

APPENDIX F

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Subsequent Environmental Assessment:

Proposed Amended Rule 1193 – Clean On-Road Residential and Commercial Refuse Collection Vehicles

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PREFACE

This document constitutes the Final Subsequent Environmental Assessment (SEA) for Proposed Amended Rule (PAR) 1193 – On-Road Residential and Commercial Refuse Collection Vehicles. The Draft SEA was released for a 30-day public review and comment period from March 17, 2010 to April 15, 2010. Two comment letters were received from the public. One comment letter did not address CEQA issues, so response to comments will be addressed in the Final Staff Report for PAR 1193 instead of in this document. The other comment letter is presented in Appendix C with responses to the comments.

Subsequent to the release of the Draft SEA for public review, the proposed project was revised to address comments on PAR 1193. The modifications to the proposed project would reduce the number of solid waste collection, roll-off and transfer vehicles that would be subject to PAR 1193 and extend the length of time before diesel-fueled vehicles would be replaced with alternative-fuel vehicles. See Chapter 1 of the Final SEA for a more detailed description of the proposed project.

Since, both benefits (emission reductions) and adverse impacts increase (overlapping construction projects) are related to the speed at which conventional vehicles are replaced with alternative-fueled vehicles, the primary effect of these changes would be to reduce the benefits and adverse impacts from the March 9, 2010 version of PAR 1193 that was circulated with the Draft EA for public comment. Based on available information and because it is not clear how each government agency would comply with PAR 1193, the number of refuse collection vehicles reduced could not be estimated. A worst-case estimate of the number of remaining diesel vehicles was made for the new exemption to allow three refuse collection diesel-fueled vehicles for small fleets, three percent solid waste collection diesel-fueled vehicles and 20 percent rolloff diesel-fueled vehicles for large fleets. No reduction in number of refuse collection vehicles was made for purposes of the analysis in the Final SEA, except for the exemption to allow three refuse collection diesel-fueled vehicles for small fleets, three percent solid waste collection diesel-fueled vehicles and 20 percent rolloff diesel-fueled vehicles for large fleets. By assuming the longest compliance time line for all affected fleets, calculations were revised to show the emission reductions compared to the March 2010 version of PAR 119 circulated with the Draft SEA.

The worst-case adverse impacts would be from the quickest replacement of affected conventional vehicles with alternative-fueled vehicles, which would be the scenario analyzed in the Draft EA, which was circulated for public review. To be conservative, these are assumed to be the worst-case in the Final EA, even though the July 2010 version of PAR 1193 would likely result in fewer or less significant adverse impacts (because more time would be allowed to construct alternative fueling facilities resulting in less overlap in construction). SCAQMD staff has reviewed the modifications to PAR 1193 and concluded that no new unavoidable significant effect requiring mitigation measures to reduce the effect to insignificance would occur.

Therefore, PAR 1193 would not change the conclusions of non-significance in the Draft SEA. Since the adverse impacts from the proposed project would remain not significant, no new or

additional mitigation would be required. Therefore, the proposed changes to PAR 1193 are not considered a “substantial revision” under CEQA Guidelines §15073.5 (b) and would not require recirculation under CEQA Guidelines §15073.5 (a).

To facilitate identification, text added to the document is included as underlined text and text removed from the document is indicated by ~~striketrough~~. None of the modifications alter any conclusions reached in the Draft SEA, nor provide new information of substantial importance relative to the draft document. As a result, these minor revisions do not require recirculation of the document pursuant to CEQA Guidelines §15073.5. This document constitutes the Final SEA for PAR 1193 – Clean On-Road Residential and Commercial Refuse Collection Vehicles.

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CHAPTER 1 - PROJECT DESCRIPTION

Introduction

Proposed Amendments to Rule 1193

California Environmental Quality Act

Baseline Considerations

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Emissions Inventory

INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (SCAQMD) in 1977¹ as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin (collectively known as the “district”). By statute, the SCAQMD is required to adopt an air quality management plan (AQMP) demonstrating attainment of all federal and state ambient air quality standards for the district². Furthermore, the SCAQMD must adopt rules and regulations that carry out the AQMP³. The 2007 AQMP concluded that major reductions in criteria pollutant emissions of volatile organic compounds (VOCs) and oxides of nitrogen (NOx) are necessary to attain the air quality standards for ozone, particulate matter with an aerodynamic diameter of 10 microns or less (PM10) and particulate matter with an aerodynamic diameter of 2.5 microns or less (PM2.5). Ozone, a criteria pollutant, is formed when VOCs react with NOx in the atmosphere and has been shown to adversely affect human health. The highest annual nitrogen dioxide (NO2) concentration reported in the district in 2008 was 0.0302 parts per million (ppm) in Pomona/Walnut Valley, which is below the federal annual NO2 standard of 0.0534 ppm. The highest one-hour NO2 concentration reported in the district in 2008 was 0.13 parts per million in South Coastal LA County, which is below the state one-hour NOx standard of 0.18 micrograms per cubic meter. The federal eight-hour ozone standard of 0.075 ppm was exceeded 97 times in 2008 at various locations in the district. The state one-hour ozone standard of 0.070 ppm was exceeded 79 times and the eight-hour ozone standard was exceeded 115 times in 2008. PM10 concentrations in the district ~~were~~ exceeded the state 24-hour standard 59 times. PM2.5 concentrations in the district exceeded the federal 24-hour standard 14 times. As a result, additional criteria pollutant reductions are necessary to attain the federal and state fine particulate and ozone standards.

Rule 1193 – Clean On-Road Residential and Commercial Refuse Collection Vehicles was adopted by the SCAQMD Governing Board on June 16, 2000. Rule 1193 as initially adopted affected public fleets and private fleets with 15 or more refuse vehicles, requiring these fleets to purchase or lease rule compliant vehicles (alternative-fuel, dual-fuel, or pilot ignition refuse vehicles) when an affected fleet operator decides to acquire one or more refuse vehicles. Rule 1193 was phased-in between July 1, 2001 and July 1, 2002. Types of refuse vehicles affected include solid waste collection vehicles, rolloff vehicles, and transfer vehicles. Refuse vehicles must weigh more than 14,000 pounds to be subject to this rule.

Although the air quality in the areas within the SCAQMD’s jurisdiction have improved and air toxic exposure concentrations have been reduced over the last 25 years, exceedances of air quality standards still occur and the average toxic risk level is estimated to be about 1,200 in one million (SCAQMD MATES III Final Report, September 2008).⁴ In the past, much of the focus in reducing emissions has been on industrial sources locally while the state and federal governments have typically focused on mobile sources. In addition to reducing criteria and air toxic emissions through traditional control approaches, in 1997 the SCAQMD Governing Board

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

² Health & Safety Code, §40460 (a).

³ Health & Safety Code, §40440 (a).

⁴ <http://www.aqmd.gov/prdas/matesIII/MATESIIDraftFinalReportJuly2008.html>.

directed staff to seek additional emission reductions through its Environmental Justice (EJ) Work Plan Adopted in 1997 by implementing Initiatives #2 (embark upon the first comprehensive study of toxic hot spots in a decade) and #7 (create incentives to clean-up or remove diesel engines in the basin)⁵ as well as implementing control measures in the SCAQMD *Final Draft Air Toxics Control Plan for the Next Ten Years* (SCAQMD, March 2000).⁶

On August 31, 2000, the Engine Manufacturers Association (EMA) and Western States Petroleum Association (WSPA) filed a lawsuit challenging the SCAQMD fleet rules, including Rule 1193. EMA's complaint alleged the fleet rules were pre-empted by the Clean Air Act, Section 209(a), 42 U.S.C. § 7543(a). This section of the Clean Air Act generally preempts State standards relating to the control of emissions from new motor vehicles and new motor vehicle engines. On February 6, 2008, a settlement was reached wherein plaintiffs and defendants agreed that Section 209(a), 42 U.S.C. § 7543(a) does not preempt the fleet rules in so far as they direct the purchasing, procuring, leasing, and contracting decisions of state and local government entities, including private entities under contract to, or operating under an exclusive license or a franchise with these government entities. In response to the settlement agreement, a need exists to amend Rule 1193 to provide consistency with the settlement agreement.

In addition, in the process of implementing the fleet vehicle rules, SCAQMD staff has found that at certain times heavy-duty diesel vehicles may have been used in lieu of rule ~~complaint~~ compliant vehicles, presumably due to equipment breakdown. Rule 1193 does not contain a specific equipment breakdown provision, so the applicable SCAQMD rule to address this situation would be Rule 430 – Breakdown Provisions. Rule 430 was written to address equipment breakdown situations in stationary source applications, and is therefore difficult to apply to the fleet vehicle rules in terms of the specific set of circumstances that constitute equipment breakdowns, breakdown notification, and timeframes needed to remedy breakdowns. Therefore, a need exists to amend Rule 1193 to provide specific language to address equipment breakdowns specific to refuse vehicle operation and repair.

PAR 1193 is expected to generate NO_x, SO_x, PM₁₀, PM_{2.5} and toxic air contaminant (TAC) emission reductions. Since NO_x is an ozone and fine PM precursor, reductions in NO_x emission would reduce ozone and fine PM. SO_x is a fine PM precursor, so reductions of SO_x would reduce fine PM. Diesel PM is considered a TAC; reducing diesel PM would reduce TAC emission.

PROPOSED AMENDMENTS TO RULE 1193 - SUMMARY

SCAQMD staff is proposing amendments to address the February 6, 2008 settlement agreement by modifying the scope of the current rule to clarify that it applies to public solid waste collection fleets, except federal fleets, and private fleets that provide refuse collection services to affected government agencies through a contract or franchise. Where the combined total of refuse vehicles used by the government agency and private fleet supplying refuse collection services to the government agency constitutes 15 or more vehicles, the proposed rule would direct local and state governments (including the State of California, counties, cities and special districts, and private entities under contract to, or operating under an exclusive license or a

⁵ http://www.aqmd.gov/ej/ej_original10.htm.

⁶ <http://www.aqmd.gov/aqmp/AirToxicsControlPlan.html>.

franchise with state and local government entities) to purchase, procure, lease, and/or contract 100 percent rule compliant vehicles.

New requirements are also being proposed under subdivision (e) of Rule 1193 addressing equipment breakdown. This new subdivision contains a definition of equipment breakdown, as well as requirements pertaining to notification methods, recordkeeping, and equipment repair timeframes. ~~Finally, a~~ Additional clarifying language is being proposed to address potentially long refuse vehicle delivery timeframes that would allow the temporary use of non-rule compliant refuse vehicles under certain conditions if a private contractor must order new rule compliant vehicles to supply services to a government agency upon commencement of a new agreement to provide these services. This proposed language is contained in subdivision (~~f~~) of the rule. An exemption would be added that would allow private fleets to phase-in alternative-fueled residential refuse collection vehicles over a seven-year period, in situations where an affected government fleet is privatized. Another exemption has been added to allow three refuse collection diesel-fueled vehicles for small fleets, three percent solid waste collection diesel-fueled vehicles and 20 percent rolloff diesel-fueled vehicles for large fleets.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The proposed amendments to Rule 1193 are considered to be modifications to previously approved projects and are a "project" as defined by the California Environmental Quality Act (CEQA). CEQA requires that the potential adverse environmental impacts of proposed projects be evaluated and that feasible methods to reduce or avoid significant adverse environmental impacts of these projects be identified. To fulfill the purpose and intent of CEQA, the SCAQMD, as the CEQA Lead Agency for the promulgation of the original fleet vehicle rules, prepared a comprehensive Final Program EA (PEA) for the approved Proposed Fleet Vehicle Rules and Related Rule Amendments (SCAQMD No. 000307DWS, June, 2000). A PEA was concluded to be the appropriate CEQA document because the project was connected to the issuance of rules, regulations and plans to govern the content of a continuing program, and as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effect which can be mitigated in similar ways (CEQA Guidelines §15168(a)(3) & (4)). The environmental impacts from adopting and implementing the fleet vehicle rules were evaluated in the Program EA (PEA). The Draft PEA was released for a 45-day public review and comment period from March 10, 2000, to April 25, 2000.

PAR 1193 is a discretionary action, which has potential for resulting in direct or indirect change to the environment and, therefore, is considered a "project" as defined by ~~the~~ CEQA. The preparation of a ~~Draft-Final~~ SEA is necessary because the proposed project is a modification to a previously approved project, Rule 1193, for which the June 2000 Final PEA was prepared, or relied upon, and certified by the Governing Board on June 16, 2000. SCAQMD is the lead agency for the proposed project and has prepared this ~~draft-Final~~ Subsequent Environmental Assessment (SEA) with no significant adverse impacts pursuant to its Certified Regulatory Program. California Public Resources Code §21080.5 allows public agencies with regulatory programs to prepare a plan or other written document in lieu of an environmental impact report or negative declaration once the Secretary of the Resources Agency has certified the regulatory program. SCAQMD's regulatory program was certified by the Secretary of the Resources Agency on March 1, 1989, and is codified as SCAQMD Rule 110.

CEQA and Rule 110 require that potential adverse environmental impacts of proposed projects be evaluated and that feasible methods to reduce or avoid significant adverse environmental impacts of these projects be identified. To fulfill the purpose and intent of CEQA, the SCAQMD has prepared this ~~draft~~-Final SEA to address the potential adverse environmental impacts associated with the proposed project.

The ~~draft~~-Final SEA is a public disclosure document intended to: (a) provide the lead agency, responsible agencies, decision makers and the general public with information on the environmental effects of the proposed project; and, (b) be used as a tool by decision makers to facilitate decision making on the proposed project.

SCAQMD's review of the proposed project shows that the proposed project would not have a significant adverse effect on the environment. Therefore, pursuant to CEQA Guidelines §§15126.4(A)(3), 15126.6, and 15252, no alternatives or mitigation measures are required to be included in this ~~draft~~-Final SEA. The analysis in Chapter 2 supports the conclusion of no significant adverse environmental impacts.

Two comment letters were received from the public during the public review period from March 17, 2010 to April 15, 2010. One comment letter did not contain comments relative to the environmental analysis in the Draft SEA, so was forwarded to the rules staff to provide responses in the Final Staff Report. The other comment letter is included in Appendix C along with responses to comments.

BASELINE CONSIDERATIONS

Rule 1193 was adopted on June 16, 2000 and implementation began July 1, 2001. Rule 1193 was expected to apply to governmental agencies and private entities that operate solid waste collection fleets with 15 or more solid waste collection vehicles. SCAQMD staff estimated that approximately 7,200 solid waste collection vehicles would be subject to Rule 1193 requirements. The June 2000 Final PEA evaluated adverse impacts related to those 7,200 solid waste collection vehicles. Operational ~~affects~~ effects of Rule 1193 were expected to occur between 2001 and 2010 (nine years). Construction related to indirect effects of refueling infrastructure (primarily the effects of PAR 431.2) were expected to occur between 2001 and 2004 (five years).

However, the EMA and WSPA filed a lawsuit on August 31, 2000 challenging the fleet rules in their entirety including Rule 1193. A decision by the United States Supreme Court called into question the viability of the Fleet Rules, including Rule 1193, to the extent that they solely affected private fleets servicing non-public entities. SCAQMD staff used regulatory discretion to suspend enforcement of the private fleet requirements. After further legal proceedings a settlement agreement was reached on February 6, 2008, clarifying that the Fleet Rules were effective to the extent they affected public fleets or private fleets operated under contract, exclusive license or franchise. PAR 1193 would make the Rule 1193 consistent with the settlement agreement.

Because of the lawsuit and settlement agreement, the fleet vehicle rule requirements were not considered to be legally binding to the extent that they affected only private fleets servicing non-

public entities. As a result, SCAQMD staff is operating under the settlement agreement as the baseline for the proposed project. Therefore, the removal of the private fleet requirements are not considered a relaxation of existing regulation since that aspect of the rule was never implemented, enforced, and its viability was called into question by the United States Supreme Court. The new universe of affected vehicles is detailed in the Emissions Inventory Section in this chapter.

Environmental analysis in Chapter 2 evaluates environmental impacts from PAR 1193 upon the seventeen environmental topic areas of the checklist (aesthetics, agriculture resources, air quality, biological resources, cultural resources, energy, geology/soils, hazard and hazardous materials, hydrology/water quality, land use/planning, mineral resources, noise, population/housing, public services, recreation, solid/hazardous wastes, and transportation/traffic). The environmental analysis evaluates the impacts based on the following factors. PAR 1193 would require about 2,855 privately-owned solid waste collection vehicles, rolloff vehicles, or transfer vehicles, that are already regulated under the existing Rule 1193, to accelerate the turnover of diesel-fueled vehicles to natural gas-fueled vehicles when new contracts are established with public entities or old contracts are renewed with public entities. PAR 1193 would capture an additional 110 solid waste collection vehicles, rolloff vehicles, or transfer vehicles (98 privately-owned vehicles and 14 publicly-owned fleets), that were not captured under the existing Rule 1193. PAR 1193 would require the 98 privately-owned vehicles to turnover diesel-fueled vehicles to natural gas-fueled vehicles when new contracts are established with public entities or old contracts are renewed with public entities. PAR 1193 would require 12 publicly-owned fleets to turnover diesel-fueled vehicles to natural gas-fueled vehicles at the end of the diesel-fueled vehicles' lifespan.

PROJECT LOCATION

PAR 1193 would affect Commercial Refuse Collection Vehicles located throughout the SCAQMD's jurisdiction. The SCAQMD has jurisdiction over an area of 10,473 square miles, consisting of the four-county South Coast Air Basin (Basin) and the Riverside County portions of the Salton Sea Air Basin (SSAB) and the Mojave Desert Air Basin (MDAB). The Basin, which is a subarea of the district, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The 6,745 square-mile Basin 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 and MDAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal non-attainment area (known as the Coachella Valley Planning Area) is a subregion of both Riverside County and the SSAB and is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 1-1).

PROJECT OBJECTIVE

The objective of PAR 1193 is to address the February 6, 2008 settlement agreement by modifying the scope of the rule requirements to apply to public solid waste fleets, except federal fleets, and private solid waste collection fleets under contract to, or operating under an exclusive license or a franchise with, state and local governmental agencies.



Figure 1-1
Boundaries of the South Coast Air Quality Management District

PROJECT DESCRIPTION

The following summarizes requirements and advisory provisions of the proposed amended rule. A copy of PAR 1193 is included in Appendix A.

Purpose (Subdivision (a))

“For use by or for governmental agencies in the District” was added after procuring or leasing vehicles in the purpose.

Applicability (Subdivision (b))

“Private entities” would be removed from applicability and “private fleet operators that provide solid waste collection services to governmental agencies would be added”. Two additional exclusions to the applicability would be added:

- Solid waste collection vehicles where the combined total of government operated solid waste collection vehicles and private fleet operated solid waste collection vehicles providing solid waste collection services to the government agency is fewer than 15 vehicles.
- Vehicles used by a private solid waste collection fleet operator that provides services to a governmental agency not requiring a contract or franchise agreement.
- Transfer vehicles owned by, and operated at, a privately-operated transfer stations,

“Paragraph” was replaced with “subdivision.” The reference was updated to reflect that the exemptions subdivision would be “g” rather than “e” in PAR 1193.

Definitions of Terms (Subdivision (c))

New definitions for backup vehicle, contract, equipment breakdown, franchise agreement and governmental agency would be added. The existing definition for public or private solid waste collection fleet operator has been split into two definitions: private solid waste collection fleet operator and public solid waste collection fleet operator.

