	No	1.12	Yes	No
155877	MILLERCOORS, LLC	15801 E 1ST ST IRWINDALE 91706	Digester Gas	No	1.03	No	No
181040	SANTA MARGARITA WATER DIST	26801 CAMINO CAPISTRANO LAGUNA NIGUEL 92677	Digester Gas	No	0.23	No	No
800214	LA CITY, SANITATION BUREAU (HTP)	12000 VISTA DEL MAR PLAYA DEL REY 90293	Digester Gas	No	0.25	Yes	No
800236	LA CO. SANITATION DIST	24501 S FIGUEROA ST CARSON 90745	Digester Gas	No	0.19	No	No
6979	RIV CO., WASTE MGMT, BADLANDS LANDFILL	31125 IRONWOOD AV MORENO VALLEY 92555	Landfill Gas	No	1.24	No	No
7068	SAN BER CNTY SOLID WASTE MGMT	SAN TIMOTEO CANYON RD REDLANDS 92373	Landfill Gas	No	0.40	No	No
13662	CITY OF WHITTIER LANDFILL	13919 PENN ST WHITTIER 90602	Landfill Gas	No	0.13	No	No
15793	RIV CO, WASTE RESOURCES MGMT DIST, LAMB	16411 LAMB CANYON RD (HWY79) BEAUMONT 92223	Landfill Gas	No	3.96	No	No
42086	CITY OF UPLAND LANDFILL	870 E 15TH STREET UPLAND 91786	Landfill Gas	No	0.02	No	No
42514	LA COUNTY SANITATION DIST (CALABASAS)	5200-5300 LOST HILLS RD AGOURA 91301	Landfill Gas	No	0.17	No	No

Facilities with Non-Refinery Flares in the SCAQMD

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45262	LA COUNTY SANITATION DIST SCHOLL CANYON	3001 SCHOLL CANYON RD GLENDALE 91206	Landfill Gas	No	0.62	No	No
49111	SUNSHINE CANYON LANDFILL	14747 SAN FERNANDO RD SYLMAR 91342	Landfill Gas	No	0.56	No	No
50299	SAN BER CNTY SOLID WASTE MGMT MID VALLEY	MID-VALLEY SANITARY LANDFILL RIALTO 92377	Landfill Gas	No	0.56	No	No
50418	O C WASTE & RECYCLING, OLINDA ALPHA	1942 VALENCIA AVE BREA 92823	Landfill Gas	No	0.31	No	No
52753	OC WASTE & RECYCLING, PRIMA DESHECHA	LA PATA RD/ORTEGA HWY SAN JUAN CAPISTRANO 92675	Landfill Gas	No	0.12	No	No
69646	OC WASTE & RECYCLING, FRB	11002 BEE CANYON RD IRVINE 92602	Landfill Gas	No	0.90	No	No
74413	REDLANDS CITY (CALIFORNIA ST LANDFILL)	2151 NEVADA REDLANDS 92373	Landfill Gas	No	0.65	Yes	No
113518	BREA PARENT 2007,LLC	1942 VALENCIA AVE BREA 92821	Landfill Gas	No	0.31	No	No
113674	U S A WASTE OF CAL(EL SOBRANTE LANDFILL)	10910 DAWSON CANYON RD. CORONA 92883	Landfill Gas	No	1.27	No	No
119219	CHIQUITA CANYON LLC	29201 HENRY MAYO DR VALENCIA 91355	Landfill Gas	No	0.88	No	No
139865	CITY OF BURBANK/WATER AND POWER	2500 BEL AIRE DR BURBANK 91506	Landfill Gas	No	0.16	No	No
139938	SUNSHINE GAS PRODUCERS LLC	14747 SAN FERNANDO RD SYLMAR 91342	Landfill Gas	No	0.69	No	No
140373	AMERESCO CHIQUITA ENERGY LLC	29201 HENRY MAYO DR VALENCIA 91355	Landfill Gas	No	0.88	No	No
173846	AZUSA LAND RECLAMATION,INC	1201 W GLADSTONE ST AZUSA 91702	Landfill Gas	No	0.23	No	No
3530	CALMAT PROPERTIES CO (HEWITT PIT LANDFIL	7245 LAUREL CANYON BL NORTH HOLLYWOOD 91605	Landfill Gas (closed)	No	0.11	Yes	No
5112	RIVERSIDE CO. - MEAD VALLEY	22376 FOREST RD PERRIS 92570	Landfill Gas (closed)	No	0.40	No	No
7371	SAN BER CNTY SOLID WASTE MGMT- MILLIKEN	2050 S MILLIKEN AVE ONTARIO 91761	Landfill Gas (closed)	No	0.75	No	No
7699	SYUFY ENT.	20151 S MAIN ST. CARSON 90745	Landfill Gas (closed)	No	0.35	No	No
11434	RIV. CO. WASTE RES. MGR. DBL BUT.	31710 GRAND AVE WINCHESTER 92596	Landfill Gas (closed)	No	0.62	No	No
21189	LACO SAN DISTRICT - MISSION CYN	2501 N SEPULVEDA BL LOS ANGELES 90049	Landfill Gas (closed)	No	0.57	No	No

Facilities with Non-Refinery Flares in the SCAQMD

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24520	LA CNTY SANITATION DISTRICT-PALOS VERDES	26301 S CRENSHAW B &25704 HAWT ROLLING HILLS ESTATES 90274	Landfill Gas (closed)	No	0.44	No	No
25070	LA CNTY SANITATION DISTRICT-PUENTE HILLS	2800 WORKMAN MILL RD CITY OF INDUSTRY 91745	Landfill Gas (closed)	No	0.33	No	No
35102	MOUNTAIN GATE COUNTRY CLUB	C/O AMERICAN GOLF CORP LOS ANGELES 90049	Landfill Gas (closed)	No	0.72	No	No
42633	LA COUNTY SANITATION DISTRICTS (SPADRA)	4125 W VALLEY BLVD POMONA 91765	Landfill Gas (closed)	No	0.12	No	No
42949	LA CITY, PUB WKS DEPT, SANITATION BUREAU	12730 SHELDON ST SUN VALLEY 91352	Landfill Gas (closed)	No	0.14	No	No
49805	LA CITY, BUREAU OF SANIT(LOPEZ CANYON)	11950 LOPEZ CANYON RD LAKE VIEW TERRACE 91342	Landfill Gas (closed)	No	0.09	No	No
50297	RIVERSIDE COUNTY WASTE MANAGEMENT	2700 HALL AV RUBIDOUX 92509	Landfill Gas (closed)	No	0.06	No	No
50310	WASTE MGMT DISP &RECY SERVS INC (BRADLEY	9227 TUJUNGA AV SUN VALLEY 91352	Landfill Gas (closed)	No	0.42	Yes	No
52743	OC WASTE & RECYCLING, SANTIAGO	2503 SANTIAGO CYN RD ORANGE 92862	Landfill Gas (closed)	No	1.55	No	No
53860	PICK YOUR PART AUTO WRECKING	1903 N BLINN WILMINGTON 90744	Landfill Gas (closed)	No	0.14	No	No
57769	CITY OF RIVERSIDE (TEQUESQUITE LANDFILL)	5900 TEQUESQUITE AV RIVERSIDE 92503	Landfill Gas (closed)	No	0.19	No	No
58044	SAN BER CNTY SOLID WASTE MGMT - COLTON	21230 TROPICA RANCH RD COLTON 92324	Landfill Gas (closed)	No	0.19	No	No
60302	RIV CO WASTE MGMT (EDOM HILL)	70-100 EDOM HILL RD THOUSAND PALMS 92276	Landfill Gas (closed)	No	3.24	No	No
60315	RIVERSIDE CO - COACHELLA	87-011 44TH AV/DILLON RD COACHELLA 92236	Landfill Gas (closed)	No	2.49	No	No
60384	LOS ANGELES BY-PRODUCTS	8251 TUJUNGA AV SUN VALLEY 91352	Landfill Gas (closed)	No	0.17	Yes	No
68609	PICK YOUR PART AUTO WRECKING	11201 PENDLETON SUN VALLEY 91352	Landfill Gas (closed)	No	0.62	Yes	No
73884	RIVERSIDE CO. WASTE - ELSINORE	2250 FRANKLIN ST LAKE ELSINORE 92530	Landfill Gas (closed)	No	0.30	No	No
77033	INDUSTRY CITY,CIVIC RECREATIONAL IND AUT	1 INDUSTRY HILLS PKWY CITY OF INDUSTRY 91744	Landfill Gas (closed)	No	0.37	No	No