Fleet Requirements (Subdivision (d))

- Outdated requirements were removed including a phase-in of alternative-fuel and pilot ignition heavy-duty vehicles beginning July 1, 2001, for public and private solid waste collection fleet operators of 50 or more solid waste collection vehicles; and July 1, 2002, for public and private solid waste collection fleet operators of 15 or more solid waste collection vehicles, or a combined total of 15 or more rolloff, transfer, or solid waste. The same requirements applying to dual-fuel heavy-duty vehicles set to begin prior to July 1, 2004 would also be removed. Instead, all additions to an existing fleet, or formation of a new fleet of solid waste collection vehicles would be required to be by purchase or lease of alternative-fuel or pilot ignition heavy-duty vehicle for public solid waste collection fleet operators and private solid waste collection fleet operators providing affected collection services who have 15 or more solid waste collection vehicles or a combined total of 15 or more rolloff, transfer or solid waste collection vehicles beginning the date of rule amendment adoption.
- Alternative-fuel and pilot ignition heavy-duty vehicle requirements to begin July 1, 2001 and dual fuel for additions to an existing fleet, or formation of a new fleet would be removed. PAR 1193 would require all additions to an existing fleet, or formation of a new fleet, of transfer or rolloff vehicles would be required by purchase or lease of alternative-fuel, pilot ignition, or dual-fuel heavy-duty vehicles when adding or replacing transfer or rolloff vehicles for affected public solid waste collection fleet operators and private residential solid waste collection ~~fleet operators~~ services who have a combined total of 15 or more transfer or rolloff vehicles.
- ~~Prior to January 1, 2012, any~~ Any governmental agency that obtains new ~~or renewed~~ residential solid waste collection services from private fleet operator(s) would be required to contract for 100 percent use of alternative-fuel or pilot ignition solid waste collection vehicles, rolloff vehicles, or transfer vehicles, including the use of backup vehicles.
 - ~~No later than three years from the start date of the collection services for private solid waste collection fleet operators with a combined total of 50 or fewer solid waste collection vehicles, rolloff vehicles, or transfer vehicles; and~~
 - ~~No later than two years from the start date of the collection services for private solid waste collection fleet operators with a combined total of greater than 50 solid waste collection vehicles, rolloff vehicles, or transfer vehicles.~~
- ~~Beginning January 1, 2012, any~~ governmental agency that obtains new ~~or renewed~~ solid waste collection services from private fleet operators would be required to contract for the use alternative-fuel or pilot ignition solid waste collection vehicles, rolloff vehicles, and transfer vehicles, and private fleet operators shall be required to provide 100 percent use of ~~no later than January 1, 2014. If non-rule compliant vehicles need to be temporarily used due to delayed delivery of rule compliant vehicles beyond the applicable compliance date, the governmental agency or private solid waste collection fleet operator shall submit a signed and dated Technical Infeasibility Certification Request (TICR) to the Executive Officer for approval at least thirty (30) days prior the use of noncompliant vehicles~~

- Prior to January 1, 2020, any governmental agency that obtains new commercial or renewed residential or commercial solid waste collection services from private fleet operator(s) would be required to contract for:
 - 100 percent use of alternative-fuel or pilot ignition solid waste collection vehicles, rolloff vehicles, or transfer vehicles:
 - No later than seven years from the date of contract service, and
 - Placing a minimum number of alternative fuel vehicles into service in accordance to the following schedule:

<u>Minimum Percentage</u>	<u>Deadline</u>
<u>14%</u>	<u>1 year after initial service</u>
<u>28%</u>	<u>2 years after initial service</u>
<u>42%</u>	<u>3 years after initial service</u>
<u>56%</u>	<u>4 years after initial service</u>
<u>70%</u>	<u>5 years after initial service</u>
<u>84%</u>	<u>6 years after initial service</u>
<u>100%</u>	<u>7 years after initial service</u>

Or

- Alternative-fuel, pilot ignition, or diesel solid waste collection, roll-off or transfer vehicles. All replacement vehicles would be required to meet the provisions of described above. Existing diesel powered vehicles would be required to be:
 - Twelve model years or newer, for each year from the date of contract renewal or start date of new contract services, and
 - Equipped with appropriate control devices.
- Vehicles that are removed from service in compliance with the commercial or renewed contract requirements shall not be used in any other refuse collection service contracts, but would be allowed in any other refuse service if the vehicles are replacing older vehicles.
- Notwithstanding the commercial or renewed contract requirements, all vehicles used for refuse services subject to the fleet requirements would be required to be alternative-fueled or pilot ignition beginning January 1, 2020.
- Within 30 days upon execution of a new contract or renewed contract, the governmental agency and private fleet operator under contract shall submit a compliance report to the Executive Officer that provides the following information, at a minimum:
 - Private Fleet Service Provider Contact Information, including: name of private fleet operator, street address, contact person, and telephone number.
 - Description of service contract, including: start of service date, general description of services to be provided, and contract timeframe for base year, option years, and renewal provisions if applicable.
 - Inventory of refuse vehicles to begin service under a new or renewed contract, identified by: application (solid waste collection, rolloff, or transfer), vehicle identification number, license plate number, engine model year, fuel type, and domicile location.
 - For renewed contracts, identification of rule provision, the commercial or renewed contract requirements, and planned purchases of alternative-fuel or pilot solid waste collection, rolloff, and transfer vehicles, to be used for rule compliance through January 1, 2020.

Equipment Breakdown (Subdivision (e))

- Agencies are permitted to substitute the use of a non-compliant solid waste collection, rolloff or transfer vehicle resulting ~~from the breakdown~~ if there is a breakdown of a rule compliant vehicle for a period lasting no longer than 14 calendar days provided a backup alternative-fuel solid waste collection vehicle, rolloff vehicle or transfer vehicle is not available; and accidents notwithstanding, the breakdown was not caused by operator error, neglect, improper operation or maintenance procedures as determined by the Executive Officer.
- If the vehicle breakdown will last for more than fourteen calendar days, the public or private solid waste collection fleet operator would be required to submit a signed and dated Technical Infeasibility Certification Request (TICR) to the Executive Officer for approval prior to the expiration of the fourteen day period.

Technical Infeasibility Certification Request (Subdivision (f))

- If non-rule compliant vehicles need to be temporarily used due to either: delayed delivery of rule compliant vehicles beyond the applicable compliance dates, or the availability of an alternative fuel refueling infrastructure at the time of execution of a new contract or renewal of an existing contract, the governmental agency and private solid waste collection fleet operator shall submit a signed and dated TICR to the Executive Officer for approval at least thirty days prior to the use of noncompliant vehicles. The TICR would be required to demonstrate the unavailability of rule compliant vehicle(s), or the unavailability of alternative-fuel refueling infrastructure within five miles from where the rule compliant vehicles are domiciled or that the existing fuel refueling structure is not capable of refueling the alternative fueled vehicles. This demonstration would be required to consist of vehicle purchase order(s), expected delivery timeframe(s), and vehicle manufacture information that verifies delayed delivery of vehicles; or expected timeframe for the construction of an alternative-fueled refueling infrastructure, but no more than two years from the date of approval of a TICR.
- TICRs submitted pursuant to vehicle breakdowns lasting more than 14 days would be required to demonstrate the length of time necessary to repair the vehicle breakdown, or if the vehicle is rendered completely inoperable, the time to order a new vehicle or time needed to place a rule-compliant vehicle into service, beyond the initial fourteen calendar day breakdown period.
- Pursuant to fleet requirements for additions to an existing fleet, or formation of a new fleet of solid waste collection vehicles and additions to and existing fleet or formation of a new fleet of transfer or roll off vehicles, a TICR may be submitted to the Executive Officer to obtain approval for the purchase and use of non-rule compliant solid waste collection vehicles(s), rolloff vehicles(s) or transfer vehicles where no rule compliant engine and chassis configuration is available commercially or could be used, or dedicated vehicles are used to routinely transport solid waste in and out of the district.
- PAR 1193 includes requirements that govern TICRs approval or disapproval.
- A TICR is subject to plan filing and evaluation fees as described in Rule 306.

Exemptions (Subdivision (g))

- The exemption from fleet requirements for solid waste collection vehicles for which no alternative-fuel engine and chassis configuration is available commercially or could be used would be removed by PAR 1193.

- Language relating to variances from the SCAQMD Hearing Board would be removed.
- The exemption allowing a fleet operator to purchase dual fuel vehicles until July 1, 2005, where all existing solid waste collection vehicles equipped with 1995 and subsequent model year diesel engines in the fleet have been equipped with approved control devices would be removed.
- Notwithstanding the (d)(3) requirements for governmental agencies that obtain new residential solid waste collection services from private fleet operator(s) and prior to January 1, 2020, if a private solid waste collection fleet operator requires the entire solid waste collection vehicle fleet from a public solid waste collection fleet operator and contracts with a public solid waste collection fleet operator and contracts with the public solid waste collection fleet operator for residential solid waste collection services, the private solid waste collection fleet operator would be allowed to comply with the provisions of (d)(4), which for new commercial and renewed refuse collection service contracts, private fleets providing these services would be given a choice to either provide alternative-fueled vehicles or pilot ignition vehicles within a four year period or replace diesel-fueled refuse vehicles that are 12 years or older with alternative-fueled vehicles or pilot ignition vehicles.
- An exemption for vehicles contracted for solid waste collection services provided that the solicitation to obtain new solid waste collection services from private solid waste collection fleet operators was opened ~~at least two months prior to June 1, 2010~~ the adoption of PAR 1193 would be added.
- Private fleets with a combined total number of fifteen or fewer vehicles operating under a franchise agreement may elect to comply with the provisions of the fleet requirements that regulate additions to affected fleet in place of fleet requirements that regulate contract requirements of affected fleets, provided that all non-alternative fueled vehicles are equipped with approved control devices.
- When the remainder of the fleet subject to the fleet requirements Subdivision (d) consists of alternative-fuel or pilot ignition heavy-duty vehicles,
 - for public or private fleets with greater than 15 but less than or equal to 50 solid waste collection, rolloff, and transfer vehicles, no more than three heavy-duty vehicles that do not meet the fleet requirements may be part of the fleet at any given time, and
 - for public or private fleets with greater than 50 solid waste collection, rolloff, and transfer vehicles, no more than three percent of the solid waste collection vehicles subject to the fleet requirements that do not meet the fleet requirements may be part of the fleet at any given time; and no more than twenty percent of the rolloff and transfer vehicles subject to the fleet requirements that do not meet the fleet requirements and meet 2010 or cleaner exhaust emissions standards may be part of the fleet at any given time.
 - Any vehicles subject to the provisions of this exemption would be required to be equipped with approved control devices if the engines do not meet 2010 exhaust standards.

Compliance Auditing and Enforcement (Subdivision (h))

- Subdivision references would be updated.
- The effective date would be altered from July 1, 2001 to December 31, 2011, for the requirement that any fleet operator with 15 or more, but fewer than 50 vehicles subject to PAR 1193 fleet requirements would be required to submit a letter to the Executive Officer outlining the intended source of alternative fuel to be used for compliance purposes.

- Any violation by a government agency of any provision of this rule or by a fleet operator of a contract or franchise agreement requirement for the use of alternative-fuel, pilot ignition, or dual-fuel vehicles, or the use of vehicles that are not authorized by this rule, would be a violation of PAR 1193.

Severability (Subdivision (i))

No changes.

EMISSIONS INVENTORY

The criteria emission inventory is based on a number of assumptions, such as, affected fleets, refuse vehicle population, fleet turnover, and impacts to fleet turnover existing rule requirements. These assumptions were developed from information provided by industry as part of the rule development process, as well as data generated by surveys disseminated to potentially affected government agencies and private refuse collection fleet operators. Current regulations that affect criteria emissions from refuse collection fleets were also used to develop the criteria emissions inventory. These regulations include the California Air Resources Board (CARB) Solid Waste Collection Vehicle (SWCV) Regulation and future emission standards applicable for new diesel and natural gas heavy-duty engines used in refuse collection vehicles.

An important component of the criteria emission inventory is the information generated by two industry surveys. Up-to-date information on the inventory and types of refuse collection vehicles operating in the district, and types of legal agreements used by government agencies to authorize refuse collection services in their areas of jurisdiction were gathered from the surveys. The first survey was conducted to collect the total numbers of refuse collection vehicles operating in each fleet, as well as, the breakdown of vehicles by application (e.g., automated side loader, front end loader, etc.) and fuel type. This information was collected on a one page form, mailed to all municipalities in the district and known private refuse collection fleets operating in the district. Private fleet refuse collection service operators were primarily identified based on lists of permitted companies from various government sources. A total of 351 surveys were mailed to these municipalities and private refuse collection fleet operators, and responses were received from 234 survey recipients.

A second survey gathered information on how government agencies authorize refuse collection services for their specific areas of jurisdiction. Contract related information requested included types of legal agreements used (e.g., exclusive franchise agreements, evergreen contracts, business permits, etc.), contract terms, and remaining time on contract. A total of 170 surveys were mailed and responses were received from 78 government agencies.

Both surveys provided critical information used to assess the base inventory of refuse collection vehicles operating in the district, the subset of this vehicle population that would be impacted by the proposed amendments, and fleet turnover trends.

Based on the current make-up of rule compliant refuse trucks, it is assumed that fleet owner/operators would purchase natural gas-powered (currently, the most widely commercially available alternative fuel) refuse trucks for rule compliance purposes.

Data and assumptions used in the criteria pollutant emission inventory analysis are as follows:

1. It is assumed that the CARB SWCV rule substantially reduces in-use PM emissions from refuse collection fleets post-2010, to a level where further reductions would not be significant.
2. Existing trucks are diesel fueled. Based on the current make-up of rule compliant refuse trucks, it was assumed that fleets would purchase natural-gas powered (currently, the most widely commercially available alternative fuel) refuse trucks for rule compliance purposes. Diesel and natural gas heavy-duty engines are required to meet the same CARB in-use emission standards for non-methane hydrocarbons (NMHC) and carbon monoxide (CO). The relevant standards are 0.14 grams of NMHC per brake horsepower-hour and 14.4 grams of CO per brake horsepower-hour. Therefore, SCAQMD staff assumed that there is no substantial difference between diesel and natural gas fueled engine in-use NMHC and CO emissions.

It is anticipated that the proposed amendments to Rule 1193 would result in the accelerated retirement of some diesel refuse vehicles and replacement with natural gas vehicles. To assess PM emission impacts of the proposed amendments, PM emission levels of in-use diesel and natural gas refuse vehicles must be compared, taking into account existing CARB regulations that would affect PM emission levels. In 2002, CARB adopted the SWCV regulation which requires PM emissions control for virtually all existing solid waste collection vehicles by the end of 2010. As a result of the CARB SWCV regulation, PM emissions for in-use diesel refuse vehicles are expected to be controlled at levels that are comparable to natural gas vehicles in the post-2010 timeframe. This assumption is based on the expected availability of Level 3 (minimum 85 percent PM reduction) PM retrofit technology currently meeting a 0.1 gram per brake horsepower-hour certification emission standard that could be installed on in-use solid waste vehicles. Thus, it is not expected that substantive PM emission reductions would result from the proposed amendments. It should be noted that, to the extent that refuse fleets are operating 1193-compliant or older model-year refuse vehicles meeting a 0.25 gram per brake horsepower-hour PM standard (or less stringent), with PM filters installed as required by the ARB SWCV regulation, there would be a slight PM emissions benefit from the replacement of these vehicles with natural gas vehicles as a result of the proposed amendments.

3. Sulfur oxide (SO_x) emissions are a function of sulfur content in the fuel. Current CARB diesel fuel specification regulations allow a maximum sulfur content level of 15 ppm, and refiners typically produce diesel fuel at even lower sulfur concentrations to maintain a compliance margin with the sulfur content requirement. SO_x emissions from diesel-fueled vehicles were estimated based on an in-use sulfur content level in diesel fuel of 10 ppm. The same in-use sulfur content was used to estimate existing SO_x emissions from diesel-fueled solid waste collection vehicles.
4. NO_x emission factors, provided in Table 1-1 quantify criteria pollutant emissions on a per vehicle basis from use of diesel vehicles. A fuel consumption rate factor of 18.5 brake-horsepower-hour per gallon and an assumed 10,000 diesel gallon equivalent (dge)

consumption per vehicle per year was used to develop NOx emissions in tons of NOx per year.

**Table 1-1
NOx Emission Factors**

Model Year	Diesel Fueled Heavy-Duty Vehicle Emission Factors (grams per brake-horsepower-hour)
1998-1999	10.7
1990	6
1991-1997	5
1998-2002	4
2003-2006	2.38*
2007-2009	1.2
2010-2011	0.5
2012 +	0.2

* Incorporates 0.95 NOx/HC Pollution Fraction

- The diesel refuse vehicle population that would be affected by the proposed amendments was analyzed in terms of three fleet categories. The first category comprises private fleets with 15 or more refuse collection vehicles providing services to state or local public agencies under an exclusive license, contract or franchise. The number of diesel refuse vehicles in this category based on survey data totals 2,855 vehicles. Private refuse fleets contributing these vehicles are currently affected by the existing Rule 1193 paragraphs (d)(1) and (d)(2) which require the acquisition of rule compliant vehicles when affected fleets decide to add or replace vehicles in their fleet. Essentially, the current rule language drives the replacement of diesel refuse vehicles to rule compliant refuse vehicles through natural fleet turnover. The impact of the proposed amendments on these fleets would be to accelerate turnover to rule compliant vehicles by requiring fleets to service new residential or renewed contracts with 100 percent rule compliant vehicles, and new commercial and renewed contracts with 100 percent rule compliant vehicles phased in over time. It should be noted that the 2,855 vehicle population figure basically corresponds to the entire diesel vehicle fleet population of private fleets that currently use at least a portion of their vehicles to provide refuse collection services to government agencies that would be directly impacted by the rule amendment -- government agencies that would require at least 15 vehicles to provide complete refuse collection services and some or all of these services provided on an exclusive basis by private refuse collection fleet operators. Based on analysis of survey data and industry input, municipalities under a certain population limit, which could be roughly in the range of 40,000 to 70,000 people, may need less than 15 refuse collection vehicles to provide all refuse collection services. In addition, industry has indicated that some refuse vehicles servicing a specific municipality may be used to service other municipalities, depending on fleet management practices. The district contains a large number of municipalities with populations below the 40,000 to 70,000 range; therefore, the 2,855 refuse vehicle figure may over represent the actual number of private fleet vehicles that would be affected by the proposed amendments. On the other hand, it is not known what fraction of refuse vehicles in private fleets are used to service multiple municipalities, and in particular those

municipalities that would require 15 refuse vehicles or greater to service to provide for all collection services. Affected private refuse vehicles that are assigned to service multiple municipalities may result in rule compliant refuse vehicle being used in municipalities that would not otherwise be affected by the proposed amendments. Based on the preceding, it is assumed that the calculated emission reductions represent the maximum potential reductions that could be achieved for the proposed amendments.

The second category of fleet vehicles affected by the proposed amendments consist of refuse vehicles owned by private refuse fleets that individually contain fewer than 15 vehicles, but supply refuse collection services to one or more individual government agencies where the total combined number of refuse vehicles servicing that individual government agency totals at least 15 refuse vehicles. Based on survey data, staff estimates that affected private fleets in this category operate 98 vehicles. Currently, these fleets are unaffected by Rule 1193 and are presumed to retire and replace existing diesel vehicles through normal fleet turnover. The effect of the proposed amendments on these fleets would be to require the accelerated turnover of refuse vehicles to rule compliant vehicles.

The third category of fleet vehicles affected by the proposed amendments consist of government fleets each containing fewer than 15 vehicles, where the total number of public and private refuse vehicles servicing these government jurisdictions totals at least 15 refuse vehicles. Based on survey data, staff estimates that this fleet category consists of 12 vehicles. Currently, these fleets are not regulated by Rule 1193 and fleet operators are presumed to retire and replace existing diesel vehicles through normal fleet turnover. The effect of the proposed amendments on these fleets would be to require the acquisition of rule compliant vehicles when these vehicles normally add or replace vehicle in their refuse fleet.

The affected fleets were designed to represent the maximum number of vehicles that could be impacted by the rule and are presented by category in Table 1-2.

6. The baseline model year distribution for diesel vehicles operated by affected fleets is primarily based on the assumed useful life for the specific fleet category of interest, taking into account Rule 1193 implementation which requires the acquisition of alternative-fuel vehicles when a fleet operator decides to add or replace vehicles in their fleet. The fleet categories analyzed with regard to model year distribution are private fleets that have 50 or more vehicles each, private fleets that have 15 to 50 vehicles each, private fleets that have fewer than 15 vehicles each, and public fleets with fewer than 15 vehicles each. The vehicle useful life assumptions for each of these fleets are based on data and input from individual refuse fleet operators, as well as statewide data showing the model year distribution for the in-use refuse vehicle fleet. For private refuse fleets, the information received by staff from smaller refuse fleet operators indicate that they retain their refuse vehicles for a longer period of time, in the range of 20 to 22 years, as compared larger refuse fleets, which keep their vehicles in the range of 12 to 15 years. For public fleets, the seven year vehicle useful life was based on input received from public fleets, specifically the City of Los Angeles, where their refuse truck replacement cycle is based on operating vehicles for a seven year timeframe.

Model year distribution assumptions for each of these fleet categories are as follows: (1) For private fleets with more than 50 vehicles each, the assumed model year distribution takes into account a useful life of 15 years, and the purchase of a limited number of diesel vehicles acquired post 2002 calendar year in accordance with Rule 1193 purchasing requirements in combination with SCAQMD not affirmatively enforcing Rule 1193 between 2004 and 2005. Since available fleet data indicate that 456 diesel vehicles are 2002 model year and newer for this fleet category, these vehicles were evenly distributed between the 2002 and 2010 model years, and the remaining 2,173 vehicles in this category were distributed between the 1996 to 2001 model years. (2) For private fleets operating between 15 and 50 diesel vehicles, a 22 year useful life is assumed. Since there is no data to indicate that these fleets operate any diesel vehicles that are 2002 to 2010 model year, the 226 diesel vehicles in this category are distributed between the 1989 to 2001 model years. (3) For private fleets with fewer than 15 vehicles each and have been heretofore unaffected by Rule 1193, the 98 vehicles in this category were distributed between the 1989 and 2010 model years. (4) For public fleets with less than 15 diesel vehicles and have been heretofore unaffected by Rule 1193, the 12 ~~14~~ vehicles in this category have been spread out over a seven year timeframe, corresponding to the 2004 to 2010 model years.