Facilities with Non-Refinery Flares in the SCAQMD

Facility ID	Facility Name	Address	Gas Flared	On List per Government Code 65962.5 (Envirostor)?	Distance to Sensitive Receptor (miles)	Located Within Two Miles of an Airport?	Located Within 1/4 Mile of a School?
79324	HIGHGROVE LANDFILL	1420 HIGHGROVE PASS RD RIVERSIDE 92507	Landfill Gas (closed)	No	1.86	No	No
84157	MONTEBELLO CITY	1401 N MONTEBELLO BLVD MONTEBELLO 90640	Landfill Gas (closed)	No	0.73	No	Yes
95566	LA CITY, TOYON CANYON LANDFILL	5050 MOUNT HOLLYWOOD WAY LOS ANGELES 90027	Landfill Gas (closed)	No	1.00	No	No
104086	MM LOPEZ ENERGY LLC	1700 CHABLIS AVE ONTARIO 91761	Landfill Gas (closed)	No	1.37	No	No
106164	OC WASTE - VILLA PARK	SANTIAGO CANYON & LOMA STREET ORANGE 92869	Landfill Gas (closed)	No	0.06	No	No
135173	RIVERSIDE CO. WASTE MGT.	1420 HIGHGROVE PASS RD RIVERSIDE 92507	Landfill Gas (closed)	No	1.86	No	No
135369	CORONA DWP LANDFILL	1300 MAGNOLIA AVE CORONA 92879	Landfill Gas (closed)	No	0.44	No	No
145144	ENI OIL & GAS	21000 S FIGUEROA CARSON 90745	Landfill Gas (closed)	No	0.07	No	No
165241	RIVERSIDE COUNTY, CORONA	1300 MAGNOLIA AVE CORONA 92879	Landfill Gas (closed)	No	0.44	No	No
176967	COYOTE CANYON ENERGY LLC	20662 NEWPORT COAST DR. NEWPORT BEACH 92657	Landfill Gas (closed)	No	0.34	No	No
181426	OC WASTE & RECYCLING, COYOTE	20662 NEWPORT COAST DR NEWPORT COAST 92657	Landfill Gas (closed)	No	0.34	No	No
181904	CHANDLER'S RECYCLING	1711 ALAMEDA WILMINGTON 90744	Landfill Gas (closed)	No	0.23	No	No
183607	CARSON RECLAM -TETRATECH	20400 MAIN ST CARSON 90745	Landfill Gas (closed)	No	0.06	No	No
800209	BKK CORP (EIS USE)	2210 S AZUSA AV WEST COVINA 91792	Landfill Gas (closed)	Yes	0.17	No	No
137722	VOPAK TERMINAL LONG BEACH INC,A DELAWARE	305 HENRY FORD AV SAN PEDRO 90731	Organic Liquid Handling	No	1.13	No	No
176377	TESORO LOGISTICS MARINE TERMINAL 2	1300 PIER B ST LONG BEACH 90813	Organic Liquid Handling	No	0.50	No	No
800022	CALNEV PIPE LINE, LLC, COLTON STATION	2051 W SLOVER AV BLOOMINGTON 92316	Organic Liquid Handling	No	0.24	No	No
800056	KINDER MORGAN LIQUIDS TERMINALS, LLC LA HARBOR TERMINAL	1900 WILMINGTON - SAN PEDRO RD WILMINGTON 90744	Organic Liquid Handling	Yes	0.00	No	No

Facilities with Non-Refinery Flares in the SCAQMD

Facility ID	Facility Name	Address	Gas Flared	On List per Government Code 65962.5 (Envirostor)?	Distance to Sensitive Receptor (miles)	Located Within Two Miles of an Airport?	Located Within 1/4 Mile of a School?
800057	KINDER MORGAN LIQUIDS TERMINALS, LLC CARSON TERMINAL	2000 E SEPULVEDA BLVD CARSON 90810	Organic Liquid Handling	Yes	0.67	No	No
800129	SFPP, L.P. Colton Terminal	2359 RIVERSIDE AVENUE BLOOMINGTON 92316	Organic Liquid Handling	No	0.51	No	No
800278	SFPP, L.P. Watson Station	20410 S WILMINGTON AV CARSON 90810	Organic Liquid Handling	No	0.07	No	No
800279	SFPP, L.P. Orange Terminal	1350 N MAIN ST ORANGE 92867	Organic Liquid Handling	Yes	0.06	No	No
800372	EQUILON	20945 S WILMINGTON CARSON 90810	Organic Liquid Handling	Yes	0.27	No	No
5973	SO CAL GAS CO	25205 W RYE CANYON ROAD VALENCIA 91355	Other Flaring	No	0.39	No	No
8582	SO CAL GAS CO	8141 GULANA AV PLAYA DEL REY 90293	Other Flaring	No	0.10	Yes	No
11245	HOAG HOSPITAL	301 NEWPORT BLVD NEWPORT BEACH 92658	Other Flaring	No	0.05	No	No
14914	CAL CARBON	2825 E GRANT ST. WILMINGTON 90744	Other Flaring	No	0.48	No	No
42630	PRAXAIR	5705 AIRPORT DR ONTARIO 91761	Other Flaring	No	1.74	No	No
108742	REMO INC	28101 W INDUSTRY DRIVE VALENCIA 91355	Other Flaring	No	0.11	No	Yes
169754	SO CAL HOLDING, LLC	20101 GOLDENWEST ST HUNTINGTON BEACH 92648	Other Flaring	No	0.07	No	No
176823	RIALTO BIOENERGY FACILITY, LLC	503 E SANTA ANA AVE BLOOMINGTON 92316	Other Flaring	No	1.24	No	No
800127	SO CAL GAS CO	831 N HOWARD AV MONTEBELLO 90640	Other Flaring	No	0.05	No	No
800128	SO CAL GAS CO	12801 TAMPA AVE. NORTHRIDGE 91326	Other Flaring	No	0.11	No	No
44454	STRUCTURAL COMPOSITES IND	325 ENTERPRISE PL POMONA 91768	Other Flaring - Butane	No	0.26	No	No
158910	RANCHO LPG HOLDINGS, LLC	2110 N GAFFEY ST SAN PEDRO 90731	Other Flaring - Butane	No	0.22	No	No
11998	GOODRICH CORPORATION	11120 S NORWALK BLVD SANTA FE SPRINGS 90670	Other Flaring - Propane	No	0.02	No	No

Facilities with Non-Refinery Flares in the SCAQMD

Facility ID	Facility Name	Address	Gas Flared	On List per Government Code 65962.5 (Envirostor)?	Distance to Sensitive Receptor (miles)	Located Within Two Miles of an Airport?	Located Within 1/4 Mile of a School?
12332	GATX CORPORATION	20878 SLOVER COLTON 92324	Other Flaring - Propane	Yes	0.71	No	No
13627	HILLCREST BEVERLY	10460 W PICO BLVD LOS ANGELES 90064	Produced gas	No	0.28	No	No
45086	SIGNAL HILL PETROLEUM INC	2465 TEMPLE AVE. LONG BEACH 90806	Produced gas	No	0.04	Yes	No
54349	ANGUS PETROLEUM	1901 CALIFORNIA ST HUNTINGTON BEACH 92648	Produced Gas	No	0.03	No	No
68112	TIDELANDS OIL PRODUCTION COMPANY, ETAL	1749 PIER D AVE LONG BEACH 90802	Produced gas	No	0.70	No	No
83509	THE TERMO CO	31000 HASLEY CANYON RD CASTAIC 91384	Produced gas	No	0.02	No	No
86463	WEAVER & MOLA DEVELOPMENT (BRINDLE AND THOMAS	19122 STEWART ST HUNTINGTON BEACH 92648	Produced gas	No	0.06	No	No
88359	ALAMITOS COMPANY	2001 PACIFIC COAST HWY SEAL BEACH 90740	Produced Gas	No	0.49	No	No
103480	BRIDGEMARK CORPORATION	15200 FRONTERA ANAHEIM 92806	Produced Gas	No	0.04	No	No
106844	VINTAGE PRODUCTION CALIFORNIA	24000 HWY 99/HONOR RANCHO CASTAIC, CA 91310	Produced gas	No	0.70	No	No
107551	BOLSA LEASE	W ELLIS/EDWARDS ST(BROOKS LEAS HUNTINGTON BEACH 92646	Produced Gas	No	0.09	No	No
109719	COOK ENERGY, INC. KERN LEASE	SAN MARTINEZ GR. RD-END VAL VERDE 91348	Produced gas	No	0.43	No	No
120098	BREITBURN ENERGY CO.	VARIOUS LOCATIONS	Produced Gas	No	NA	No	No
124723	GREKA OIL & GAS	1920 EAST ORCHARD DR PLACENTIA 92870	Produced gas	No	0.01	No	No
131425	MATRIX OIL CORPORATION - RIDEOUT HEIGHTS	5020 WORKMAN MILL RD WHITTIER 90601	Produced gas	No	0.19	No	No
143741	DCOR LLC	OFFSHORE PLATFORM EDITH HUNTINGTON BEACH 92649	Produced gas	No	16.00	No	No
144681	WARREN E & P, INC.	625 E ANAHEIM ST WILMINGTON 90744	Produced gas	No	0.13	No	No
148894	CALIFORNIA RESOURCES PRODUCTION CORP	24000 HWY 99/HONOR RANCHO CASTAIC 91310	Produced gas	No	0.70	No	No
149027	WARREN E & P, INC.	2209 E 'I' ST WILMINGTON 90744	Produced gas	No	0.54	No	No
150201	BREITBURN OPERATING LP	10735 S SHOEMAKER AVE SANTA FE SPRINGS 90670	Produced Gas	No	0.44	No	No

Facilities with Non-Refinery Flares in the SCAQMD

Facility ID	Facility Name	Address	Gas Flared	On List per Government Code 65962.5 (Envirostor)?	Distance to Sensitive Receptor (miles)	Located Within Two Miles of an Airport?	Located Within 1/4 Mile of a School?
150209	BREITBURN OPERATING L.P.	121 W 140TH ST & 204 140TH ST LOS ANGELES 90061	Produced Gas	No	0.15	No	No
150400	BREITBURN OPERATING L.P.	17001 CARBON CANYON RD BREA 92823	Produced Gas	No	0.62	No	No
151532	LINN OPERATING, INC	500 N KRAEMER BLVD BREA 92821	Produced gas	No	0.00	No	No
151539	BREITBURN OPERATING LP	11916 TELEGRAPH RD SANTA FE SPRINGS 90670	Produced Gas	No	0.17	No	No
151899	CALIFORNIA RESOURCES PRODUCTION CORP	26833 PICO CANYON RD NEWHALL 91381	Produced gas	No	0.27	No	No
156312	ROSECRANS ENERGY	14147 FIGUEROA LOS ANGELES 90061	Produced gas	No	0.12	No	No
165900	PROS INCORPORATED	VARIOUS LOCATIONS	Produced gas	No	NA	No	No
166073	BETA OFFSHORE	OCS LEASE PARCELS P-300/P-301 HUNTINGTON BEACH 92648	Produced Gas	No	16.00	No	No
166595	SO CAL HOLDING, LLC	1450 CHARLES WILLARD ST CARSON 90746	Produced gas	No	0.38	No	No
172872	BREITBURN OPERATING LP	2800 GLADWICK ST CARSON 90745	Produced Gas	No	0.05	No	No
174544	BREITBURN OPERATING LP	11100 CONSTITUTION AVE LOS ANGELES 90025	Produced Gas	No	0.19	No	No
175154	FREEPORT-MCMORAN OIL & GAS	1400 N MONTEBELLO BLVD MONTEBELLO 90640	Produced gas	No	0.38	No	No
175191	FREEPORT-MCMORAN OIL & GAS	5640 S FAIRFAX AVE LOS ANGELES 90056	Produced gas	No	0.28	No	No
184301	SENTINEL PEAK RESOURCES LLC	5640 S FAIRFAX AVE LOS ANGELES 90056	Produced gas	No	0.28	No	No
185578	BRIDGE ENERGY, LLC	15000 TONNER CANYON RD BREA 92821	Produced Gas	No	0.37	No	No
800325	TIDELANDS OIL PRODUCTION CO	949 PIER G AVENUE LONG BEACH 90802	Produced gas	No	1.22	No	No
800330	THUMS LONG BEACH	& FREEMAN, LONG BEACH 90802	Produced gas	No	0.93	No	No