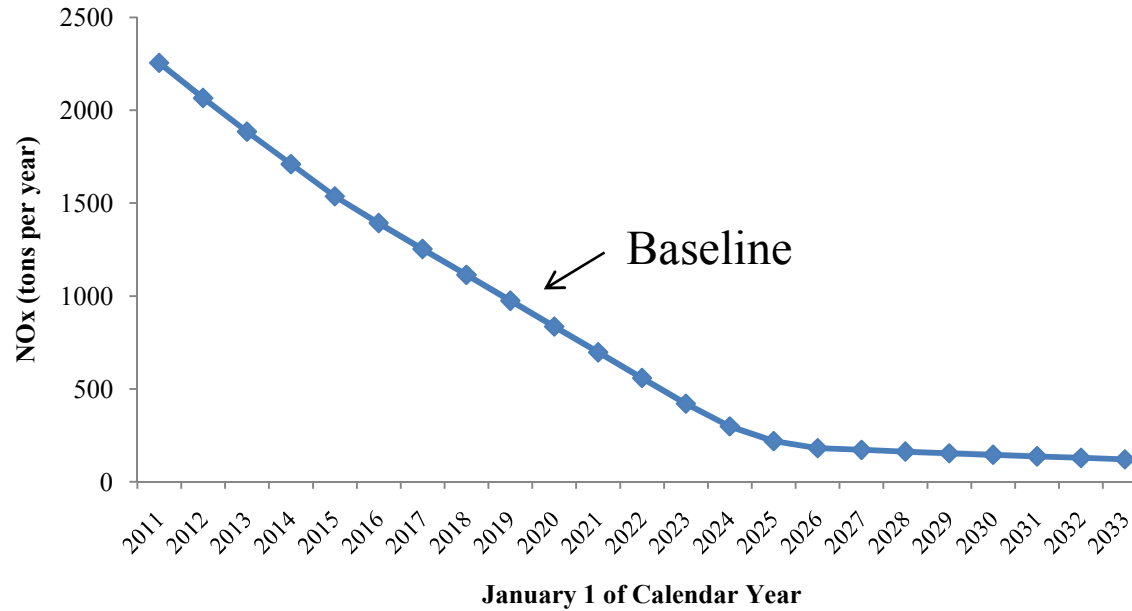
Based on the above assumptions, Table 1-3 and Figure 1-3 shows NO_x emissions for existing vehicles. As shown in Table 1-3 and Figure 1-3, the existing rule requirements would continue to generate emission reductions due to natural fleet turnover triggering the required acquisitions of rule compliant vehicles over time.

**Table 1-2
Existing Fleets That Would Be Affected by PAR 1193 and
Existing Effects of Current Rule**

Scenario	Fleet Description	Number of Affected Refuse Trucks	Current Rule Effects
Existing Setting	Private fleets with 15 or more refuse collection vehicles providing services to state or local public agencies under an exclusive license, contract or franchise	2,855	Normal turnover from diesel-fueled to natural gas-fueled vehicles
Existing Setting	Private fleets with fewer than 15 refuse collection vehicles with contractual, licensing or franchise arrangements with state or local public agencies that in combination with the vehicles from other private refuse collection providers add to a total of 15 or more vehicles	98	Normal turnover from diesel-fueled to diesel-fueled vehicles
Existing Setting	Public fleets with fewer than 15 refuse collection vehicles where the state or local agency requires combined public and private refuse collection vehicles totaling 15 or more vehicles to provide all refuse collection services	12	Normal turnover from diesel-fueled to diesel-fueled vehicles

**Table 1-3
NOx Emission Inventory (Tons per Year) from Affected Solid Waste Collection Vehicles under the Existing Rule**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	1,959	1,800	1,641	1,482	1,323	1,193	1,067	941	815	689	564	438	312	202	136	107	107	107	107	107	107	107	107	107
Private 15-49	220	199	183	171	162	152	143	134	124	115	106	96	87	78	68	61	53	46	39	31	24	17	9.2	
Private <15	72	64	59	55	51	47	43	39	35	31	27	24	21	18	15	13	11	9.1	7.3	6.4	5.5	4.5	4.3	
Public <15	3.7	3.2	2.5	1.7	1.4	1.0	0.70	0.59	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Private Total	2,251	2,063	1,883	1,708	1,535	1,392	1,253	1,113	974	835	697	558	420	298	219	181	172	162	153	145	137	128	121	
Total	2,255	2,066	1,885	1,710	1,537	1,393	1,253	1,114	975	836	697	559	421	298	219	181	172	163	154	145	137	129	121	



**Figure 1-2
NOx Emissions from Affected Solid Waste Collection Vehicles under the Existing Rule**

CHAPTER 2 - ENVIRONMENTAL CHECKLIST

Introduction

General Information

Environmental Factors Potentially Affected

Determination

Environmental Checklist and Discussion

INTRODUCTION

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

GENERAL INFORMATION

Project Title:	Proposed Amended Rule (PAR) 1193 – Clean On-Road Residential and Commercial Refuse Collection Vehicles
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
CEQA Contact Person:	Mr. James Koizumi (909) 396-3234
Rule Contact Person	Mr. David Coel (909) 396-3143
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:	PAR 1193 would revise rule language for consistency with court decisions and settlement agreements, and would direct local and state government (including the State of California, counties, cities and special districts, and private entities under contract to, or operating under an exclusive license or a franchise with state and local government entities) to purchase, procure, lease, and/or contract 100 percent rule compliant vehicles. In addition, amendments are proposed to address solid waste collection services and to establish procedures for when rule compliant vehicles are on order but have not been delivered by the start of service, as well as the use of backup vehicles due to vehicle breakdown.
Surrounding Land Uses and Setting:	Not applicable
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 a "✓" may be adversely affected by the proposed project. An explanation relative to the determination of impacts can be found following the checklist for each area.

- | | | |
|---|--|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture <u>and Forest</u>
Resources | <input checked="" type="checkbox"/> Air Quality <u>and</u>
<u>Greenhouse Gas</u>
<u>Emissions</u> |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Energy |
| <input type="checkbox"/> Geology/Soils | <input checked="" type="checkbox"/> Hazards & Hazardous
Materials | <input type="checkbox"/> Hydrology/
Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input checked="" type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Solid/Hazardous Waste | <input type="checkbox"/> Transportation/
Traffic | <input checked="" type="checkbox"/> 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 Guideline §15252, COULD NOT have a significant effect on the environment, and that an ENVIRONMENTAL ASSESSMENT with no significant impacts will be 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 (a) have been analyzed adequately in an earlier ENVIRONMENTAL ASSESSMENT pursuant to applicable standards, and (b) 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: March 12, 2010

Signature: Steve Smith

Steve Smith, Ph.D.
Program Supervisor

ENVIRONMENTAL CHECKLIST AND DISCUSSION

PAR 1193 would address the February 6, 2008 settlement agreement by modifying the scope of the current rule to apply to public solid waste collection fleets, except federal fleets, and private fleets that provide refuse collection services to affected government agencies through an exclusive agreement.

Where the combined total of refuse vehicles used by the government agency and private fleet to supply refuse collection services to the government agency comprise 15 or more vehicles, the proposed amended rule would direct local and state government (“including the State of California, counties, cities and special districts, and private entities under contract to, or operating under an exclusive license or a franchise with state and local government entities”) to purchase, procure, lease, and/or contract 100 percent rule compliant vehicles.

Additional clarifying language is being proposed to address potentially long refuse vehicle delivery timeframes that would allow the temporary use of diesel-powered refuse vehicles under certain conditions if a private contractor must order new rule compliant vehicles to supply services to a government agency upon commencement of a new agreement to provide these services.

New language is also being proposed under subdivision (e) of Rule 1193 addressing equipment breakdown. This new subdivision contains a definition of equipment breakdown, as well as requirements pertaining to notification methods, recordkeeping, and equipment repair timeframes.

To offer financial flexibility an exemption would be added that would allow private fleets to phase-in alternative-fueled residential refuse collection vehicles over a seven-year period, in situations where an affected government fleet is privatized. An exemption would also be added to allow three refuse collection diesel-fueled vehicles for small fleets, three percent solid waste diesel-fueled collection vehicles and 20 percent rolloff diesel-fueled vehicles for large fleets.

Final Programmatic Environmental Assessment (June 2000)

When originally adopted, Rule 1193 was expected to apply to governmental agencies and private entities that operate solid waste collection fleets with 15 or more solid waste collection vehicles. SCAQMD staff estimated that Rule 1193 would apply to about 7,200 solid waste collection vehicles. The June 2000 Final PEA for the Fleet Rules evaluated adverse impacts related to 7,200 solid waste collection vehicles. Operational effects of Rule 1193 (fleet turnover to compliant vehicles) were expected to occur between 2001 and 2010 (nine years). Construction related to indirect effects of refueling infrastructure was expected to occur between 2001 and 2004 (five years).

Subsequent Environmental Assessment

Based on surveys of municipalities and operators, it is estimated that PAR 1193 would affect about 2,965 diesel-fueled solid waste collection, rolloff or transfer vehicles. These vehicles would include:

- 2,855 diesel-fueled solid waste collection, rolloff or transfer vehicles in private fleets with contractual arrangements with municipalities with 15 or more affected vehicles;
- 98 diesel-fueled solid waste collection, rolloff or transfer vehicles in private fleets with fewer than 15 affected vehicles with contractual arrangements with municipalities that in

combination with the municipality’s fleet and any other private fleets total 15 or more affected vehicles;

- 12 diesel-fueled solid waste collection, rolloff or transfer vehicles in public fleets with fewer than 15 affected vehicles where the governmental agency requires combined public and private affected vehicles total 15 or more affected vehicles to provide all collection services.

The affected number of solid waste collection, rolloff or transfer vehicles developed from survey data is presented in Table 2-1.

**Table 2-1
Fleets Affected by PAR 1193 and Resulting Consequences**

Scenario	Fleet Description	Number of Affected Refuse Trucks	PAR 1193 Effects
Rule Amendment	Private fleets with 15 or more refuse collection vehicles providing services to state or local public agencies under an exclusive license, contract or franchise	2,855	Accelerated turnover from diesel-fueled to natural gas-fueled vehicles
Rule Amendment	Private fleets with fewer than 15 refuse collection vehicles with contractual, licensing or franchise arrangements with state or local public agencies that in combination with the vehicles from other private refuse collection providers add to a total of 15 or more vehicles	98	Accelerated turnover from diesel-fueled to natural gas-fueled vehicles
Rule Amendment	Public fleets with fewer than 15 refuse collection vehicles where the state or local agency requires combined public and private refuse collection vehicles totaling 15 or more vehicles to provide all refuse collection services	12	Normal turnover from diesel-fueled to natural gas-fueled vehicles

Based on discussions with municipalities and private fleet operators, it was determined that alternative-fueled solid waste collection, rolloff or transfer vehicles would be fueled by either liquefied natural gas (LNG) or compressed natural gas (CNG). Therefore, hereafter alternative fuels will refer to either LNG or CNG unless specifically stated. CNG can be delivered by pipeline, while LNG would need to be transported by truck. LNG can be converted to CNG at refueling facilities. Since LNG generally would generate more impacts, LNG is typically analyzed unless specifically stated.

The environmental impacts from retiring about 2,965 diesel-fueled solid waste collection, and rolloff or transfer vehicles; building alternative-fuel refueling stations; transporting alternative fuels to refueling stations, and usage of alternative fuels are examined in the environmental check list below.

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

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

I.a), b), c) & d) PAR 1193 would modify rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contact to, or operating under an exclusive license or a franchise with, state and local governmental agencies. PAR 1193 would require the replacement of diesel-fueled vehicles with alternative-fuel vehicles within affected fleets.

Alternative-Fuel Vehicles

The change in fuel is not expected to affect the appearance of solid waste collection, rolloff or transfer vehicles. Since the vehicles are expected to appear similar and complete solid waste collection similarly to diesel-fueled vehicles.

Alternative-fueled Refueling Stations

PAR 1193 may indirectly necessitate the new construction of clean-fuel (natural gas) refueling stations to support the required new natural gas vehicles. Natural gas refueling stations are similar in appearance (including lighting) to diesel refueling stations. Clean-fuel refueling stations are expected to be placed in commercial or industrial zoned areas close to where fleets are kept near solid waste collection, rolloff or transfer stations. These facilities are typically located in areas that are already zoned as commercial, industrial or institutional areas.

Since natural gas-fueled vehicles and refueling stations are similar in design to diesel-fueled vehicles and refueling stations, alternative-fuel and diesel refueling stations are expected to be located in areas that are already commercial or industrial, PAR 1193 is not expected to adversely affect scenic vistas, damage scenic resources or substantially degrade the visual character or quality of a site and its surroundings, or create substantial light or glare.

Based upon these considerations, significant adverse aesthetics impacts are not anticipated and will not be further analyzed in this ~~draft~~-Final SEA. Since no significant aesthetics impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
II. <u>AGRICULTURE AND FOREST RESOURCES.</u> 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 m Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) <u>Result in the loss of forest land or conversion of forest land to non-forest use?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

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

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

II. a), b), & c), & d) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contract to, or operating under an exclusive license or a franchise with, state and local governmental agencies. PAR 1193 would require the replacement or accelerate the replacement of diesel-fueled vehicles with clean-fuel vehicles within affected solid waste collection, rolloff or transfer fleets. PAR 1193 may indirectly necessitate the construction of natural gas refueling stations to comply with the proposed requirements. Natural gas refueling stations are not expected to be placed in areas that are zoned for agricultural or forest use. Nor is it expected that an area zoned for agricultural or forest use would be re-zoned to allow for the construction of a natural gas refueling station to support PAR 1193 compliant vehicles. Therefore, PAR ~~1139~~ 1193 is not expected to convert any classification of farmland to non-agricultural use, or conflict with zoning for agricultural use or a Williamson Act contract, or result in the conversion of forest land to non-forest use.

Based upon these considerations, significant agricultural resource impacts are not anticipated and will not be further analyzed in this draft-Final SEA. Since no significant agriculture or forest resources impacts were identified, no mitigation measures are necessary or required.

Potentially Significant Impact	Less Than Significant Impact	No Impact
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III. AIR QUALITY AND GREENHOUSE GAS EMISSIONS. Would the project:

- | | | | |
|--|--------------------------|-------------------------------------|-------------------------------------|
| a) Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Violate any air quality standard or contribute to an existing or projected air quality violation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant Impact	No Impact
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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) <u>Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) <u>Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

III. a) and f) Attainment of the state and federal ambient air quality standards protects sensitive receptors and the public in general from the adverse effects of criteria pollutants which are known to have adverse human health effects. Rule 1193 was designed as part of the vehicle fleet rules (Rules 1186.1 and 1191 through 1196 and 1186.1), which were developed from the Governing Board's Environmental Justice (EJ) Initiatives #2 and #7, as well, as the SCAQMD's Air Toxics Control Plan. The vehicle fleet rules provided early emission reductions of toxic air contaminants (TACs) and criteria pollutants (e.g., NOx, CO, particulate matter (PM), and hydrocarbons (HC)) compared to projections in the SCAQMD's 1997 Air Quality Management Plan (AQMP) as amended in 1999 as well as provide surplus reductions above CARB emission standards.

The lawsuit and subsequent settlement agreement for Rule 1193 excluded private vehicles that are not under contract to, or operating under an exclusive license or a franchise agreement with government agencies. PAR 1193 would clarify which fleets would be captured under the current rule in light of the February 6, 2008 settlement agreement by modifying the scope of the current rule to apply only to non-federal government waste collection fleets and private waste collection fleet under contract to, or operating under an exclusive license or a franchise with state and local entities.

PAR 1193 would accelerate the turnover of about 2,855 affected diesel-fueled solid waste collection, rolloff or transfer vehicles to natural gas-fueled vehicles by requiring replacement of diesel-fueled vehicles when contracts are made or renewed with affected government agencies in addition to turnover at the end of the diesel-fueled vehicle's life (see Table 2-1). PAR 1193 would capture an additional 110 solid waste collection, rolloff or transfer vehicles (98 of the newly captured vehicles would also have an accelerated turnover). By accelerating fleet turnover of affected refuse trucks, it is expected that NO_x and air toxic emission reductions expected under the current rule would also be accelerated. Since PAR 1193 would achieve accelerated or additional NO_x and air toxic emission reductions beyond those proposed in the existing rule, it is not expected to conflict or obstruct implementation of the applicable AQMP.

Since PAR 1193 would achieve accelerated and additional NO_x air toxic reductions beyond those proposed under the existing rule, implementing PAR 1193 would not diminish an existing air quality rule or future compliance requirement, nor conflict with or obstruct implementation of the applicable air quality plan

III. b), c) & d), g) & h) For a discussion of these items, refer to the following analysis:

Air Quality Significance Criteria

Attainment of the state and federal ambient air quality standards protects sensitive receptors and the public in general from the adverse effects of criteria pollutants which are known to have adverse human health effects. Evaluation of the proposed project indicates that it could generate secondary adverse air quality impacts not only in the district, but also in the Mojave Desert Air Basin (MDAB). For this reason, air quality significance criteria used by SCAQMD and Mojave Desert Air Quality Management District (MDAQMD), who regulate sources in the MDAB, are provided. To determine whether or not air quality impacts from adopting and implementing the proposed amendments are significant, impacts are evaluated and compared to the criteria listed in Tables 2-2 for the district and 2-3 for the MDAB. The project would be considered to have significant adverse air quality impacts if any one of the thresholds in Tables 2-2 or 2-3 are equaled or exceeded.

Construction Impacts

No direct construction would be required to comply with PAR 1193. PAR 1193 would clarify the scope of Rule 1193, accelerate the turnover of about 2,855 affected diesel-fueled solid waste collection, rolloff or transfer vehicles with natural gas vehicles, and capture an additional 110 vehicles (98 of which would have an accelerated turnover).

Secondary construction impacts could be caused by construction of natural gas refueling stations required to support the natural gas solid waste collection, rolloff or transfer vehicles with natural gas.

The June 2000 Final PEA for the Fleet Rules analyzed construction impacts from alternative-fuel refueling stations. The June 2000 Final PEA assumed that a maximum of three refueling stations would be converted per day. The construction of the refueling stations was expected to be completed by 2004.

**Table 2-2
Air Quality Significance Thresholds**

Mass Daily Thresholds		
Pollutant	Construction	Operation
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
SOx	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 Greenhouse Gas (GHG) Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk \geq 10 in 1 million Hazard Index \geq 1.0 (project increment) Hazard Index \geq 3.0 (facility-wide)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHGs	10,000 metric tons per year	
Ambient Air Quality for Criteria Pollutants ^a		
NO2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.25 ppm (state) 0.053 ppm (federal)	
PM10 24-hour average annual geometric average annual arithmetic mean	10.4 $\mu\text{g}/\text{m}^3$ (recommended for construction) ^c & 2.5 $\mu\text{g}/\text{m}^3$ (operation) 1.0 $\mu\text{g}/\text{m}^3$ 20 $\mu\text{g}/\text{m}^3$	
Sulfate 24-hour average	1 $\mu\text{g}/\text{m}^3$	
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) 9.0 ppm (state/federal)	

^a GHG emissions include both operational GHG emissions and construction GHG emissions averaged over 30 years.

^b Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.

^c Ambient air quality threshold based on SCAQMD Rule 403.