APPENDIX E

Comment Letters Received on the Draft EA and Responses to Comments

Comment Letter #1 – Viejas Band of Kumeyaay Indians

Comment Letter #2 – City of Los Angeles, LA Sanitation and Environment

Comment Letter #3 – Santa Clarita Organization for Planning and the Environment (SCOPE)

VIEJAS
TRIBAL GOVERNMENT

P.O Box 908
Alpine, CA 91903
#1 Viejas Grade Road
Alpine, CA 91901

Phone: 6194453810
Fax: 6194455337
viejas.com

November 1, 2018

Luke Eisenhardt
South Coast AQMD
21865 Copley Drive
Diamond Bar, CA 91765

RE: Proposed Rule 1118.1- Control of Emissions from Non-Refinery Flares

Dear Mr. Eisenhardt,

In reviewing the above referenced project the Viejas Band of Kumeyaay Indians ("Viejas") would like to comment at this time.

The project area may contain many sacred sites to the Kumeyaay people. We request that these sacred sites be avoided with adequate buffer zones.

Additionally, Viejas is requesting, as appropriate, the following:

- All NEPA/CEQA/NAGPRA laws be followed
- Immediately contact Viejas on any changes or inadvertent discoveries.

Thank you for your collaboration and support in preserving our Tribal cultural resources. I look forward to hearing from you. Please call me at 619-659-2312 or Ernest Pingleton at 619-659-2314, or email, rteran@viejas-nsn.gov or epingleton@viejas-nsn.gov, for scheduling. Thank you.

Sincerely,

Ray Teran, Resource Management
VIEJAS BAND OF KUMEYAAY INDIANS

Response to Comment Letter #1

Thank you for your letter. The SCAQMD, as the lead agency for the proposed project, has jurisdiction over the four-county South Coast Air Basin (all of 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 SCAQMD's jurisdiction also includes the federal nonattainment area known as the Coachella Valley Planning Area, which is a sub-region of Riverside County and the SSAB. Because the SCAQMD is not a federal agency and the project is located within SCAQMD's jurisdiction within California and there are no facilities subject to PR 1118.1 located on federally owned land, PR 1118.1 is only subject to the California Environmental Quality Act (CEQA). The National Environmental Policy Act (NEPA) is a federal regulation that only applies to federal actions. Similarly, the Native American Graves Protection and Repatriation Act (NAGPRA) is a federal regulation that only applies to federal agencies, or museums that receive federal funding. As such, compliance with NEPA and NAGPRA for this project is not required.

As part of releasing the Draft EA for public review and comment, the SCAQMD also provided a formal notice of the proposed project to all California Native American Tribes (Tribes) that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code Section 21080.3.1(b)(1). The NAHC notification list provides a 30-day period during which a Tribe may respond to the formal notice, in writing, requesting consultation on the proposed project. SCAQMD staff notified all of the tribes on the Tribal Consultation List as provided by the Native American Heritage Commission of the availability of the Draft EA. To date, SCAQMD staff has not received a consultation request for this project.

SCAQMD staff's review of the potentially affected facilities indicates that there are no facilities subject to PR 1118.1 located in the Viejas Kumeyaay area of Alpine, California, or the larger Kumeyaay Nation. According to the "about" section on the Kumeyaay.com website, as accessed on December 11, 2018, "The Kumeyaay Nation extends from San Diego and Imperial Counties in California to 60 miles south of the Mexican border." Based on this description, the SCAQMD's jurisdiction, and physical locations of facilities that will be required to comply with PR 1118.1 are not located within any of the Kumeyaay Nation in Imperial or San Diego Counties. Thus, since none of the facilities are located within the Viejas area, any construction activities that may occur as a result of PR 1118.1 would not be expected to disturb any sites sacred to the Kumeyaay people.