KEY: lbs/day = pounds per day ppm = parts per million $\mu\text{g}/\text{m}^3$ = microgram per cubic meter \geq greater than or equal to

Table 2-3
MDAQMD Air Quality Significance Thresholds

Mass Thresholds		
Pollutant	Daily Threshold lb/day	Annual Threshold ton/year
NO _x	137	25
VOC	137	25
PM ₁₀	82	15
PM _{2.5}	82	15
SO _x	137	25
CO	548	100
H ₂ S	54	10
Lead	0.6	3
Toxic Air Contaminants (TACs) Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk \geq 10 in 1 million Hazard Index \geq 1.0 (project increment)	
Ambient Air Quality for Criteria Pollutants ^a		
NO ₂ 1-hour average annual average	MDAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.25 ppm (state) 0.053 ppm (federal)	
Sulfate 24-hour average	1 ug/m ³	
CO 1-hour average 8-hour average	MDAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)	

KEY: lb/day = pounds per day ton/year = tons per day ppm = parts per million ug/m³ = microgram per cubic meter \geq greater than or equal to

SCAQMD staff estimates that, based on 2,965 affected vehicles and an assumed diesel equivalent consumption of 10,000 gallons, 13 additional natural gas refueling stations would be necessary to accommodate refuse trucks affected by implementation of PAR 1193. Based on the useful lifetimes of existing affected vehicles (22 years) and PAR 1193 required effective compliance dates, SCAQMD staff estimates estimated in the draft EA that during the peak year of the March 9, 2010 version of PAR 1193 (2014), 360 diesel-fueled solid waste collection, rolloff or transfer vehicles would be replaced with natural gas vehicles. Therefore, in 2014, the estimated peak annual turnover would require three additional natural gas refueling stations to be built or converted from conventional fueling stations to accommodate refueling the additional trucks affected by PAR 1193. The June 2000 Final PEA estimated that a new alternative fuel refueling station could be built or an existing conventional fuel refueling station could be converted in six days. Therefore, the analysis in the Draft EA for the proposed project continues to included the worst-case scenario that three refueling stations are converted or built on the same day. PAR 1193 was modified subsequently to the public comment period. The modification requires that new affected private residential fleets would result in the conversions of all affected residential fleets to alternative fuel upon adoption of the amendments, but allows

affected private commercial fleets and residential fleets under renewed contracts to phase out diesel vehicles over seven years. Under the proposed project, one or two additional natural gas refueling stations per year would be required to support the requirements of the proposed project. To be conservative, SCAQMD staff assumed that three additional natural gas refueling stations might be built in a single year to support PAR 1193, even though two new refueling stations may suffice under the July 2010 version of PAR 1193. Construction criteria pollutant emissions were calculated using current EMFAC2007 and Offroad2007 emission factors and are presented in Table 2-4. Detailed calculations can be found in Appendix B. A strategy deployed in the development and implementation of Rule 1193 was the awarding of grants to infrastructure fueling at solid waste sites in southern California. Since a majority of the waste collection vehicles visit such sites the convenience of refueling at such sites or near such sites was assumed (i.e., except for refueling, all PAR 1193 related activities are assumed to be within the Basin and near solid waste facilities). None of the construction criteria emissions exceed the construction significance thresholds presented in Table 2-2, which are also shown in Table 2-4; therefore, PAR 1193 would not be considered significant for secondary construction criteria emissions.

**Table 2-4
Secondary Peak Daily Criteria Emission Natural Gas Refueling Construction**

Description	CO, lbs/day	VOC lbs/day	NOx lbs/day	SOx lbs/day	PM10 lbs/day	PM2.5 lbs/day
Construction Equipment	9.43	2.45	16.2	0.02	1.25	1.15
Fugitive Dust					0.02	0.004
On-Road Mobile Sources	20.9	4.89	57.7	0.07	2.78	2.42
Emissions	30.3	7.34	73.9	0.09	4.05	3.57
Significance Threshold	550	75	100	150	150	55
Significant?	No	No	No	No	No	No

Operational Impacts

Criteria Pollutant Emissions Reductions

Criteria pollutant emissions reductions were estimated using the data from the surveyed affected solid waste collection, rolloff or transfer vehicles (see Tables 1-2 and 2-2). The emission reductions reflect the differences between the emissions reductions currently expected from PAR 1193 compared to the existing rule, as implemented in light of the Supreme Court’s decision and the settlement agreement. As stated in Chapter 1 of this SEA, SCAQMD staff estimates that only SOx and NOx emissions would be ~~affected-quantifiable~~ by the replacement of diesel-fueled solid waste collection, rolloff or transfer vehicles with natural gas-fueled vehicles. PM emission would also be reduced, but not in substantive quantities. ~~However, as~~ As explained in the “Toxic Air Contaminants” subsection below, PAR 1193 may also provide air toxic emissions reduction benefits.

Data and assumptions used in the estimation of SOx emission reductions are as follows:

SOx emissions are a function of sulfur content in the fuel. Impurities such as sulfur/sulfur based compounds drop out of the fuel during the LNG liquefaction process, so LNG contains very little or no sulfur. In addition, since CNG is made from LNG, it contains very little or no sulfur as well. Based on an in-use sulfur content level in diesel fuel of 10 ppm (see Emissions Inventory section in Chapter 1) and a 0.5 ppm sulfur content level in natural gas, the SO_x benefit

(expressed as SO₂) of the proposed amendments after all refuse vehicles are replaced with natural gas vehicles is 11 pounds per day.

The July 2010 version of PAR 1193 includes an exemption which allows refuse fleets with more than 50 vehicles to have up to three percent of the total number of refuse vehicles used under contract to public agencies as vehicles that are not subject to the requirements of PAR 1193, and no more than 20 percent of the rolloff and transfer vehicles that are not subject to the requirements of PAR 1193 if they meet the 2010 or cleaner exhaust emissions standards. It is unclear how many fleets would actually keep a percentage of diesel-fueled vehicles under exemption g(7). A worst-case scenario would result in 79 solid waste collection vehicles and 121 diesel-fueled rolloff vehicles remaining diesel-fueled after PAR 1193 is fully implemented. This would result in approximately 0.4 pound of SO_x emission reductions per day less than the March 9, 2010 version of PAR 1193, which was circulated for public review with the Draft EA. Under the July 2010 worst-case scenario for exemption g(7), the SO_x emissions reduction would be 10.6 pounds per day (11 pounds per day – 0.4 pounds per day).

Data and assumptions used in the estimation of NO_x emission reductions are as follows:

Based on the government survey, which included timeframes of existing refuse collection service contracts, it is estimated the contract renewals would cause operators to replace approximately 30 percent of the affected vehicle population shortly after the proposed amendments are adopted. ~~and~~ The remaining 70 percent of the affected vehicle population would be replaced by operators because of new contracts for refuse collection services. This would affect approximately 10 percent of the affected vehicle population per year (10 percent vehicle replacement per year for the remaining 70 percent of the affected vehicle population). This assumption is based on contract timeframes, which, according to the surveys, generally ranged between five to 15 years and the assumption that contract timeframe/renewal rate per year corresponds to numbers of vehicles in private fleets that fleet operators would be required to purchase as a result of the revisions to subdivision (d) of the proposed amendments.

It is assumed that the proposed amendments would result in the accelerated replacement of the oldest diesel-fueled refuse vehicles with natural gas-fueled vehicles. The analysis considers turnover of diesel-fueled vehicles to natural gas-fueled vehicles.

The baseline model year distribution for diesel vehicles operated by affected fleets is primarily based on the assumed useful life for the specific fleet category of interest, taking into account Rule 1193 implementation which requires the acquisition of alternative-fuel vehicles when a fleet operator decides to add or replace vehicles in their fleet. The fleet categories analyzed with regard to model year distribution are private fleets that have 50 or more vehicles each, private fleets that have 15 to 50 vehicles each, private fleets that have fewer than 15 vehicles each, and public fleets with fewer than 15 vehicles each. The vehicle useful life assumptions for each of these fleets are based on data and input from individual refuse fleet operators, as well as statewide data showing the model year distribution for the in-use refuse vehicle fleet. For private refuse fleets, the information received by staff from smaller refuse fleet operators indicate that they retain their refuse vehicles for a longer period of time, in the range of 20 to 22 years, as compared larger refuse fleets, which keep their vehicles in the range of 12 to 15 years. For public fleets, the seven year vehicle useful life was based on input received from public fleets, specifically the City of Los Angeles, where their refuse truck replacement cycle is based on operating vehicles for a seven year timeframe.

Model year distribution assumptions for each of these fleet categories are as follows: (1) For private fleets with more than 50 vehicles each, the assumed model year distribution takes into account a useful life of 15 years, and the purchase of a limited number of diesel vehicles acquired post 2002 calendar year in accordance with Rule 1193 purchasing requirements in combination with SCAQMD not affirmatively enforcing Rule 1193 between 2004 and 2005. Since available fleet data indicate that 456 diesel vehicles are 2002 model year and newer for this fleet category, these vehicles were evenly distributed between the 2002 and 2010 model years, and the remaining 2,173 vehicles in this category were distributed between the 1996 to 2001 model years. (2) For private fleets operating between 15 and 50 diesel vehicles, a 22 year useful life is assumed. Since there is no data to indicate that these fleets operate any diesel vehicles that are 2002 to 2010 model year, the 226 diesel vehicles in this category are distributed between the 1989 to 2001 model years. (3) For private fleets with fewer than 15 vehicles each and have been heretofore unaffected by Rule 1193, the 98 vehicles in this category were distributed between the 1989 and 2010 model years. (4) For public fleets with less than 15 diesel vehicles and have been heretofore unaffected by Rule 1193, the 12-14 vehicles in this category have been spread out over a seven year timeframe, corresponding to the 2004 to 2010 model years.

The proposed amended rule includes phase-in time periods for the requirement that 100 percent rule compliant vehicles be used to provide refuse collection services triggered by new or renewed contracts. As a result, affected fleets taking advantage of these phase-in time periods could delay the purchase of rule compliant alternative-fueled vehicles. At the same time, the proposed amendments maintain the requirement for the purchase of rule compliant vehicles based on natural fleet turnover; that is, when fleets make a decision on their own to add or replace a vehicle in their fleet. Since this latter requirement would remain in force during the phase-in time period for the new or renewed contract provision, it is assumed that at a minimum, fleets taking advantage of this phase-in provision would continue to purchase rule compliant vehicles to replace those retired by natural turnover and that the natural gas-fueled vehicles replaced by natural turnover would be reassigned to minimize the number of rule compliant vehicles that would eventually be needed to service new or renewed contracts at the end of the phase in period.

Table 1-3 and Figure 1-3 of Chapter 1 present NOx emissions under the existing rule. Table 2-5 presents NOx emissions under PAR 1193. Figure 2-1 shows NOx emissions with and without PAR 1193 implementation, for diesel-powered vehicles and natural gas-powered replacement vehicles operated by affected refuse fleet operators. Figure 2-1 includes NOx emissions from the March 9, 2010 version of PAR 1193, which was included in the Draft EA for public review, for comparison. Figure 2-1 shows that the current version of PAR 1193 would have less NOx reductions than the March 9, 2010 version of PAR 1193, but both versions of PAR 1193 would result in greater NOx reductions than the existing rule. As shown in Figure 1-3, the existing rule requirements would continue to generate emission reductions due to natural fleet turnover triggering the required acquisitions of rule compliant vehicles over time. Emission reductions generated from the proposed amendments are due to the accelerated fleet turnover of diesel vehicles to natural gas vehicles as a result of the requirement in PAR 1193 that specifies 100 percent rule compliant vehicles be utilized for new residential contracts and the requirement that rule compliant vehicles be phased-in over time for new commercial and ~~or~~ renewed contracts over a seven year time period (see Table 2-6 and Figure 2-1). Based on the lead-time provisions in PAR 1193 as contained in subparagraph (d)(3) and (d)(4) compared to existing Rule 1193, the additional NOx emission reductions are expected to reach a ~~maximum~~ emission reduction in 2021 2020 of approximately 639-576 tons per year (3,156 pounds per day) NOx.

**Table 2-5
NOx Emissions in Tons per Year from Affected Solid Waste Collection Vehicles from Proposed Amendments to Rule 1193**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Private 50+	1,959	1,780	1,601	1,422	1,067	878	689	501	312	166	107	107	107	107	107	107	107	107	107	107	107	107	107
Private 15-49	220	193	176	163	117	96	76	58	42	25	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
Private <15	72	64	59	55	22	15	11	6.9	4.9	4.1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Public <15	3.7	3.0	2.3	1.6	1.3	0.9	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Private Total	2,251	2,037	1,836	1,640	1,205	989	776	565	359	196	120	120	120	120	120	120	120	120	120	120	120	120	120
Total	2,255	2,040	1,838	1,642	1,207	990	776	566	359	196	121	121	121	121	121	121	121	121	121	121	121	121	121

**Table 2-5
NOx Emissions in Tons per Year from Affected Solid Waste Collection Vehicles from the July 2010 Proposed Amendments to Rule 1193**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Private 50+	1,959	1,783	1,601	1,376	1,178	995	814	633	492	400	107	107	107	107	107	107	107	107	107	107	107	107	107
Private 15-49	220	197	176	159	142	126	110	96	77	63	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
Private <15	72	61	55	49	44	39	34	29	23	18	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Public <15	3.75	3.05	2.35	1.64	1.29	0.94	0.59	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Private Total	2,251	2,041	1,833	1,584	1,364	1,159	957	758	592	480	120	120	120	120	120	120	120	120	120	120	120	120	120
Total	2,255	2,044	1,835	1,585	1,366	1,160	958	758	593	481	121	121	121	121	121	121	121	121	121	121	121	121	121

**Table 2-6
NOx Emission Reductions in Tons per Year from Affected Solid Waste Collection Vehicles from Proposed Amendments to Rule 1193**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Private 50+	0	20	40	60	256	315	377	440	503	523	456	331	205	95	29	0	0	0	0	0	0	0	0	3,649
Private 15-49	0	6.1	6.8	8.7	45	56	67	76	83	90	97	87	78	69	59	52	44	37	29	22	15	7.4	0	1,034
Private <15	0	0	0	0	29	32	32	32	30	27	23	20	17	14	11	8.7	6.9	5.1	3.3	2.4	1.5	0.55	0.27	295
Public <15	0	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73
Private Total	0	26	47	68	330	403	477	548	616	639	576	438	300	177	98	60	51	42	33	24	16	7.9	0.27	4,978

Table 2-6
NOx Emission Reductions in Tons per Year from Affected Solid Waste Collection Vehicles from the July, 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total	
Private 50+	0	18	40	107	145	198	253	308	323	290	456	331	205	95	29	0	0	0	0	0	0	0	0	0	2,795
Private 15-49	0	2.1	6.4	13	20	27	33	38	47	52	97	87	78	69	59	52	44	37	29	22	15	7.4	0	0	834
Private <15	0	2.2	3.6	5.3	7.0	8.1	9.1	10	11	13	23	20	17	14	11	8.7	6.9	5.1	3.3	2.4	1.5	0.55	0.27	0	183
Public <15	0	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73
Private Total	0	22	50	125	171	232	295	356	382	355	576	438	300	177	98	60	51	42	33	24	16	8	0.27	0	3,812
Total	0	22	50	125	171	232	295	356	382	355	576	438	300	177	98	60	51	42	33	24	16	8	0.27	0	3,813

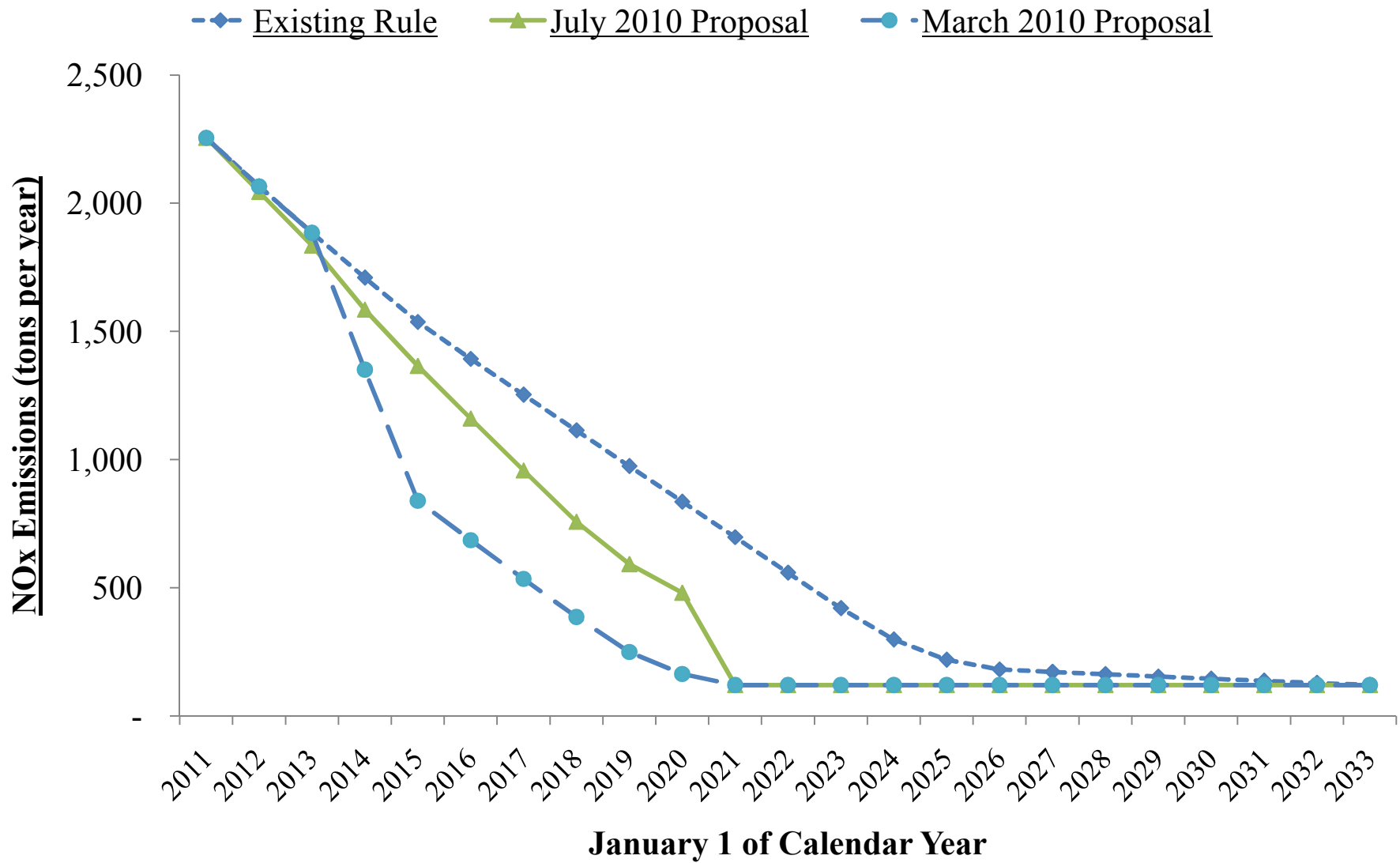


Figure 2-1
 NOx Emissions from Affected Solid Waste Collection Vehicles under the Existing Rule,
March 2010 Proposal and Current PAR 1193

Effect of Exemption g(7) on NO_x Emission Reductions

The July 2010 version of PAR 1193 includes an exemption which allows refuse fleets with more than 50 vehicles to have up to three percent of the total number of refuse vehicles used under contract to public agencies as vehicles that are not subject to the requirements of PAR 1193 and no more than 20 percent of the rolloff and transfer vehicles that are not subject to the requirements of PAR 1193 as long as they meet the 2010 or cleaner exhaust emissions standards. It is unclear how many fleets would actually keep a percentage of diesel-fueled vehicles under exemption g(7). A worst-case estimate is presented in Table 2-7. Table 2-7 shows that the modification to PAR 1193 would produce approximately 59.6 pounds of NO_x emission reductions per day less than the March 9, 2010 version of PAR 1193, which was circulated for public review with the Draft EA. Under the July 2011 worst-case scenario for exemption g(7), the peak NO_x emissions reduction would be 3,097 pounds per day (3,156 pounds per day – 59.6 pounds per day).

Refueling Impacts

Although the intent of PAR 1193 is to provide accelerated or additional criteria pollutant and air toxic emission reductions, it has the potential to generate indirect air quality impacts. Potentially significant adverse indirect air quality impacts are evaluated in the following subsections.

Worker Commute Trips

As a worst-case assumption, it is expected that 13 additional natural gas refueling stations would need to be constructed to accommodate the accelerated turnover of affected refuse vehicles and newly affected refuse vehicles. To operate the new refueling stations requires approximately 13 workers. Using the standard district worker commute trip distance of 40 and the applicable EMFAC2007 emission factors, refueling station worker commute trip emissions are presented in Table 2-7.

In addition to the above, it is envisioned that existing maintenance personnel would be properly trained in the operation, fueling, and maintenance of clean-fueled vehicles (i.e., natural gas vehicles) as well as fueling stations. Thus, it is not anticipated that there would be a need for additional employees to perform maintenance functions that could further increase the overall number of worker commute trips or vehicle miles traveled within the district.