Finally, the Draft EA contained an analysis of the proposed project relative to potential impacts to cultural resources, including tribal cultural resources in accordance with CEQA Guidelines Section 15064.5. As discussed in Chapter 2, Section V – Cultural Resources of the Draft EA, construction-related activities associated with flare replacement and installing fuel meters and operational activities such as source testing are expected to be confined within the affected existing industrial facilities with the implementation of PR 1118.1. Further, source testing activities would not involve construction activities or the disturbance of soil. Similarly, for those facilities that may need to install a fuel meter on an existing flare, the construction activities would occur on the unit itself and would not be expected to disturb soil. For these reasons, the analysis concluded that there would be no impacts to historical or cultural resources because PR 1118.1 would not be expected to require physical changes to a site, feature, place, cultural landscape, sacred place or

object with cultural value to a California Native American Tribe. Based on the aforementioned discussion, this conclusion is especially true in particular to the Viejas Band of Kumeyaay Indians.

WASTEWATER ENGINEERING SERVICES DIVISION
2714 MEDIA CENTER DRIVE
LOS ANGELES, CA 90065
FAX: (323) 342-6210
WWW.LACITYSAN.ORG

November 19, 2018

Ms. Barbara Radlein, Program Supervisor
CEQA Special Projects Planning, Rule Development, and Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Dear Ms. Radlein,

PROPOSED RULE 1118.1–CONTROL OF EMISSIONS FROM NON-REFINERY FLARES - NOTICE OF COMPLETION OF A DRAFT ENVIRONMENTAL ASSESSMENT AND OPPORTUNITY FOR PUBLIC COMMENT

This is in response to your October 25, 2018 Notice of Completion of a Draft Environmental Assessment and Opportunity for Public Comment for analyzing environmental impacts from the proposed rule 1118.1 pursuant to its certified regulatory program (SCAQMD Rule 110). LA Sanitation, Wastewater Engineering Services Division has received and logged the notification. Upon review, it has been determined the project is unrelated to sewers and does not require any hydraulic analysis. Please notify our office in the instance that additional environmental review is necessary for this project.

If you have any questions, please call Christopher DeMonbrun at (323) 342-1567 or email at chris.demonbrun@lacity.org

Sincerely,

Ali Poosti, Division Manager
Wastewater Engineering Services Division
LA Sanitation and Environment

CD/AP: al

c: Kosta Kaporis, LASAN
Cyrous Gilani, LASAN
Christopher DeMonbrun, LASAN

CITY OF LOS ANGELES
CALIFORNIA

WASTEWATER ENGINEERING SERVICES DIVISION
2714 MEDIA CENTER DRIVE
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November 19, 2018

Ms. Barbara Radlein, Program Supervisor
CEQA Special Projects Planning, Rule Development, and Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Dear Ms. Radlein,

PROPOSED RULE 1118.1–CONTROL OF EMISSIONS FROM NON-REFINERY FLARES - NOTICE OF PUBLIC HEARING

This is in response to your October 31, 2018 Notice of Public Hearing for the adoption of Proposed Rule 1118.1 – Control Of Emissions from Non-Refinery Flares by South Coast Air Quality Management District pursuant to its certified regulatory program (SCAQMD Rule 110). LA Sanitation, Wastewater Engineering Services Division has received and logged the notification. Upon review, it has been determined the project is unrelated to sewers and does not require any hydraulic analysis. Please notify our office in the instance that additional environmental review is necessary for this project.

If you have any questions, please call Christopher DeMonbrun at (323) 342-1567 or email at chris.demonbrun@lacity.org

Sincerely,

Ali Poosti, Division Manager
Wastewater Engineering Services Division
LA Sanitation and Environment

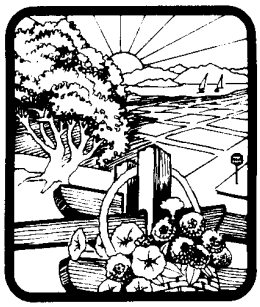
CD/AP: al

c: Kosta Kaporis, LASAN
Cyrous Gilani, LASAN
Christopher DeMonbrun, LASAN

Response to Comment Letter #2

Thank you for your letter. This letter does not appear to raise any CEQA issues relative to the analysis in Draft EA or the PR 1118.1 rule language. Therefore, no further response is required.

SCOPE
Santa Clarita Organization for Planning and the Environment
TO PROMOTE, PROTECT AND PRESERVE THE ENVIRONMENT, ECOLOGY
AND QUALITY OF LIFE IN THE SANTA CLARITA VALLEY
POST OFFICE BOX 1182, SANTA CLARITA, CA 91386
www.scope.org



11-27-18

Mr. Luke Eisenhardt
Email: leisenhardt@aqmd.gov
South Coast AQMD
21865 Copley Dr.
Diamond Bar, CA 91765

Re: DRAFT ENVIRONMENTAL ASSESSMENT - PROPOSED RULE 1118.1 – CONTROL OF EMISSIONS FROM NON-REFINERY FLARES

Dear Mr. Eisenhardt

SCOPE is a 30-year-old planning and conservation group focused on the watershed of the Santa Clarita Valley. Chiquita Canyon Landfill, a facility among those listed in the EA to be covered by this rule, is located in our community and adjacent to the Santa Clara River. We have long been concerned with air pollution produced by this facility, especially VOCs NOx and methane (GHG).

As you know, a large expansion was recently permitted for this landfill. The EIR for that expansion stated that the landfill will have to comply with new air quality rules regarding methane and other pollutants. The residents of the nearby town of Val Verde have long claimed that escaping fugitive gas from this landfill blows into their community and makes them sick.