Refueling Station Equipment Emissions

Both CNG and LNG refueling facilities would require compressors. Because of the low emissions requirements for internal combustion engines associated with Rule 1110.2 that could be used to power compressors, SCAQMD staff assumed that all compressors at converted or new refueling stations associated with PAR 1193 would be electric. In the unlikely event that a facility owner/operator chose to use natural gas combustion at the refueling station to power compressors, the owner/operator would be required to obtain air quality permits from the district demonstrating compliance with all applicable SCAQMD rules (e.g., Rule 1110.2, Rule 1401) and regulations (e.g., Regulation XIII – New Source Review). In order to comply with SCAQMD rules and regulations, the owner/operator would be required to install best available control technology (BACT) to reduce criteria emissions, provide emission offsets, and perform air dispersion modeling. Similarly, to comply with Rule 1401, the owner/operator may be required to prepare a health risk assessment demonstrating that cancer and/or non-cancer health

Table 2-7
Worst-Case NOx Emissions Reductions Loss between March 9, 2010 and July 2010
Versions of PAR 1193 by Diesel Vehicle Exemption g(7)

Number of Diesel Vehicles			
Vehicle Type	March 9, 2010 PAR 1193 (no exemption)	July 2010 PAR 1193 (3% Solid Waste, 20% Rolloff)	Difference in Number of Vehicles
Solid Waste Collection	<u>0</u>	<u>79</u>	<u>79</u>
Rolloff	<u>0</u>	<u>121</u>	<u>121</u>
Total	<u>0</u>	<u>220</u>	<u>220</u>
NOx Emissions from Vehicles (pounds per day)			
Vehicle Type	March 9, 2010 PAR 1193 (No Exemption – Natural Gas-Fueled Vehicles)	July 2010 PAR 1193 (3% Solid Waste, 20% Rolloff – Diesel-Fueled Vehicles)	Difference in NOx Emission Reductions
Solid Waste Collection	<u>17.6</u>	<u>77.2</u>	<u>-59.6</u>
Rolloff	<u>27.1</u>	<u>27.1</u>	<u>0</u>
Total, pounds per day	<u>44.7</u>	<u>104.3</u>	<u>-59.6</u>
Total, tons per year			<u>-10.8</u>

risks do not exceed rule requirements, which would also demonstrate that air toxic impacts are less than significant. Taken together, compliance with all applicable SCAQMD rules and regulations would limit potential air quality impacts from equipment used and refueling stations to less than significant.

Refueling Station Equipment Emissions

Both CNG and LNG refueling facilities would require compressors. Because of the low emissions requirements for internal combustion engines associated with Rule 1110.2 that could be used to power compressors, SCAQMD staff assumed that all compressors at converted or new refueling stations associated with PAR 1193 would be electric. In the unlikely event that a facility owner/operator chose to use natural gas combustion at the refueling station to power compressors, the owner/operator would be required to obtain air quality permits from the district demonstrating compliance with all applicable SCAQMD rules (e.g., Rule 1110.2, Rule 1401) and regulations (e.g., Regulation XIII – New Source Review). In order to comply with SCAQMD rules and regulations, the owner/operator would be required to install best available control technology (BACT) to reduce criteria emissions, provide emission offsets, and perform air dispersion modeling. Similarly, to comply with Rule 1401, the owner/operator may be required to prepare a health risk assessment demonstrating that cancer and/or non-cancer health risks do not exceed rule requirements, which would also demonstrate that air toxic impacts are

less than significant. Taken together, compliance with all applicable SCAQMD rules and regulations would limit potential air quality impacts from equipment used and refueling stations to less than significant.

LNG/CNG Transport Emission Impacts

Although natural gas could be delivered to alternative fuel refueling stations by pipeline and compressed onsite to produce CNG, to be conservative it was assumed that natural gas would be delivered by truck as LNG to alternative fuel refueling stations and used for LNG vehicles. Similarly, LNG could be transported by truck to alternative fuel refueling stations and converted to CNG at the refueling site for CNG vehicles.

Based on the surveys, approximately 2,965 diesel-fueled vehicles would be converted to natural gas-fueled vehicles. So, approximately 29,650,000 gallons of diesel-fuel would be consumed per year. Compared to one gallon of diesel the fuel equivalent for LNG is 2.1. This means it would take 2.1 gallons of natural gas to provide the energy content of one gallon of diesel. Therefore, PAR 1193 would require approximately 50,405,000 gallons of natural gas would be needed. It would also require more tanker deliveries to supply refueling stations with the same available energy as diesel fuel. LNG deliveries on the West Coast are likely to be delivered by truck from Boron, California or Topock, Arizona. LNG delivery trips would occur across two air districts: South Coast district and Mojave Air district. Existing diesel-fuel refueling trips were assumed to travel from refineries near the Port of Los Angeles or Long Beach (San Pedro area) to Los Angeles (25 miles, 50 miles round trip). Trips from Boron or Topock were assumed to travel along the I-15 to Los Angeles. The distance from Boron to Los Angeles is 120 miles or 240 miles round trip. The distance from Topock, Arizona to Los Angeles is 275 miles or 550 mile round trip. Within California, the distance from the Arizona/California to Los Angeles is 270 miles or 540 miles round trip. The average trip would be 195 miles or 390 miles round trip. The distance traveled in the district would be about 65 miles or 130 miles round trip (Cajon to Los Angeles). Therefore, the difference in miles traveled in the district between transporting diesel fuel from the Ports compared to transporting LNG through the district would be 80 miles round trip (130 miles – 50 miles). The average distance traveled in the MDAB to transport LNG would be 360 miles round trip (540 miles – 130 miles).

As shown in detail in Appendix B, the emissions estimates were based on estimated miles traveled by these vehicles, the resulting increase in gallons of conventional fuel used, and the average number of daily trips required to deliver the increased amount of fuel. The resulting increase, which accounted for lower fuel efficiencies, was conservatively estimated to be four additional delivery trips per day. As shown in Tables 2-8-7 and 2-9-8, the resulting emissions from the additional trips by the fuel delivery vehicles that are anticipated, do not cause significant air quality impacts either in the SCAB or MDAB.

Other Issues

The analysis in the June 2000 Final PEA included additional distance related to differences in payloads between diesel-fueled and natural gas-fueled solid waste collection, rolloff or transfer vehicles; and additional distances traveled because of centralized fueling stations.

Table 2-8-7
Secondary Criteria Emissions from Worker Commute Trips and
Increased Fuel Delivery Trips Associated with PAR 1193 in Basin

Description	CO, lb/day	VOC, lb/day	NOx, lb/day	SOx, lb/day	PM10, lb/day	PM2.5, lb/day
Worker Commute Emissions	3.8	1.0	12.2	0.01	0.6	0.5
LNG Transport Emissions	4.3	0.5	0.5	0.01	0.05	0.03
Total Emissions	8.1	1.4	12.7	0.02	0.6	0.5
Significance Threshold	550	55	55	150	150	55
Significant?	No	No	No	No	No	No

Table 2-9-8
Secondary Criteria Emissions from Increased Fuel Delivery Trips
Associated with PAR 1193 in the MDAB

Description	CO, lb/day	VOC, lb/day	NOx, lb/day	SOx, lb/day	PM10, lb/day	PM2.5, lb/day
LNG Transport Emissions	17.2	4.4	55.0	0.06	2.6	2.3
Significance Threshold	548	137	137	137	82	82
Significant?	No	No	No	No	No	No

The June 2000 Final PEA evaluated the payload effect and determined “insignificant emission effects from increased vehicle travel caused by reduced payload for a sample year (2002).” Similarly, based on increases in fuel efficiencies and installation of control technologies on existing diesel trucks required by CARB SWCV regulations, it is not expected that any differences in payload would result in any incremental changes in emissions.

For practical reasons, it is expected that natural gas refueling stations would either replace existing diesel-fueling stations, be built on or close to solid waste/transfer stations, or at or near locations where alternative fuel solid waste collection, rolloff or transfer vehicles are stored. Therefore, it is assumed that differences in distances in travel to refueling facilities between diesel-fueled and natural gas-fueled affected solid waste collection vehicles would not be any greater than the distances to existing diesel fuel refueling stations.

Toxic Air Contaminants (TACs)

The relative air toxic risks of diesel and corresponding natural gas-fueled vehicles were estimated for affected solid waste collection, rolloff or transfer vehicles. The approach utilized in this analysis is based on determining weighted toxic risk factors for each of these vehicle types, for the two fuels under consideration, diesel and natural gas. The weighted toxic risk factor is determined by multiplying the individual TAC exhaust constituent’s emissions by their respective cancer potency factor. The purpose of this analysis is to use these weighted toxicity factors to demonstrate that the replacement of diesel vehicles with natural gas vehicles is not expected to result in increased health risk.

For the purposes of this analysis, the toxic component analyzed for diesel-fueled vehicles is limited to total PM emissions. This is because CARB has listed diesel PM (DPM) as a surrogate

for all potential carcinogens in diesel exhaust. The annual PM emission rates for diesel-fueled vehicles were developed from CARB's executive orders for new on-road heavy-duty engines.

All new natural gas vehicles would be equipped with an oxidation or three-way catalyst. For natural gas fueled vehicles with oxidation catalysis, the relative toxic risk was estimated for benzene, ethylbenzene, formaldehyde, acetaldehyde, and polyaromatic hydrocarbons (PAHs). Emission factors for these TACs were taken from two studies: one prepared for Society of Automotive Engineers in 2003⁷, and a second prepared for Environmental Science and Technology in 2009.⁸

Table 2-10-9 shows the annual TAC mass emission rates by vehicle type, relative toxicity factors, and the overall weighted toxicity factor for natural gas. Since diesel exhaust has only one component the relative toxicity factor is the overall weighted toxicity factor. Based on these overall weighted toxicity factors, it can be seen that CARB compliant diesel-fueled vehicles generate slightly greater health risks compared to natural gas-fuel vehicles with oxidation catalyst. Therefore, PAR 1193 not expected to cause an incremental increase in adverse health risk impacts from TACs.

**Table 2-10-9
Estimated Relative Toxic Risk**

Vehicle Fuel Type	Toxic Air Contaminant (TAC)	TAC Emissions, lb/yr	Cancer Potency Factor, (mg/kg-d) ⁻¹	Weighted Toxicity Factor
Diesel-Fueled Vehicles	Diesel PM	0.41	1.10E+00	0.45
CNG- Fueled Vehicles	Naphthalene	0.01	0.12	0.000641
	Benz[a]anthracene	0.00	0.39	0.000005
	Chrysene	0.00	0.04	0.000001
	Benzo[b]fluoranthene	0.00	0.39	0.000005
	Indeno(1,2,3-cd)pyrene	0.00	0.39	0.000005
	Formaldehyde	5.4	0.02	0.11
	Acetaldehyde	1.8	0.01	0.018
	Benzene	0.18	0.10	0.018
	Ethylbenzene	0.19	0.01	0.002
	Total TACs from CNG			

Greenhouse Gases

In addition to criteria pollutant emissions, combustion processes generate greenhouse gas (GHG) emissions that have the potential to affect global climate. The following GHG analysis focuses on carbon dioxide (CO₂) and methane (CH₄) emissions because these are the GHG pollutants for which emission factors were most readily available. Direct GHG emissions from the

⁷ Ayala, Alberto, et al., Oxidation Catalyst Effect on CNG Transit Bus Emissions, Society of Automotive Engineers of Japan, JSAE 20030101, SAE 2003-01-1900, 2003.

⁸ Okamoto, Robert, et al., Unregulated Emissions from Compressed Natural Gas Transit Buses Configured with and without Oxidation Catalyst, Environmental Science and Technology, Vol. 40, No. 1, 2006.

operation of affected diesel-fueled and natural gas-fueled solid waste collection vehicles were obtained using CARB's carbon intensity factors, which accounts for CO₂eq. Secondary operational and construction GHG emissions (e.g., construction or conversion of refueling stations, delivery of LNG by diesel truck, etc.) were estimated from CO₂ and CH₄ emission factors in CARB's EMFAC2007 and Offroad2007 emission factor models. N₂O emissions were developed from emissions factors presented in Appendix A of the ARB Regulation for Mandatory Reporting of GHG Emissions.

The analysis of GHGs is a much different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, significance thresholds are based on daily emissions because attainment or non-attainment is 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. Since the half-life of CO₂ is approximately 100 years, the effects of GHGs are longer-term, affecting global climate over a relatively long time frame. Further, the action of GHGs is global in nature, rather than local or even regional. As a result, GHG emission impacts are considered to be cumulative impacts rather than project-specific impacts.

Natural gas-fuel combustion generates less GHG emissions than diesel-fuel combustion. Secondary GHG emissions would be generated by construction of alternative fuel refueling facilities and additional LNG delivery trips caused by lower fuel heating values and fuel efficiencies. PAR 1193 is expected to accelerate the replacement of 2,953 of solid waste collection, rolloff or transfer vehicles as compared to the existing rule and require the replacement of 12 vehicles at the end of their normal lifespan. GHG emissions from PAR 1193 refuse vehicles under the existing rule are presented in Table 2-10. GHG emissions from the proposed project are presented in Table 2-12-11. Figure 2-2 presents GHG emissions from the existing rule and the current version of PAR 1193. Figure 2-2 also presents GHG emission from the March 9, 2010 version of PAR 1193, which was circulated with the Draft EA for public review, for comparison. GHG emission reductions from the accelerated and additional replacement of diesel-fueled vehicles with natural gas fueled vehicles are presented in Table 2-13-12. The current version of PAR 1193 would generate greater GHG emission reductions because all affected new residential refuse contracts would be required to replace diesel-fueled refuse vehicles with compliant refuse vehicles after rule adoption. The March 9, 2010 version of PAR 1193 required the replacement of diesel refuse vehicles under new residential refuse contracts over two or three years depending on the size of the affected fleet. Earlier replacement of diesel vehicles generates larger GHG emission reductions.

Table 2-14-13 presents the total GHG emissions/emission reductions from PAR 1193. The GHG emissions from replacement or accelerated replacement of diesel-fueled vehicles with natural gas vehicles are presented in the first row. These are the same GHG emissions reductions presented in Table 2-13-10. GHG emissions generated from the delivery of natural gas to refueling stations are presented in the second row. GHG emissions from the construction of new or converted refueling stations averaged over thirty years (per SCAQMD policy⁹) are presented in the third row.

⁹ Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans, <http://www.aqmd.gov/hb/2008/December/081231a.htm>

Table 2-11-10
GHG Emission Inventory in 1,000s of Metric Tons per Year from Affected Vehicles under the Existing Rule

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	335	330	326	321	317	312	308	303	299	294	290	285	281	276	272	267	267	267	267	267	267	267	267	267
Private 15-49	29	29	28	28	28	27	27	27	27	26	26	26	26	25	25	25	25	24	24	24	23	23	23	23
Private <15	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Public <15	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Private Total	376	371	367	362	357	352	347	343	338	333	328	324	319	314	309	304	304	304	304	303	303	303	303	303
Total	378	373	368	363	358	354	349	344	339	335	330	325	320	316	311	306	306	305	305	305	305	304	304	304

Table 2-11
GHG Emissions in 1,000s of Metric Tons per Year from Affected Vehicles from the March 9, 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	335	330	325	320	308	301	294	287	281	274	267	267	267	267	267	267	267	267	267	267	267	267	267	267
Private 15-49	29	28	28	28	26	26	25	25	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23
Private <15	12	12	12	12	11	11	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Public <15	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Private Total	376	371	365	360	346	338	330	323	315	308	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Total	378	372	367	361	347	339	332	324	316	309	301	301	301	301	301	301	301	301	301	301	301	301	301	301

Table 2-12
GHG Emissions in 1,000s of Metric Tons per Year from Affected Vehicles from the July 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	335	326	320	313	306	300	293	288	283	279	267	267	267	267	267	267	267	267	267	267	267	267	267	267
Private 15-49	29	28	28	27	27	26	26	25	25	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23
Private <15	12	12	12	12	12	11	11	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Public <15	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Private Total	376	367	360	352	344	337	330	324	319	313	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Total	378	368	361	353	346	339	331	326	320	314	301	301	301	301	301	301	301	301	301	301	301	301	301	301

Table 2-12
GHG Emission Reductions in Metric Tons per Year from Affected Vehicles from Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	0	564	1,128	1,692	9,024	11,280	13,536	15,792	18,048	20,304	22,560	18,048	13,536	9,024	4,512	0	0	0	0	0	0	0	0	0
Private 15-49	0	79	159	238	1,269	1,587	1,904	2,221	2,539	2,856	3,174	2,909	2,645	2,380	2,116	1,851	1,587	1,322	1,058	793	529	264	0	0
Private <15	0	0	0	0	1,009	1,261	1,514	1,766	2,018	2,271	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523
Public <15	0	44	88	132	177	221	265	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309
Private Total	0	643	1,287	1,930	11,303	14,128	16,954	19,780	22,605	25,431	28,257	23,480	18,704	13,927	9,151	4,374	4,110	3,845	3,581	3,316	3,052	2,787	2,523	0
Total	0	687	1,375	2,062	11,479	14,349	17,219	20,089	22,914	25,740	28,566	23,789	19,013	14,236	9,460	4,683	4,419	4,154	3,890	3,625	3,361	3,096	2,832	0

Table 2-13
GHG Emission Reductions in Metric Tons per Year from Affected Vehicles from the July 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	0	497	1,129	3,115	5,100	7,086	9,072	11,058	13,449	12,593	22,560	18,048	13,536	9,024	4,512	0	0	0	0	0	0	0	0	0
Private 15-49	0	35	156	357	557	758	958	1,159	1,498	1,641	3,174	2,909	2,645	2,380	2,116	1,851	1,587	1,322	1,058	793	529	264	0	0
Private <15	0	162	325	487	650	812	975	1,137	1,349	1,602	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	
Public <15	0	44	88	132	177	221	265	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309	
Private Total	0	695	1,610	3,959	6,307	8,656	11,004	13,353	16,297	15,835	28,257	23,480	18,704	13,927	9,151	4,374	4,110	3,845	3,581	3,316	3,052	2,787	2,523	0
Total	0	739	1,698	4,091	6,484	8,877	11,269	13,662	16,606	16,144	28,566	23,789	19,013	14,236	9,460	4,683	4,419	4,154	3,890	3,625	3,361	3,096	2,832	0

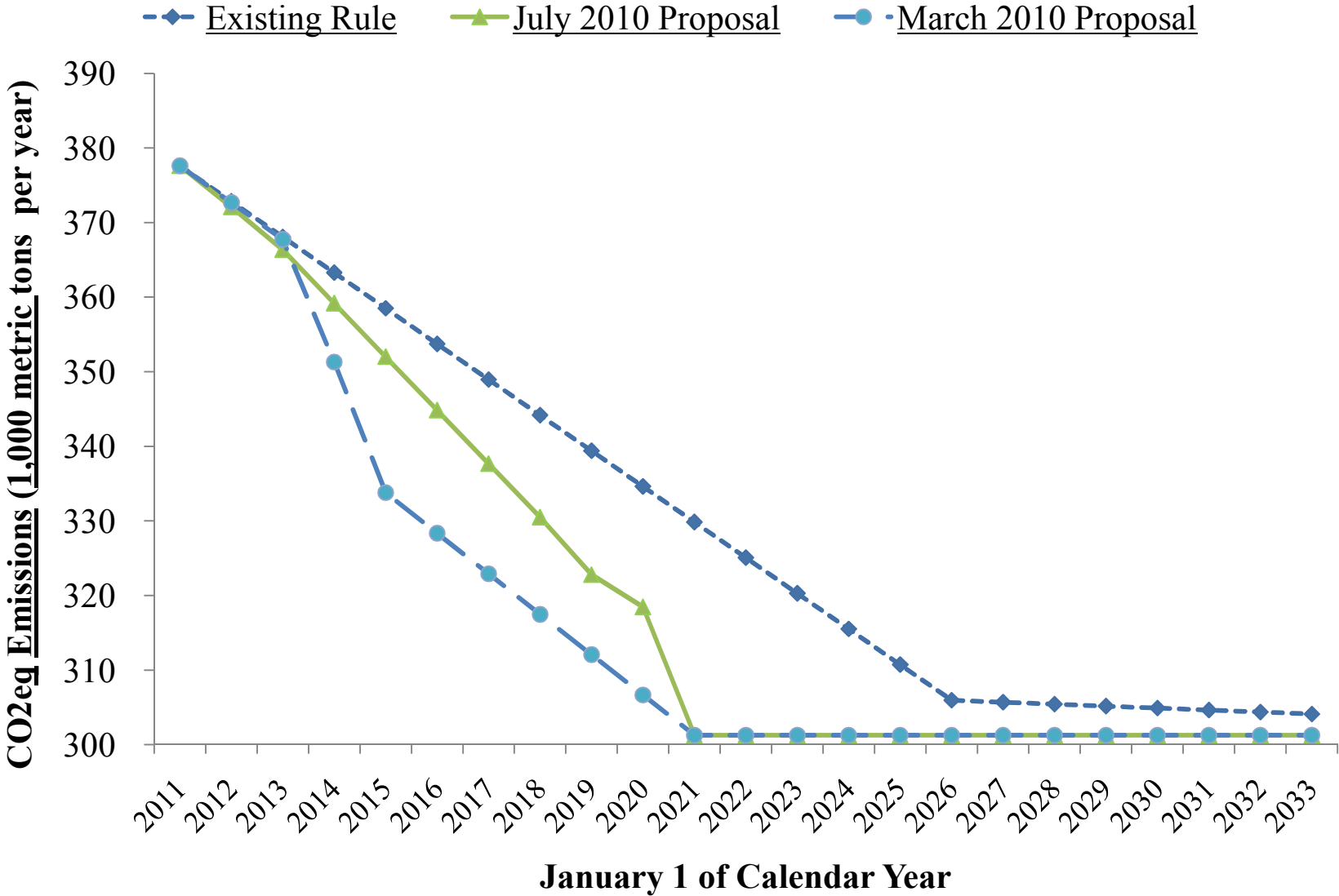


Figure 2-2
GHG Emissions from Affected Solid Waste Collection Vehicles under the Existing Rule, March 2010 Proposal and the Current PAR 1193

Table 2-13
Total GHG Emissions/Emission Reductions in Metric Tons per Year from Proposed Amendments to Rule 1193

Category	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Vehiele	0	-687	-1,375	-2,062	-11,479	-14,349	-17,219	-20,089	-22,914	-25,740	-28,566	-23,789	-19,013	-14,236	-9,460	-4,683	-4,419	-4,154	-3,890	-3,625	-3,361	-3,096	-2,832
Refueling	0	65	131	196	366	457	549	639	729	819	909	909	909	909	909	909	909	909	909	909	909	909	909
Construction	0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Emissions	0	-619	-1,241	-1,863	-11,110	-13,889	-16,667	-19,446	-22,182	-24,918	-27,654	-22,877	-18,101	-13,324	-8,548	-3,771	-3,507	-3,242	-2,978	-2,713	-2,449	-2,184	-1,920

Negative numbers represent emission reductions.

Table 2-14
Total GHG Emissions/Emission Reductions in Metric Tons per Year from the July 2010 Proposed Amendments to Rule 1193

Category	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Vehicles	0	-739	-1,698	-4,091	-6,484	-8,877	-11,269	-13,662	-16,606	-16,144	-28,566	-23,789	-19,013	-14,236	-9,460	-4,683	-4,419	-4,154	-3,890	-3,625	-3,361	-3,096	-2,832
Refueling	0	108	186	272	358	432	513	596	680	746	918	918	918	918	918	918	918	918	918	918	918	918	918
Construction	0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Total	0	-628	-1,509	-3,816	-6,123	-8,441	-10,753	-13,063	-15,922	-15,395	-27,645	-22,868	-18,092	-13,315	-8,539	-3,762	-3,498	-3,233	-2,969	-2,704	-2,440	-2,175	-1,911

Negative numbers represent emission reductions.

Altogether PAR 1193 would result in an overall GHG reduction of over ~~225,201~~ 188,799 metric tons, which is on average over ~~10,000~~ 8,582 metric tons per year of GHG reductions over the 22 year life of the proposed project.

Effect of Exemption g(7) on GHG Emissions

Exemption g(7), which allows refuse fleets with more than 50 vehicles to have up to three percent of the total number of refuse vehicles used under contract to public agencies as vehicles that are not subject to the requirements of PAR 1193 and no more than 20 percent of the rolloff and transfer vehicles that are not subject to the requirements of PAR 1193, as long as they meet the 2010 or cleaner exhaust emissions standards, was added to PAR 1193 after the Draft EA was circulated for public review. It is unclear how many fleets would actually keep a percentage of diesel-fueled vehicles under exemption g(7). A worst-case estimate is presented in Table 2-15.

Table 2-15
Worst-Case GHG Emissions Reductions Loss between March 9, 2010 and July 2010
Versions of PAR 1193 by Diesel Vehicle Exemption g(7)

<u>Number of Diesel Vehicles</u>			
<u>Vehicle Type</u>	<u>March 9, 2010 PAR 1193 (no exemption)</u>	<u>July 2010 PAR 1193 (3% Solid Waste, 20% Rolloff)</u>	<u>Difference in Number of Vehicles</u>
<u>Solid Waste Collection</u>	<u>0</u>	<u>79</u>	<u>79</u>
<u>Rolloff</u>	<u>0</u>	<u>121</u>	<u>121</u>
<u>Total</u>	<u>0</u>	<u>220</u>	<u>220</u>
<u>GHG Emissions from Vehicles (metric tons per year)</u>			
<u>Vehicle Type</u>	<u>March 9, 2010 PAR 1193 (No Exemption – Natural Gas-Fueled Vehicles)</u>	<u>July 2010 PAR 1193 (3% Solid Waste, 20% Rolloff – Diesel-Fueled Vehicles)</u>	<u>Difference in GHG Emission Reductions</u>
<u>Solid Waste Collection</u>	<u>8.0</u>	<u>10.0</u>	<u>-2.0</u>
<u>Rolloff</u>	<u>12.3</u>	<u>15.4</u>	<u>-3.1</u>
<u>Total</u>	<u>20.3</u>	<u>25.4</u>	<u>-5.1</u>

The modifications to PAR 1193 would result in approximately 5,150 metric tons of GHG emission reductions per year less than the March 9, 2010 version of PAR 1193, which was circulated for public review with the Draft EA. Under the July 2010 worst-case scenario for exemption g(7), the GHG emissions reduction would be 3,432 metric tons of GHG emission reductions per year (8,582 metric tons per year – 5,150 metric tons per year).

Since PAR 1193 would result in an overall GHG reduction, PAR 1193 is not considered to generate significant adverse GHG impacts or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

III. e) Historically, the SCAQMD has enforced odor nuisance complaints through SCAQMD Rule 402 - Nuisance. Affected facilities are not expected to create objectionable odors affecting a substantial number of people for the following reasons: 1) PAR 1193 would occur at existing commercial, industrial and institutional facilities that handle solid waste; refuel, store and/or maintain solid waste vehicles, which are likely to already generate odors; 2) PAR 1193 would reduce the amount of NOx and SO2 emissions from solid waste vehicles; 3) Any construction would occur over short time spans (six days); and 4) because of the stringent safety requirements for pressurized or cryogenic storage tanks, fugitive emissions are minimized. Therefore, PAR 1193 is not expected to generate additional odor nuisance.

Conclusion

The proposed project is expected to reduce NOx, SO2, TAC and GHG emissions. Based on the preceding discussion, significant adverse air quality impacts are not expected from PAR 1193, and will not be further analyzed in this ~~draft~~ Final SEA. Since no significant adverse air quality impacts were identified, no mitigation measures are necessary or required.

The existing rule was to be implemented by 2010. Other fleet rules have been or will be amended to adjust the scope of the rules to align with the settlement agreement. Since PAR 1193 would result in overall NOx, TAC and GHG reductions, no cumulative air quality affects are expected.

	Potentially Significant Impact	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

IV. a), b), c), d), e) and f) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contract to, or operating under an exclusive license or a franchise with, state and local governmental agencies. PAR 1193 would require the replacement or accelerated replacement of diesel-fueled vehicles with alternative-fuel vehicles within affected fleets. Existing diesel fuel stations from the existing fleet may be converted to natural gas fueling stations or new natural gas fueling may be built to support the natural gas-fueled vehicles required by PAR 1193. Natural gas refueling stations are expected to be placed in commercial or industrial zoned areas near to where fleets are kept or near solid waste collection, rolloff or transfer stations. These facilities are typically located in areas that are zone as commercial, industrial or institutional areas. These areas are expected to be urbanized and previously disturbed (i.e., graded and paved) so no biological resources should be affected by PAR 1193. In addition, affected areas are not expected to contain or support biological resources. Therefore, PAR 1193 would not directly or indirectly affect riparian habitat, federally protected wetlands, or migratory corridors. For the same reasons PAR 1193 is not expected to adversely affect special

status plants, animals, or natural communities. Additionally, PAR 1193 would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other relevant habitat conservation plan for the same reason.

The SCAQMD, as the Lead Agency for the proposed project, has found that, when considering the record as a whole, there is no evidence that the proposed project will have potential for any new adverse effects on wildlife resources or the habitat upon which wildlife depends. Accordingly, based upon the preceding information, the SCAQMD has, on the basis of substantial evidence, rebutted the presumption of adverse effect contained in §753.5 (d), Title 14 of the California Code of Regulations.

Based upon these considerations, significant adverse biological resources impacts are not anticipated and will not be further analyzed in this ~~draft~~ Final SEA. Since no significant adverse biological resources impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	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 §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside a formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 to a community or ethnic or social group.
- Unique paleontological resources are present that could be disturbed by construction of the proposed project.
- The project would disturb human remains.

V. a), b), c), & d) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal, governmental solid waste collection fleets and private solid waste collection fleets under contract to, or operating under an exclusive license or a franchise with, state and local governmental agencies. PAR 1193 would require the accelerated replacement or replacement of diesel-fueled vehicles with natural gas-fueled vehicles within affected fleets. PAR 1193 is not expected to require any new major construction or development besides that associated with conversion of diesel refueling facilities to natural gas refueling facilities or new natural gas refueling stations. These refueling facilities are expected to be located near solid waste facilities or near where solid waste vehicles are stored or maintained. Such facilities are located in areas that are zoned commercial, industrial or institutional areas. These areas are expected to be in urbanized areas that have already been disturbed (i.e., graded and paved) so no cultural resources should be affected by PAR 1193. Natural refueling facilities to support PAR 1193 compliant vehicles are unlikely to be built on properties that are of historical significance. Therefore, PAR 1193 is not expected to affect property that could be considered historically significant as defined in CEQA Guidelines §15064.5. Therefore, no impacts to historical resources are anticipated to occur as a result of implementing the proposed project. PAR 1193 is not expected to require physical changes to the environment, which may disturb paleontological or archaeological resources or human remains. By reducing criteria pollutants, PAR 1193 would reduce the amount of damage caused by NOx and ground level ozone.

Based upon these considerations, significant adverse cultural resources impacts are not expected from the implementing PAR 1193 and will not be further assessed in this ~~draft~~-Final SEA. Since no significant cultural resources impacts were identified, no mitigation measures are necessary or required.

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

Significance Criteria

Impacts to energy and mineral 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

PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contract to, or operating under an exclusive license or a franchise with, state and local governmental agencies. Based on surveys of the solid waste industry, PAR 1193 is expected to accelerate the replacement of approximately 2,953 of solid waste collection, rolloff or transfer vehicles as compared to the existing rule and require the replacement of 12 vehicles at the end of their normal lifespan. Based on increased natural gas usage, PAR 1193 may necessitate the conversion or construction of 13 natural gas refueling stations.

VI. a), b), c), d) and e) PAR 1193 would decrease diesel-fuel consumption and increase natural gas consumption by accelerating the conversion or causing the conversion of diesel-fueled vehicles to natural gas-fueled vehicles. Diesel fuel and gasoline would be consumed during construction operations. PAR 1193 may increase the trip length of affected solid waste collection fuel deliveries and electricity use from electric compressors at natural gas refueling facilities. Adverse energy impacts from PAR 1193 are evaluated as follows:

Construction Impacts

Alternative Clean Fuel Refueling Stations

During the construction phase of alternative clean fuel fueling stations, diesel fuel would be consumed in construction equipment used: to demolish and remove existing underground diesel tanks, to erect various structures, and gasoline would be consumed by construction workers' vehicles traveling to and from construction sites. Table 2-~~16~~-14 lists the projected energy impacts associated with the construction phase of the proposed fleet vehicle rules.

As shown in Table 2-~~16~~-14, the secondary energy impacts associated with PAR 1193 construction-related activities would not be considered significant because future energy demand from the proposed project is expected to be small relative to the availability of future supplies. SCAQMD staff has determined that the equipment and vehicles needed for construction-related PAR 1193 activities are necessary and would not be considered a wasteful use of energy. There would be no substantial depletion of energy resources nor would significant amounts of fuel be needed when compared to existing supplies.

Table 2-16-14
Total Projected Fuel Usage for PAR 1193 Construction Activities

Construction Activity	On-site Construction Equipment Fuel Usage ^a (gallons/year)	Off-site Construction-Related Fuel Usage ^b (gallons/year)		Total Fuel Usage per Activity (gallons/year)	
	Diesel	Diesel	Gasoline	Diesel	Gasoline
LNG	935	225	108	1,160	108
Threshold (LNG Fuel Supply) ^c				475x10 ⁶	6,247x10 ⁶
Percent Of Fuel Supply				0.0002%	0.000002%
Significant (Yes/No)				No	No

^a All on-site construction equipment are assumed to be diesel fueled.

^b For off-site mobile sources, the SCAQMD assumed that diesel would be used in all haul trucks and gasoline would be used in all construction worker vehicles. TCF = trillion cubic feet.

^c Diesel consumption: http://energyalmanac.ca.gov/gasoline/diesel_by_aqmd.html Gasoline consumption: http://energyalmanac.ca.gov/gasoline/gasoline_by_aqmd.html.

Operational Impacts

Vehicle Natural Gas Use

Natural gas use by alternative vehicles was estimated by assuming an annual diesel-fuel consumption of 10,000 gallons per vehicle. Based on the surveys, approximately 2,965 diesel-fueled vehicles would be converted to natural gas-fueled vehicles. So, currently approximately 29,650,000 gallons of diesel-fuel would be consumed per year by refuse vehicles that would be affected by implementing PAR 1193. To obtain the same amount of energy in BTUs from one gallon of diesel would require 1.7 gallons of LNG. This means it would take 1.7 gallons of natural gas to displace one gallon of diesel. Therefore, approximately 50,405,000 gallons of natural gas, which is 17 million standard cubic feet of natural gas, would be consumed as a result of adopting and implementing PAR 1193 (see Table 2-17-15). California Energy Commission staff reports that approximately 2,590 million standard cubic feet of natural gas is available in Southern California per day.¹⁰ Thirteen million standard cubic feet of natural gas per day is less than a percent of the 2,590 million standard cubic feet of natural gas is available in Southern California per day; therefore, SCAQMD Staff assumes that the amount of natural gas required to meet the incremental energy demand associated with alternative-fuel solid waste vehicles would be sufficient and would not result in a significant adverse natural gas energy impact.

¹⁰ Supply from California Energy Commission, California Energy Demand 2008-2018 Staff Revised Forecast, November 2007, CEC-200-2007-015-SF2.

Table 2-17-15
Total Projected Natural Gas Demand from PAR 1193 Vehicles

Description	Daily Usage mmscf
Projected PAR 1193 Natural Gas Demand	13
Supply, mmscf	2,590
Percentage of Fuel Supply	0.52
Significant?	No

Supply from California Energy Commission's Energy Almanac at http://energyalmanac.ca.gov/naturalgas/natural_gas_receipts.html

Electric Compressors at Natural Gas Refueling Stations

Natural gas refueling stations would require compressors to refuel natural gas solid waste vehicles. Based on the natural gas solid waste vehicles natural gas consumption described above SCAQMD staff expects that approximately 13 natural gas refueling stations may be necessary to refuel the natural gas solid waste vehicles expected to be affected by PAR 1193. Assuming two 300-brake horsepower-hour natural gas compressors using 960 kilowatt-hours per day of electricity at each natural gas refueling facility, approximately 0.24 megawatts would be required annually. California Energy Commission staff reports that the southern California area (Edison Planning Area) had a supply of 23,272 megawatts available in 2008.¹¹ The 0.24 megawatts required to run compressors at natural gas refueling stations would be 0.001 of the supply that was available in 2008 (Table 2-18-16). Therefore, SCAQMD staff concludes that the amount of electricity required to meet the incremental energy demand associated with natural gas refueling facilities would be sufficient and would not result in a significant adverse natural gas energy impact.

Table 2-18-16
Total Projected Electricity Usage for Natural Gas Compressors at Refueling Stations

Description	Annual Usage
Electric-Powered Compressor (kWh/yr)	3,120,000
Electric-Powered Compressor (MW)	0.24
Supply, MW	23,272.00
Percentage of Electric Supply	0.001
Significant	No

Supply from California Energy Commission's Energy Almanac at http://energyalmanac.ca.gov/naturalgas/natural_gas_receipts.html

Diesel-Fuel Use for Natural Gas Delivery

The energy content of one gallon of LNG is lower than one gallon of diesel fuel (1.7 gallons of LNG has the same fuel value as a gallon of diesel fuel). Based on this difference, larger fuel tanks would be required in an LNG-fueled vehicle to achieve the same driving range as a diesel powered vehicle. It would also require more tanker deliveries to supply refueling stations with the same available energy as diesel fuel. Existing diesel-fuel refueling trips were assumed to travel from refineries near the Port of Los Angeles or Long Beach (San Pedro area) to Los

¹¹ Supply from California Energy Commission's Energy Almanac at http://energyalmanac.ca.gov/naturalgas/natural_gas_receipts.html.

Angeles (25 miles, 50 miles round trip). LNG deliveries on the West Coast are likely to be delivered by truck from Boron, California or Topock, Arizona. The distance from Boron to Los Angeles (270 miles) and Topock to Los Angeles (120 miles) were averaged (about 195 miles, 390 miles round trip) to get an average natural gas refueling trip length. Therefore, LNG delivery trips were assumed to be 340 miles longer (390 miles for natural gas delivery – 50 miles for diesel delivery) than diesel-fuel delivery trips. Based on the difference in fuel consumption between diesel fuel and natural gas, approximately four additional natural gas haul truck trips per day would be required. Assuming a diesel fuel efficiency of 10 miles per gallon, approximately 140 additional gallons of diesel fuel would be consumed per day (36,400gallons per year) to deliver natural gas to refueling facilities. PAR 1193 would reduce the consumption of diesel fuel in solid waste collection vehicles by 29,650,000_gallons per year. Even with the additional incremental increase of 36,400gallons of diesel fuel required to deliver natural gas refueling facilities by truck PAR 1193 would result in a diesel fuel savings of 29,613,600gallons per year (29,650,000_gallons from existing affected diesel-fueled solid waste vehicles – 36,400gallons for natural gas delivery).

Since the supply of energy is expected to be sufficient for PAR 1193, the proposed project is not expected to conflict with energy conservation plans, use or result in the need for new or substantially altered power or natural gas systems.

PAR 1193 would reduce the use of diesel fuel by 29,613,600_gallons per year (29,650,000 gallons from existing affected diesel-fueled solid waste vehicles – 36,400_gallons for natural gas delivery). PAR 1193 would increase the use of natural gas and electricity; however, the energy would be used to provide solid waste transfer, which is not considered a wasteful use of non-renewable resources.

All natural gas vehicles and electric compressors are expected to comply with local, state and federal energy requirements. Since the vehicles and compressors are expected to be new equipment, they should comply or surpass all current energy standards.

Based upon the above considerations, the proposed project is not expected to use energy in a wasteful manner, and would not substantially deplete energy resources.

Based upon the preceding analysis, it is not expected that PAR 1193 would create any significant effects on peak and base period demands for electricity and other forms of energy since only insignificant use of natural gas and electricity are expected.

Therefore, PAR 1193 is not expected to generate significant adverse energy resources impacts and will not be discussed further in this ~~draft~~ Final SEA. Since no significant energy impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	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:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Landslides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

VII. a, b, c, d & e) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contract to, or operating under an exclusive license or a franchise with, state and local governmental agencies. PAR 1193 would require the replacement or accelerate the replacement of diesel-fueled vehicles with natural gas-fueled vehicles within affected fleets. PAR 1193 may indirectly necessitate the construction of natural gas refueling stations to comply with the proposed amended rule.

The installation of natural gas refueling stations would require construction activities (e.g., excavation, grading or filling) that have a potential to impact the existing geophysical conditions. In general, however, soil disruption impacts are expected to be negligible because construction would be limited to areas where previous soil disruption has occurred and there is some form of overcovering (e.g., pavement of concrete) already in place. Therefore, since the proposed project would result in only minor construction activities in industrial, institutional, and/or commercial settings, little site preparation is anticipated that could adversely affect geophysical conditions in the jurisdiction of the SCAQMD.

PAR 1193 involves the reduction of criteria, TAC and GHG pollutants from affected solid waste collection, rolloff or transfer vehicles operated in the SCAQMD's jurisdiction. PAR 1193 is not expected to result in direct changes in topography or surface relief features, the erosion of beach sand, or a change in existing siltration rates. Any construction at existing diesel refueling facilities or additional natural gas refueling stations are expected to be built near solid waste facilities or where the solid waste vehicles are stored and maintained. These areas are expected to be zoned as commercial, industrial or institutional areas. These areas are expected to be urbanized and previously disturbed (i.e., graded and paved). Therefore, the conversion or construction of natural gas facilities is not expect to result in direct changes in topography or surface relief features, the erosion of beach sand, or a change in existing siltration rates.

For the same reasons, PAR 1193 is not expected to expose people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards. As stated earlier, the PAR 1193 provides air quality benefits to the citizens that reside in the SCAQMD's jurisdiction by reducing TACs and to a certain extent criteria pollutants from fleet vehicles.

As stated earlier, to the extent possible, natural gas refueling stations would be sited at existing fleet refueling station, locations, solid waste facilities or where solid waste vehicles are stored or maintained. It is, however, not known and cannot be known at this time where natural gas refueling stations would be located. Therefore, potential geophysical impacts are considered speculative at this time. This conclusion is consistent with CEQA Guidelines §15145.

Since any new construction or earth work for natural gas refueling stations would need to be built according local, state and federal requirements, PAR 1193 is not expected to expose people or structures to potential substantial effects from seismic related activity, landslides, soil erosion or the loss of top soil. The proposed project is not expected to be located on a geologic unit or soil that is unstable or would become unstable as a result of the proposed project, be located on expansive soil. The proposed project would not require or modify septic tanks or alternative waste water disposal systems where sewers are not available for disposing of wastewater.