We are therefore writing to support your efforts to enact this rule as quickly as possible, and support certification of the EA.

While, it is not relevant to the accuracy of the EA, we have attached an excerpt from our comments on the Chiquita Expansion EIR related to methane and flares.

Sincerely,

President

Impacts to Greenhouse Gases SCOPE Expansion EIR comments

As stated in the SDEIR at page 12- 3, California is a substantial contributor of global GHGs –the second largest contributor in the United States and the 14th largest contributor in the world in 2007 according to the California Air Resources Board [CARB], 2011). In 2014, human activities in California released 441.5 MMT CO2e, which equaled approximately 6 percent of the United States total. The primary source of GHGs in California is transportation, contributing 42 percent of the state's total GHG emissions. Industrial emissions were the second largest source, contributing 23 percent of the state's GHG emissions (CARB, 2016). 84 percent of California's 2013 GHG emissions (in terms of CO2e) were CO2, 9 percent were CH4, 3 percent were N2O, and 4 percent were high GWP gases. Landfill emissions were 1.9 percent of total California anthropogenic emissions (CARB, 2016).

What this all means is that we MUST drastically reduce our GHG generation in California and the world if we wish to continue to enjoy a habitable planet. While 1.9% does not seem percentage- wise to be a huge amount, it calculates out to 8,379,000 tons of greenhouse gases a year, mostly methane, WITHOUT including gases generated by waste transport.-

Because of this, several new and longstanding rules target the generation of greenhouse gas in the form of methane from landfills.

Senate Bill 1383. SB 1383, signed by the Governor on September 19, 2016, requires CARB, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydro fluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The new law also requires reductions of organic waste at landfills to 50 percent below 2014 standards by 2020, and 75 percent below 2014 by 2025. Although these latter targets are aggregate statewide and need not be met by each jurisdiction, everyone obviously has to do something or the targets won't be met. The regulations to achieve these latter targets shall take effect on or after January 1, 2022, and may require local jurisdictions to impose requirements on generators, which are included in the law, including ongoing monitoring requirements exist to ensure the collection and control system is maintained and operated in a manner to minimize methane emissions. (P12-10)

To reduce the impacts of climate change, the County has set a target to reduce GHG emissions from community activities in the unincorporated areas of Los Angeles County by at least 11 percent below 2010 levels by 2020, which is consistent with the recommendations in the AB 32 Scoping Plan for municipalities to support the overall AB 32 reduction targets. According to the CCAP, waste generation accounts for 535,148 metric tons of CO2e (MT CO2e), or 7 percent, of 2010 GHG emissions in unincorporated Los Angeles County. (Page 12-11, previous DEIR). We note that this figure appears to make the waster generation GHG substantially higher than the previous CARB calculations noted above.)

While we are glad to see that the methodology for ascertaining miles traveled in the Transportation, Air Quality and Greenhouse Gas sections of the DEIR has been corrected in response to our first comment letter to more accurately reflect actual miles traveled for trash and transfer trucks, it now seems that a similar sleight of hand has been used to calculate fugitive methane releases and GHG impacts. As one can see above by the substantial amount of legislation aimed at controlling methane and other pollutants in landfills, this sleight of hand is unacceptable. We must get methane under control, not only because of its climate change impacts, but also because of its impacts on human health, especially to the nearby community of Val Verde.

Table 1
Chiquita Canyon Landfill
Landfill Gas Collection Efficiency

Year	LandGEM [1] (standard cubic feet per minute)	Adjusted LandGEM [2] (standard cubic feet per minute)	Actual Flow (standard cubic feet per minute) [3]	Collection Efficiency (%)
2001 – 2002 [4]	2,913	2,870	2,748	96
2002 – 2003 [4]	3,216	3,169	3,348	106
2006 [4]	4,133	4,071	3,955	97
2007 [4]	4,423	4,358	3,851	88
2008 [4]	4,710	4,640	3,631	78
2009 [5]	4,981	4,907	3,769	77
2010 [4]	5,049	4,974	3,784	76
2011 [6]	5,212	5,135	3,968	77
2012 [6]	5,431	5,351	4,161	78
2013 [6]	5,548	5,466	4,098	75
2014 [6]	5,688	5,603	3,983	71
			Average	**83.5**

[1] Average annual flow rate from LandGEM model results (see Attachment 1)

[2] LandGEM model average annual flow rates adjusted to 60°F standard conditions using the AB-32 conversion factor of 99.220616 scfm/Gg-yr

[3] Average annual flow rate based on 365 days per year and normalized to 50% methane

[4] Actual flow rate determined from *Site Specific Characteristic* and *Calendar Year Operating and Compliance Report Summary*, SCS Engineers

[5] Actual flow rate determined from *Heat Input Capacity Report for Chiquita Canyon, Castaic, California*, SCS Engineers

[6] Actual flow rate determined from *Annual Rule 1150.1 Compliance Plan Report for Chiquita Canyon Landfill, Castaic, California*, SCS Engineers

Methane Capture Rate Methodology Error

While the SCAQMD stated that the capture rate for methane at the CCL facility should be averaged at a 75% capture rate, the project proponent hired Golder Associates, to provide a report supporting a current average 81.5% capture rate and a future rate of 85%.