Based on the above discussion, the proposed project is not expected to have an adverse impact on geology or soils. Since no significant adverse impacts are anticipated, this environmental topic will not be further analyzed in this ~~draft~~ Final SEA. No mitigation measures are necessary or required.

	Potentially Significant Impact	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, disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Significantly increased fire hazard in areas with flammable materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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.

VIII. a & b) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contact to, or operating under an exclusive license or a franchise with, state and local governmental agencies. Based on surveys of the solid waste industry, PAR 1193 is expected to accelerate the replacement of 2,953 of solid waste collection, rolloff or transfer vehicles and require the replacement of 12 vehicles at the end of their normal lifespan. Based on increased natural gas usage, PAR 1193 may necessitate the conversion or construction of 13 natural gas refueling stations. Since replacement of diesel-fueled solid waste vehicles with natural gas vehicles was also proposed in the Fleet Rules, PAR 1193 is expected have hazards and hazardous material impacts similar to those reported in the June 2000 Final PEA for the fleet rules.

PAR 1193 has the potential to generate adverse hazard impacts from the construction and operational hazard impacts from replacing diesel fueled vehicles with CNG or LNG-fueled

vehicles. The June 2000 Final PEA for the Fleet Rules analyzed hazards from the construction and operational of CNG and LNG. Implementation of Rule 1193 was delayed because of the lawsuit and subsequent settlement agreement. Based on surveys SCAQMD staff expects PAR 1193 would affect fewer solid waste collection, rolloff or transfer vehicles (2,965 vehicles) than analyzed for the original rule (7,200 vehicles). The time span for implementing PAR 1193 (2010 to 2020) would be similar to that originally proposed for Rule 1193, which was expected start in 2001 and to be completed in 2010. The adverse hazard impacts for PAR 1193 are expected to be within the scope of the analysis in the June 2000 Final PEA for the fleet vehicle rules because the fewer vehicles would be affected and the analysis evaluated hazards from replacing diesel with LNG/CENG refuse vehicles. The June 2000 Final PEA was even more conservative because it evaluated additional fuels: methanol and propane.

The June 2000 Final PEA for the Fleet Rules analyzed hazards (including accidental off-site consequence analysis of operation and fuel delivery) during storage, handling, transport, and use of both alternative fuels and conventional fuels. The June 2000 Final PEA concluded that the hazards posed by the conversion to alternative clean fuels appear no greater than those posed by conventional fuels, particularly when compared to gasoline. Hazards due to alternative fuel leakage are lower due to the lower vapor densities, higher auto ignition temperatures, and the higher “Lower Flammability Limits” of LNG and CNG compared to gasoline. The hazards posed by the use of LNG and CNG that may be slightly higher than those posed by diesel fuel are in the following areas:

LNG – The June 2000 Final PEA found that the main additional hazards associated with the use of LNG versus conventional fuels are personal injuries from physical contact with a cryogenic liquid and the potential for a large fire stemming from release in the case of an accident (e.g., a tanker truck accident or storage tank failure). Another potentially significant hazard is the potential for a release of natural gas during vehicle maintenance. The June 2000 Final PEA states that release of natural gas during vehicle maintenance can be minimized by installing detection systems, insuring all electrical systems are explosion proof or de-fuel and depressurize LNG-fueled vehicles before admission to the maintenance depot.

CNG - The June 2000 Final PEA found that the main additional hazard associated with the use of CNG versus conventional fuels is the exposure to high pressures employed during storage, dispensing and operations. Due to these high pressures a large amount of gas could escape in a short amount of time and, if present under flammable conditions, could explode in the presence of an ignition source. Another potentially significant hazard is a release of natural gas during vehicle maintenance. The June 2000 Final PEA states that release of natural gas during vehicle maintenance can be minimized by installing detection systems, insuring all electrical systems are explosion proof or de-fuel and depressurize CNG-fueled vehicles before admission to the maintenance depot.

The June 2000 Final PEA states that there are various existing regulations and recommended safety procedures that, when employed by fleet operators, will reduce any slightly higher hazards associated with use of alternative clean fuels such as exposure, handling and maintenance, to the same or lower level as conventional fuels.

Therefore, the June 2000 Final PEA concluded when affected fleet operators comply with existing regulations and recommended safety procedures, hazards impacts associated with the

use of alternative clean-fuels would be the same or less than those of conventional fuels. Accordingly, the June 2000 Final PEA found that significant hazards impacts are not expected from the implementation of the proposed fleet vehicle rules and related amendments.

Therefore, when affected fleet operators comply with existing regulations and recommended safety procedures, hazards impacts associated with the use of alternative clean-fuels would be the same or less than those of conventional fuels. Accordingly, significant hazards impacts are not expected from the implementation of the proposed fleet vehicle rules and related amendments.

Based on the analysis in the June 2000 Final PEA, PAR 1193 is not expected to create any new significant hazard to the public through the routine transport, use or disposal of hazardous material, or through reasonably foreseeable upset and accident conditions involving the release of hazardous material in to the environment.

VIII. c) PAR 1193 is not expected to cause handling of hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school. Alternative fueling stations are expected to be installed near affected solid waste facilities and where affected solid waste collection, rolloff or transfer vehicles are stored. These locations are expected to be located in industrial, commercial or institutional areas that are not zone for schools. The use of LNG and CNG is expected to reduce the amount of hazardous emissions. Therefore, PAR 1193 is not expected to significantly impact schools.

VIII. d) Government Code §65962.5 is related to hazardous material sites at industrial facilities. PAR 1193 would affect commercial and industrial solid waste facilities. Some of these facilities may be on the list of hazardous material sites compiled pursuant to Government Code §65962.5. However, PAR 1193 is expected to reduce criteria and toxic air emission from solid waste collection, rolloff or transfer vehicles. As a result, PAR 1193 is not expected to adversely affect any facilities included on a list of hazardous material sites and, therefore, would not create a significant hazard to the public or environment.

VIII. c) e) & f) PAR 1193 is not expected to result in a safety hazard for people residing or working within two miles of an public airport or public use airport, or air strip. PAR 1193 is expected to reduce the amount criteria and air toxic emissions associated with affected solid waste facilities. The reduction of VOC emissions is expected to reduce explosive risk. Therefore, PAR 1193 is not expected to significantly adversely impact public airports or private air strips.

VIII. g) PAR 1193 is not expected to directly adversely impact emergency response or evacuation plans. However, were complying with PAR 1193 indirectly results in the installation of alternative fueling stations, changes to the emergency response or evacuation plan may occur. These changes are expected to be similar to other alternative fueling stations or solid waste facilities with alternative fueling stations. Therefore, PAR 1193 is not expected to significantly impact emergency response or evacuation plans.

In the event of a large disaster scenario that could prevent natural gas fueling trucks from providing temporary natural gas fueling capacities or that disrupts a large portion of the natural gas distribution infrastructure, such a large, wide-spread disaster would also likely affect diesel fuel infrastructure and deliveries. LNG is supplied from outside of the district (Boron, California

or Topock, Arizona) and is imported into the district by truck. If there is an emergency large enough to disrupt the supply of natural gas imported into the district, Southern California Gas Company has natural gas refueling vehicles that can be used for to fuel Rule 1193-compliant vehicles. The two major suppliers of liquefied natural gas (LNG) in the region (Boron, California or Topock, Arizona) also have mobile natural gas refueling vehicles in their fleet of vehicles. These mobile natural gas refueling vehicles are referred to as ORCA LNG refuelers. Each company has two ORCAs available in their fleet of vehicles. In addition there exist two TrendFuel CNG tube trailers in the greater Los Angeles area operated by the Gas Company and Sunline Transit.

The natural gas pipeline distribution network into Southern California consists of several feeds into the system from the east, north, south and northern coast. Safety valves are built into natural gas line feeds for maintenance and to respond to or isolate leaks or pipeline failures. Once a natural gas line break is isolated – the system can supply natural gas from alternative feeds.

The California Seismic Safety Commission Improving Natural Gas Safety in Earthquakes, adopted July 11, 2002, included the following table that shows that natural gas service was restored within two weeks for three recent earthquakes:

Table 2-19
Recent Earthquakes and Restoration Time

<u>Earthquake</u>	<u>Number of Customer Outages</u>	<u>Restoration Time</u>
<u>Northridge</u>	<u>120,000</u>	<u>12 days</u>
<u>Loma Prieta</u>	<u>156,355</u>	<u>9 days</u>
<u>Whittier</u>	<u>20,600</u>	<u>10 days</u>

California Seismic Safety Commission Improving Natural Gas Safety in Earthquakes adopted July 11, 2002, http://www.seismic.ca.gov/pub/CSSC_2002-03_Natural%20Gas%20Safety.pdf.

The Northridge earthquake had a movement magnitude of 6.7, Loma Prieta had a magnitude of 7.2 and Whittier had a magnitude of 5.9, followed by an aftershock of 5.3. The report also notes that approximately 9,000 customers remained without service one month after the earthquake because of building damage or inability to access buildings or facilities. Based on discussions with gas company personnel, outages have been localized such that other natural gas refueling systems could support areas where natural gas service is interrupted during such emergencies.

There are over 100 CNG and LNG stations in the district. The probability of all the stations going offline at the same time is unlikely. In addition, mutual assistance programs with other stations (e.g. City of Los Angeles with their 10 LNG/CNG stations, Clean Energy, etc.) can assist other jurisdictions in the event of a major emergency/shutdown. Such assistance can include renting generators and keeping stations operational.

Diesel fuel is supplied by tank farms and refineries within the district that often depend on underground pipelines, which may also be disrupted in the event of a disaster or emergency that would affect underground natural gas lines. Disasters that would disrupt natural gas delivery by truck or pipeline would also disrupt diesel delivery by truck or pipeline. As a result, emergencies or disasters that could disrupt the natural gas supply infrastructure would also likely also disrupt the diesel fuel infrastructure.

If an emergency is large enough to disrupt fuel and roads, it is likely that the governor would declare a state of emergency in the area. The governor's powers include the coordination of the state emergency plan and programs to mitigate the effects of an emergency (California Government Code §8570), and authority to suspend statutes (California Government Code §8571), and commandeer private property (California Government Code §8572). In addition, SCAQMD Rule 118 – Emergencies, allows the SCAQMD Executive Officer to waive requirements of any SCAQMD rule during a governor-declared emergency. Therefore, if alternative-fuel is not available, the governor could commandeer conventionally fueled vehicles and the Executive Officer could waive the requirement to use alternative fuel refuse trucks during emergencies.

Three sources of conventionally fueled refuse collection vehicles that would not be subject to PAR 1193 could be commandeered during an emergency. Recently, as part of staff's effort to develop amendments to Rule 1193, a survey was conducted of private and public fleets. The survey identified that fleets with less than 15 waste collection vehicles totaled approximately 290 diesel collection vehicles. In accordance with staff's latest proposal, these diesel collection vehicles would likely be unaffected by Rule 1193 and would likely remain diesel vehicles. Second, municipalities where only a permit to operate is required are not affected by PAR 1193. Third, privately-owned refuse collection vehicles that only service privately-owned facilities or projects are also not affected by PAR 1193. These fleets include large haul and roll off vehicles that remove construction debris from private demolition projects.

For these reasons, it was determined that the potential hazard impacts from the proposed project would be less than significant.

In order to offer financial flexibility to government agencies, SCAQMD staff is proposing an exemption in the proposed amendments to Rule 1193, which provides that refuse fleets with more than 50 vehicles may have up to three percent of the total number of refuse vehicles used under contract to public agencies as vehicles that would not be subject to the requirements of PAR 1193 and no more than 20 percent of the rolloff and transfer vehicles that would not be subject to the requirements of PAR 1193, if they meet the 2010 or cleaner exhaust emissions standards. For public or private fleets with greater than 15, but less than or equal to 50 refuse collection vehicles, the fleet could include no more than three heavy-duty vehicles at any given time that would not be subject to the requirements of PAR 1193. Thus, when the proposed amendments are fully implemented, three vehicles in affected fleets with less than 50 refuse collection vehicles and three percent of the vehicles and no more than 20 percent of the rolloff and transfer vehicles with more than 50 vehicles in affected fleets may be conventionally fueled. The Staff Report for PAR 1193 estimates that 79 solid waste collection conventionally fueled vehicles and 121 roll off conventionally fueled vehicles would be available under this exemption. The 200 (79 + 121) conventionally fueled vehicles would provide another method of accessing conventionally-fueled vehicles for a large-scale emergency.

Therefore, while the exemption is not expected to be needed since sufficient conventionally fueled vehicles are currently available within the SCAQMD's jurisdiction (200 vehicles may be available from municipalities with less than 15 refuse collection vehicles, open permit system vehicles and privately-owned refuse collection vehicles serving privately-owned facilities or projects), these additional vehicles would add to the inventory of available vehicles and provide cost flexibility.

VIII. h) and i) Since the contents of storage tanks for alternative fuels are assumed to be flammable, combustible or explosive, the areas around such tanks are expected to be devoid of vegetation or flammable materials. Therefore, no significant increase in wildfires or fire hazard is expected from PAR 1193. PAR 1193 is not expected to increase the risk of fire hazard in general and specifically in areas with flammable materials. PAR 1193 would not expose people or structures to significant risk of loss, injury or death involving wildland fires.

Based on the above analysis, PAR 1193 is not expected to be significant for hazards and hazardous materials. Since PAR 1193 is not expected to be significant, no mitigation measures are required.

Although there may be slight, but insignificant increase in hazards impacts, these incremental effects are not considered to be cumulatively considerable. This conclusion is consistent with CEQA Guidelines §15130(a), which states in part, “Where a lead agency is examining a project with an incremental effect that is not ‘cumulatively considerable,’ a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. Therefore, since project-specific hazards impacts do not exceed the SCAQMD’s significance criteria, cumulative hazards impacts are not expected from the implementation of the proposed fleet vehicle rules. Since cumulative adverse impacts are not expected, no cumulative impact mitigation measures are required.

In conclusion, potentially significant adverse hazard impacts resulting from adopting and implementing PAR 1193 are not expected and will not be considered further in this ~~draft~~-Final SEA.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY.			
Would the project:			
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant Impact	No Impact
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 flooding on- or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Place housing 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
k) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
l) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant Impact	No Impact
m) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
n) Require 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

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

Water Quality:

- The proposed project does not increase demand for water by more than 5,000,000 gallons per day.
- 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.

Water Demand:

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

Discussion

IX. a), b) j), k), m) & n) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contract to, or operating under an exclusive license or a franchise with, state and local governmental agencies. PAR 1193 is not expected to result any direct water use. Water use would be associated with dust suppression during the conversion or construction of natural gas refueling stations. Based on surveys of the solid waste industry, SCAQMD staff

estimates that PAR 1193 would result in the conversion or construction of three refueling stations per day in a worst-case scenario. The June 2000 Final PEA for the fleet rules also estimated the conversion or construction of three refueling stations per day in a worst-case scenario. Therefore, PAR 1193 is expected have hydrology and water quality impacts similar to those reported in the June 2000 Final PEA for the fleet rules.

Conversion to alternative fuels would require installation and/or modification of fueling facilities. This could entail the demolition and removal of existing underground diesel tanks. Increased water use associated with dust suppression during the demolition and removal of underground gasoline and diesel fuel storage tanks or grading activities could result from the implementation of PAR 1193. Watering for dust (PM) suppression purposes are expected to be required pursuant to SCAQMD Rule 403 and/or local government permitting requirements.

It is estimated that approximately 139 square yards per refueling station would require excavation and grading over a time period of eight hours. Using the assumption that it takes 0.2 gallon per square yard per hour for adequate dust suppression, the “worst-case” water demand from one refueling station during construction can be estimated by the following equation (US EPA AP-42, 1992):

$$\text{Daily Water Usage} = 0.2 \frac{\text{gal}}{\text{yd}^2 \cdot \text{hr}} \times 139 \frac{\text{yd}^2}{\text{site}} \times 8 \frac{\text{hrs}}{\text{day}} \times = 222 \frac{\text{gal}}{\text{site} \cdot \text{day}}$$

Thus, on a “worst-case” basis, dust suppression activities would require 222 gallons of water per day per site. As discussed under the Air Quality section above, the maximum number of fueling stations that may be constructed simultaneously in any one day is three. The maximum estimated daily the proposed fleet vehicle rules construction-related water demand would be approximately 666 gallons per day (222 gallons/site-day x three sites). Accordingly, water demand impacts from the proposed fleet vehicle rules are not significant since the total daily estimated construction-related water demand does not exceed the SCAQMD’s significance criteria of 5,000,000 gallons per day. In fact, it would take the installation of nearly 23,000 alternative clean fuel fueling sites on the same day to exceed the SCAQMD’s significance criteria.

It should be noted that the water needed for dust suppression associated with the installation of alternative fuel fueling stations does not have to be of potable quality, but can be reclaimed water. Reclaimed water is currently available in many areas of the SCAQMD’s jurisdiction. A number of projects are currently in various stages of planning and development that are expected to supply an amount of reclaimed (recycled) water equal to almost 22 percent of current total district consumption by 2010 (Water Reuse Association of California, 1993). Thus, the insignificant water demand estimated for the proposed fleet vehicle rules and PAR 1193 are an overestimation of the actual potable water demand impacts associated with their implementation.

Therefore, PAR 1193 would not cause increased water usage or the construction of additional water resource facilities, the need for new or expanded water entitlements, an alteration of drainage patterns, or substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Since the water use from PAR 1193 is less than the significance threshold of 5,000,000 gallons of water per day, the proposed project is not expected to

substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. PAR 1193 would not significantly increase demand for water from existing entitlements and resources, and will not require new or expanded entitlements because compliant devices do not exceed the water demand significance threshold. Therefore, no water demand impacts are expected to be less than significant as the result of implementing the proposed amendments.

All facility owners/operators are expected to be complying with all federal, state and local water quality standards and wastewater discharge requirements. PAR 1193 is not expected to affect compliance with federal, state and local water quality standards and wastewater discharge requirements.

c), d), e) & l) Because CNG is a gas that is stored in above ground high-pressure cylinders, the potential for impacts to water quality is minimal.

LNG is a gas under ambient conditions. LNG is created by cooling natural gas until it liquefies and subsequently storing it under cryogenic conditions. Thus, the potential for impacts to water quality are minimal.

The construction-related water quality impacts associated with the construction of alternative fueling facilities are mainly related to the demolition and removal of existing diesel fuel dispensing facilities. Contractors and construction workers are expected to follow standard construction practice which would require preventing water or any water contaminants from leaving the construction area.

Additionally, no operational-related water quality impacts associated with the operation of alternative fueling facilities are expected. No additional wastewater is generated from the operation of alternative fueling facilities.

CNG is transported as a gas and would vaporize on release. LNG is transported and stored as a liquid; however, it would volatilize upon release forming a gas. Thus, since LNG, would pool on the ground only for a short period of time upon release and consequently would not migrate to freshwater or groundwater bodies, operational-related water quality impacts associated with the transporting, storing, and handling of alternative fuels are not expected.

PAR 1193 would only involve the use of water for dust prevention during construction, therefore, contractors and construction workers are required to prevent runoff water. PAR 1193 related operations are not expected to adversely impact stormwater, contributing runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

As detailed above, the proposed amended rule is not expected to require additional wastewater disposal capacity, violate any water quality standard or wastewater discharge requirements, or otherwise substantially degrade water quality. As result, no changes to storm water runoff, drainage patterns, groundwater characteristics, or flow are expected. Therefore, potential adverse impacts to drainage patterns, etc., are not expected as a result of implementing PAR 1193.

IX. f), g), h) & i) PAR 1193 would not require any direct development or construction. However, PAR 1193 may result in the construction of natural gas refueling stations to support required natural gas solid waste vehicles. However, these natural gas refueling facilities are expected to be located near existing affected facilities with existing conventional fueling stations on or nearby. Flooding impacts to the natural gas refueling stations are expected to be similar to the existing affected facilities and existing diesel refueling stations. Therefore, PAR 1193 is not expected to generate new significant adverse impact within 100-year flood areas as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood delineation map. As a result, PAR 1193 is not expected to expose people or structures to new significant flooding risks or affect any existing risks from flood, inundation, etc. Consequently, PAR 1193 would not affect in any way any potential flood hazards, inundation by seiche, tsunami, or mud flow that may already exist relative to existing facilities.

Based upon the above considerations, significant hydrology and water quality impacts are not expected from the implementation of PAR 1193 and will not be further analyzed in this ~~draft~~ Final SEA. Since no significant hydrology and water quality impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
X. LAND USE AND PLANNING. Would the project:			
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

X. a) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contact to, or operating under an exclusive license or a franchise with, state and local governmental agencies. PAR 1193 is not expected to require any new construction or development other than conversion of diesel refueling stations to natural gas refueling stations or construction of natural gas refueling stations to support natural gas vehicles required the proposed project. Therefore, PAR 1193 does not include any components that would require physically dividing an established community.