The 85% number is important for compliance with the new laws and tightening requirements for reducing methane releases. However, as in the previous DEIR sections on vehicle miles traveled, we could not understand how the capture rate could be so much higher than that calculated by the SCAQMD, so we delved into the Golder Report found in Appendix H-4.

What we found was an anomaly in the years used to average the methane capture rate. One can see in the following chart that the capture rate is abnormally high for the years 2000 through 2007. In

Table 2
Chiquita Canyon Landfill
Landfill Gas Collection Efficiency
Alternate Approach

Year	LandGEM LFG Generation (standard cubic foot per minute)	LFG Collection (standard cubic foot per minute)	Collection Efficiency (%)
2001 - 2002	2,870	2,748	N/A
2002 – 2003	3,169	3,348	N/A
2006	4,071	3,955	N/A
2007	4,358	3,851	N/A
2008	4,640	3,631	N/A
2009	4,907	3,769	N/A
2010	4,974	3,784	N/A
2011	5,135	3,968	N/A
2012	5,351	4,161	N/A
2013	5,466	4,098	N/A
2014	5,603	3,983	N/A
2001-2014 (11 years)	50,544	41,296	**81.7 (Average of Total LFG Collected Over 11 Years)**

2001-2002 the capture rate is 106%. How could they landfill capture more gas than was supposedly emitted? Was the data inaccurate, monitoring probes not properly calculated? At any rate, capture from 2008 onward is much lower. However using the apparently inaccurate earlier data of course creates a higher average capture rate when those years are included. Whereas, using the later data generates a lower capture rate.

We have not had the time to make public records requests to receive copies of the earlier SCS Engineers reports that generated the apparently inaccurate data, but we strong urge the County to review those reports.

Then in a second table (above), Golder used their own methodology instead of using the methodology required by AQMD Annual rule 1150.1 which calculates fugitive gas amounts from actual data from monitoring devices on flares and landfill probes. The Golder model seems to be based on the area and tonnage of the landfill. Even though this methodology came up with obviously inaccurate numbers in the early years, as did the first chart, Golder and the landfill proponent used these numbers to assert that the capture rate was a higher, 81.5% by including the higher early year capture rates.

As noted in the assumptions listed on page 34 of Appendix H-2, the two existing landfill flares or not included in the project emissions. Why? Excluding these flares understates total emissions.

As stated in our previous comment letter, the choice of methodology affects the calculation of air quality emissions, and greenhouse gas calculations. It appears that the DEIR has again intentionally underestimated and mis-represented a significant GHG impact by over-stating capture rates. The calculations are once again found only in the appendix and not in the body of the EIR. The only information in the EIR itself is a reference to the Golder Report, and does not even mention that the report can be found in the Appendices. None of the SCS Engineers reports are disclosed. Further problems are described under the biogenic gas section of the air pollution comments.

Such critical information does not belong hidden in an appendix. It must be disclosed prominently as a crucial assumption on which DEIR data calculations are based.[1] We believe that these assumptions and the failure to disclose them in the body of the EIR is a serious omission requiring recirculation of the EIR. Further, the DEIR preparer fails to describe the limitations of the model as required by CEQA.

Last, the Golder Report is used to model mitigation that would supposedly bring the landfill into compliance with the 85% capture rate that will be required of it in current legislation. Since the landfill capture rate should really be calculated from a base of 75%, not 81.5%, those mitigation measures will not be sufficient.

Also, one should note that the fugitive methane release is a PERCENTAGE. Therefore, as the landfill is expanded, the actual amount of fugitive landfill gas released will increase. Residents of the neighboring community of Val Verde and other nearby communities as well as the whole Santa Clarita Valley will be subjected to even greater health issues from fugitive gases than they are suffering now. Please see attached article entitled "Morbidity and mortality of people who live
close to municipal waste landfills: a multisite cohort study, Francesca Mataloni, 2016.

[1] "It is buried in an appendix. ...It is not enough for the EIR simply to contain information submitted by the public and experts. Problems raised by the public and responsible experts require a good faith reasoned analysis in response. (*Cleary v. County of Stanislaus* (1981) 118 Cal. App. 3d 348, 357 [173 Cal. Rptr. 390].) The requirement of a detailed analysis in response ensures that stubborn problems or serious criticism are not "swept under the rug." (*Ibid.*)", SCOPE v. County of Los Angeles, 106 Cal. App. 4th 715; 131 Cal. Rptr. 2d 186; 2003 Cal. App. LEXIS 291; 2003 Cal. Daily Op. Service 1767; 2003 Daily Journal DAR 2219

Response to Comment Letter #3

Thank you for your letter supporting the proposed project. This comment does not appear to raise any CEQA issues relative to the analysis in Draft EA or the PR 1118.1 rule language. Further, this comment contains an excerpt from a letter relating to another project, which is not relevant to the analysis in the Draft EA. Therefore, no further response is required.