X. b) & c) There are no provisions in PAR 1193 that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements would be altered by modifying the scope of replacing diesel-fueled solid waste collection vehicles with alternative-fuel collection vehicles. Therefore, PAR 1193 would not affect in any way habitat conservation or natural community conservation plans, agricultural resources or operations, and would not create divisions in any existing communities. Therefore, present or planned land uses in the region would not be significantly adversely affected as a result of the proposed amended rule.

Based upon these considerations, significant land use and planning impacts are not expected from the implementation of PAR 1193 and will not be further analyzed in this ~~draft~~ Final SEA. Since no significant land use and planning impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

XI.a) & b) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contact to, or operating under an exclusive license or a franchise with, state and local governmental agencies. PAR 1193 is not expected to require any new construction or development other than conversion or construction of natural gas refueling stations to support natural gas vehicles required the proposed project. There are no provisions in PAR 1193 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 because compliances is not expected to require mineral resources such as sand, gravel, etc.

Based upon the above considerations, significant mineral resources impacts are not expected from the implementation of PAR 1193 and will not be further analyzed in this ~~draft~~ Final SEA. Since no significant mineral resources impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XII. NOISE. Would the project result in:			
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airship, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts on noise 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

XII. a), b), c) & d) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contract to, or operating under an exclusive license or a franchise with, state and local governmental agencies. Based on surveys of the solid waste industry, PAR 1193 is expected to accelerate the replacement of 2,953 of solid waste collection, rolloff or transfer vehicles as the existing rule and require the replacement of 12 vehicles at the end of their normal lifespan. Based on increased natural gas usage, PAR 1193 may necessitate the conversion or construction of 13 natural gas refueling stations. Since replacement of diesel-fueled solid waste vehicles with natural gas vehicles was also proposed in the Fleet Rules, noise is a localized impact, and solid waste facilities and facilities that store and maintain solid waste vehicles are not expected to be near other solid waste facilities or facilities that store and maintain solid waste vehicles; PAR 1193 is expected have noise impacts similar to those reported in the June 2000 Final PEA for the fleet rules.

Affected Solid Waste Collection, Rolloff or Transfer Vehicles

Solid waste collection with diesel-fueled vehicles is not expected to be substantially noisier or generate more vibration than solid waste collection with alterative-fueled vehicles. Thus, the proposed project is not expected to expose persons to the generation of excessive noise levels

above current facility/residential levels. It is expected that any agency or operator affected by PAR 1193 would comply with all existing local noise control laws or ordinances.

Alternative-Fuel Fueling Stations - Construction

The potential noise/ groundborne vibrational impacts from construction activities are not considered significant because: 1) construction equipment operation would be required to comply with local city or county noise ordinances; and 2) the duration of the noise/vibration would only be for a short period of time (e.g., 10 days) and 3) are expected to occur on-site on institutional, commercial or industrial zoned property. As a result, potential noise/ groundborne vibrational impacts from construction of refueling stations are not expected to be significant.

Alternative-Fuel Fueling Stations - Operation

The prime mover to power gas compression at refueling stations is expected to be an electric motor. Electric motors are relatively inexpensive, do not require extensive maintenance, are very reliable, and do not have noise impacts associated with them. Existing refueling/maintenance fleet locations tend to be in industrial or commercial areas where noise levels are already relatively high, due to industrial processes and vehicular traffic. Noise from refueling/maintenance locations would typically be attenuated substantially by distance, air absorption, and other attenuation factors before reaching a community area. Natural gas refueling operations are expected to generate noise at levels that comply with local noise ordinances and applicable OSHA or Cal/OSHA workplace noise reduction requirements. For all of the above reasons the PAR 1193 is not expected to generate significant adverse noise impacts.

In commercial environments, Occupational Safety and Health Administration (OSHA) and California-OSHA have established noise standards to protect worker health. It is expected that operators at affected facilities/residences will continue complying with applicable noise standards, which would limit noise impacts to workers, patrons and neighbors.

Based on the above, PAR 1193 is not expected to generate noise levels in excess of standards established in local general plans or noise ordinances, or applicable standards of other agencies; excessive groundborne vibration or groundborne noise levels; or substantially permanently, substantially temporarily or substantially periodically increase ambient noise levels in the project vicinity above levels existing without the project.

XII. e) & f) PAR 1193 may affect solid waste collection vehicles used at airports or airfields. However, the noise generated by PAR 1193 solid waste collection vehicles is not expected to be greater than the noise generated by existing solid waste collection vehicles or associated refueling stations (see items a), b), c) and d) above). Thus, PAR 1193 is not expected to expose people residing or working in the vicinities of public airports to excessive noise levels.

Based upon these considerations, significant noise impacts are not expected from the implementation of PAR 1193 and are not further evaluated in this ~~draft~~ Final SEA. Since no significant noise impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

XIII. a) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contract to, or operating under an exclusive license or a franchise with, state and local governmental agencies. PAR 1193 is not expected to necessitate any new construction or development other than conversion of diesel refueling facilities to natural gas refueling facilities or construction of natural gas refueling stations to support natural gas vehicles required the proposed project. The proposed project is not anticipated to generate any significant effects, either direct or indirect, on the district's population or population distribution as no additional workers are anticipated to be required to comply with the proposed amendments. Human population within the jurisdiction of the SCAQMD is anticipated to grow regardless of implementing PAR 1193. It is expected that any construction activities at affected facilities would use construction workers from the local labor pool in southern California. As such, PAR 1193 would not result in changes in population densities or induce significant growth in population.

XIII. b) & c) Because the proposed project affects replacement of solid waste collection vehicles, PAR 1193 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 people elsewhere.

Based upon these considerations, significant population and housing impacts are not expected from the implementation of PAR 1193 and are not further evaluated in this ~~draft~~ Final SEA. Since no significant population and housing impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

XIV. a) & b) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contact to, or operating under an exclusive license or a franchise with, state and local governmental agencies. Based on surveys SCAQMD staff expected PAR 1193 would affect fewer solid waste collection, rolloff or transfer vehicles (2,965 vehicles) than analyzed in the existing rule (7,200 vehicles). Therefore, PAR 1193 is expected have public service impacts similar to or less than those reported in the June 2000 Final PEA for the fleet rules.

Fire protection services are generally provided by city and county fire departments. Fire protection services include emergency response actions, which may be adversely affected by potential hazard risks associated with the transport, storage, and use of natural gas. An analysis of the hazard risks associated with the proposed fleet vehicle rules is provided under the Hazards section, which includes a comparison of the hazard impacts posed by diesel and alternative clean fuels.

Based on the findings of the hazards analysis, potential adverse fire hazards resulting from increasing use of alternative clean fuels would be equal to or less than those posed by diesel. Fire protection services are also not expected to be significantly adversely affected by the operation of alternative clean-fueled vehicles and refueling facilities, as many of the potential hazards associated with the use and storage of these alternative clean fuels are already found in association with the existing diesel refueling facilities. In fact, hazards posed by an accidental release of diesel are generally greater than those posed by alternative clean fuels because of diesel's inherent toxicity and the unsafe driving conditions created by spilled diesel. In addition, emergency respond personnel are exposed to the hazards associated with natural gas in their routine operations and have the capabilities and equipment to handle emergencies associated with natural gas sources. It is therefore unlikely that PAR 1193 would cause a significant increase in the need for fire protection services.

Fire protection services may experience a minimal increase in the demand for agency permitting and underground storage tank removal oversight during the retrofitting and/or construction of the refueling facilities from diesel and gasoline to clean fuels. Assuming a maximum district-wide station conversion (and tank removal) rate of three refueling facilities per year for PAR 1193, and eight staff hours per tank, the total staff time involved with the permitting and closure is expected to be less than 30 hours per year, which is insignificant on a district-wide basis.

XIV.c) & d) As indicated in discussion under item XIII. Population and Housing, implementing PAR 1193 would not induce population growth or dispersion during either construction or operation. Therefore, with no increase in local population anticipated, additional demand for new or expanded schools or parks is not anticipated. As a result, no significant adverse impacts are expected to local schools or parks.

XIV. e) PAR 1193 may require new or modified alternative fuel refueling stations at institutional facilities. However, as detailed in the PEA construction would not be consisted significant (139 square yards per refueling station with associated storage tanks and refueling equipment). The changes would be expected to maintain existing service ratios, response times, or other performance objectives with a natural gas fleet.

PAR 1193 includes provisions for the use of non-PAR 1193 compliant solid waste collection, rolloff and transfer vehicles temporarily due to delayed delivery of PAR 1193 compliant vehicles beyond the applicable compliance date and adds breakdown provisions. The addition of these provisions should prevent any unforeseen adverse impacts to service ratios, response times, or other performance objectives.

During the rule development process for the fleet rules, commentators asserted that reductions in public services caused by shifts in funds to pay for alternative clean-fueled vehicles could constitute a significant public service impact. The PEA stated that pursuant to CEQA and CEQA case law, a reduction in public services is not considered a public service impact. CEQA only

applies to activities that will cause a physical change in the environment. Therefore, reductions in unrelated public services caused by budget effects brought about by the proposed project is not considered a physical change in environment, and therefore, not adverse CEQA impact.

Based upon these considerations, significant public services impacts are not expected from the implementation of PAR 1193 and are not further evaluated in this ~~draft~~ Final SEA. Since no significant public services impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

XV.a) & b) As discussed under “Land Use and Planning” above, there are no provisions in the PAR 1193 that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements would be altered by the changes proposed in PAR 1193. The proposed project would not increase the demand for or use of existing neighborhood and regional parks or other recreational facilities or require the construction of new or expansion of existing recreational facilities that might have an adverse physical effect on the environment because it would not directly or indirectly increase or redistribute population.

Based upon these considerations, significant recreation impacts are not expected from the implementation of PAR 1193 and are not further evaluated in this ~~draft~~ Final SEA. Since no significant recreation impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XVI. SOLID/HAZARDOUS WASTE. Would the project:			
a) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

The proposed project impacts on solid/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

XVI. a and b) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contact to, or operating under an exclusive license or a franchise with, state and local governmental agencies. PAR 1193 would replace existing affected solid waste diesel-fueled vehicles with natural gas-fueled vehicles. Since requirements that would allow the use of non-compliant PAR 1193 vehicle until compliant vehicles are available are included in PAR 1193, no adverse impacts to solid waste collection/transfer is expected. PAR 1193 may require the conversion of diesel refueling facilities to natural gas refueling facilities or construction of natural gas refueling stations to support the required natural gas-fueled solid waste collection vehicles.

Construction Impacts

Existing Diesel Vehicles

Existing diesel vehicles that are replaced are expected to be sold to solid waste collection, rolloff or transfer vehicle operators outside of the district or sold as scrap metal. Because of the high cost of metal, it is believed that most of the retired diesel solid waste collection, rolloff or transfer vehicles would be recycled rather than disposed of as solid waste.

Alternative Clean fuel Refueling Stations

PAR 1193 may require the construction of new CNG or LNG refueling stations or modification of some existing diesel-fuel dispensing facilities and the substitution of diesel-fuel production to CNG or LNG. Solid or hazardous wastes generated from construction-related activities would consist primarily of materials from the demolition of existing diesel-fuel storage and dispensing facilities.

The demolition/construction debris and backfilling, which is estimated to consist of approximately twenty-two 20-ton haul truck loads per station, would be disposed of at a Class II (industrial) or Class III (municipal) landfill. This assumes that the removed USTs would most likely be recycled. Although some soil contamination may be present the analysis assumed this impact to be negligible, since most of the leaking UST sites have been or are in the process of being remediated as a result of the California and Federal UST regulations.

The estimated maximum number of fueling stations that would be under construction at a given time is three stations per day. If it is assumed that all three stations are simultaneously under construction and haul their demolition debris on the same day, the “worst-case” daily amount of construction debris transported to the landfills within the SCAQMD jurisdiction is 1,200 tons per day (three stations/day x 22 loads/station x 20 tons/load). There are 48 Class II/Class III landfills within the SCAQMD’s jurisdiction. The estimated total capacity of these landfills is approximately 111,198 tons per day. Therefore, as shown in Table 2-20-17, the amount of waste disposed of during construction activities associated with construction for the proposed fleet vehicle rules are about one percent of the total disposal capacity.

**Table 2-20-17
Amount of Nonhazardous Waste Landfilled
During Construction-Related Activities**

Description	Demolition Material (tons/day)
Total Disposal from The Proposed Fleet Vehicle Rules	1,320
Threshold (Capacity of Landfills)	111,198
% of Capacity	1.18%
Significant (Yes/No)	No

Increases in solid waste disposal related to construction/demolition activities would be small and temporary. Therefore, the solid/hazardous waste impacts from construction activities associated with the implementation of the proposed fleet vehicle rules would not be significant.

Operational Impacts

PAR 1193 would replace existing affected solid waste diesel-fueled vehicles with natural gas-fueled vehicles. Since requirements that would allow the use of non-compliant PAR 1193 vehicle until compliant vehicles are available are included in PAR 1193, no adverse impacts to solid waste collection/transfer is expected.

Alternative Fuels

CNG would be released as a gas. LNG is a gas under ambient conditions. LNG is created by cooling natural gas until it liquefies and subsequently storing it under cryogenic conditions. Since these fuels are gases under ambient conditions they do not have the potential to become a solid or hazardous waste nor can they cause other waste streams to become hazardous.

Conclusion

Based on these considerations, PAR 1193 is not expected to significantly increase the volume of solid or hazardous wastes disposed at existing municipal or hazardous waste disposal facilities or require additional waste disposal capacity. PAR 1193 includes requirements that would prevent adverse impacts to solid waste collection/transfer when diesel fueled solid waste vehicles are replaced with natural gas-fueled vehicles. Further, implementing PAR 1193 is not expected to interfere with any affected facility’s ability to comply with applicable local, state, or federal waste disposal regulations. Since no solid/hazardous waste impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION/TRAFFIC. Would the project:			
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access or?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant Impact	No Impact
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance Criteria

Impacts on transportation/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.
- 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

XVII. a) & b) PAR 1193 would modify the rule language to clarify that the rule applies to non-federal governmental solid waste collection fleets and private solid waste collection fleets under contract to, or operating under an exclusive license or a franchise with, state and local governmental agencies. Based on surveys of the solid waste industry, PAR 1193 is expected to accelerate the replacement of 2,953 of solid waste collection, rolloff or transfer vehicles as the existing rule and require the replacement of 12 vehicles at the end of their normal lifespan.

Construction Impacts

Both the PAR 1193 and the Final PEIR for the Fleet Rules estimated that up to three alternative-fuel refueling facilities would be built on the same day. The Final PEIR estimated that on the peak construction day approximately 20 construction delivery vehicles and six construction worker vehicles would travel to the alternative-fuel refueling facility. This is below the significance criterion of 350 trips per day per site. It is not expected that alternative-fuel refueling facilities would be built near each other, so there should be no cumulative adverse traffic/transport impacts from construction that would cause an increase in traffic that would be substantial in relation to the existing traffic load and capacity of the street system, or exceed either individually or cumulatively a level of serve standard for designated roads or highways.

Operational Impacts

The replacement of existing diesel-fueled vehicles with alternative fuel vehicles is not expected to adversely affect traffic/transportation, since the existing and replacement vehicles would be used for the same purposes. PAR 1193 would result in the replacement of diesel-fueled solid waste vehicles with natural-gas fueled solid waste vehicles. Because the replacement is one to one, no impacts to traffic/transportation are expected from operations.

XVII. c) The activities associated with PAR 1193 are expected to involve alternative fuel solid waste collection, rolloff or transfer vehicles and indirectly associated alternative fuel refueling stations. Therefore, PAR 1193 is not expected to affect in any way air traffic in the region to any appreciable extent.

XVII. d) Since PAR 1193 affects solid waste collection, rolloff or transfer vehicles and indirectly associated refueling stations, no offsite modifications to roadways are anticipated for the proposed project that would result in an additional design hazard or incompatible uses.

XVII. e) Since PAR 1193 affects the solid waste collection, rolloff or transfer vehicles and indirectly associated refueling stations, any changes to emergency access at or in the vicinity of the affected facilities would be associated with new or modified refueling stations. The proposed project is not expected to adversely impact emergency access because does not add a substantial amount of equipment and emergency access to storage tanks and refueling equipment are required by other federal, state and local regulations.

XVII. f) Since PAR 1193 affects the affects the solid waste collection, rolloff or transfer vehicles and indirectly associated refueling stations, no changes are expected to the parking capacity at or in the vicinity of the affected facilities. PAR 1193 is not expected to require additional workers, so additional parking capacity is not expect to be required. Therefore, the project is not expected to adversely impact on- or off-site parking capacity.

XVII. g) Since PAR 1193 affects the affects the solid waste collection, rolloff or transfer vehicles and indirectly associated refueling stations, the implementation of PAR 1193 would not result in conflicts with alternative transportation, such as bus turnouts, bicycle racks, et cetera.

Based upon these considerations, PAR 1193 is not expected to generate significant adverse transportation/traffic impacts and, therefore, this topic will not be considered further in this ~~draft~~ Final SEA. Since no significant transportation/traffic impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

XVIII. a) As discussed in the “Biological Resources” section, PAR 1193 is not expected to significantly adversely affect plant or animal species or the habitat on which they rely because PAR 1193 is expected to affect equipment or processes located at existing commercial, industrial and institutional facilities, which are typically areas that have already been greatly disturbed and that currently do not support such habitats. PAR 1193 may necessitate the conversion or construction of natural gas refueling stations. Any construction at existing diesel refueling facilities or additional alternative fuel refueling stations are expected to be occur near solid waste facilities or where the solid waste vehicles are stored and maintained. These areas are expected to be zoned as commercial, industrial or institutional areas. These areas are expected to be urbanized and previously disturbed (i.e., graded and paved). Affected areas are not expected to contain or support biological resources. Therefore, PAR 1193 is not expected to 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.

XVIII. b) Because PAR 1193 does not generate project-specific adverse impacts from other environmental topics besides air quality and greenhouse gas emissions, energy, hazards and hazardous material, noise, and solid/hazardous waste; cumulative impacts are not considered to be "cumulatively considerable" as defined by CEQA guidelines §15065(a)(3) for any environmental topic besides air quality and greenhouse gas emissions, energy, hazards and hazardous material, noise, and solid/hazardous waste. For example, the environmental topics checked 'No Impact' (e.g., aesthetics, agriculture and forest resources, biological resources, cultural resources, geology and soils, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, and transportation and traffic) would not be expected to make any contribution to potential cumulative impacts whatsoever. For the environmental topic checked 'Less than Significant Impact' (e.g., air quality and greenhouse gas emissions, energy, hazards and hazardous material, noise, and solid/hazardous waste), the analysis indicated that project impacts would not exceed any project-specific significance thresholds. This conclusion is based on the fact that the analyses for each of these environmental areas concluded that the incremental effects of the proposed project would be minor and, therefore, not considered to be cumulatively considerable. Also, in the case of air quality and greenhouse gas emissions impacts, the net effect of implementing the proposed project with other proposed rules and regulations, and AQMP control measures is an overall reduction in district-wide emissions contributing to the attainment of state and national ambient air quality standards. Therefore, it is concluded that PAR 1193 has no potential for significant cumulative or cumulatively considerable impacts in any environmental areas.

XVIII. c) Based on the foregoing analyses, PAR 1193 is not expected to cause significant adverse effects on human beings. Based on the preceding analyses, no significant adverse impacts to aesthetics, agriculture and forest resources, air quality and greenhouse gas emissions, biological resources, cultural resources, energy, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, solid/hazardous waste and transportation and traffic are expected as a result of the implementation of PAR 1193.

As discussed in items I through XVIII above, the proposed project is not expected to cause significant adverse environmental effects.

APPENDIX A

PROPOSED AMENDED RULE 1193

In order to save space and avoid repetition, please refer to the latest version of the PAR 1193 located elsewhere in the final rule package. The PAR 1193 version dated March 9, 2010 of the proposed amended rule was circulated with the Draft SEA released on March 17, 2010 for a 30-day public review and comment period ending April 15, 2010.

Original hard copies of the Draft SEA, which include version PAR 1193 (dated March 9, 2010) of the proposed amended rule circulated with the Draft SEA, can be obtained through the SCAQMD Public Information Center at the Diamond Bar headquarters or by calling (909) 396-2039.

APPENDIX B

ASSUMPTIONS AND CALCULATIONS

Criteria Pollutant Calculations

1. It is assumed that the CARB SWCV rule substantially reduces in-use PM emissions from refuse collection fleets post-2010, to a level where further reductions would not be significant.
2. Existing trucks are diesel fueled. Diesel and natural gas heavy-duty engines are required to meet the same CARB in-use emission standards for non-methane hydrocarbons (NMHC) and carbon monoxide (CO). The relevant standards are 0.14 grams of NMHC per brake horsepower-hour and 14.4 grams of CO per brake horsepower-hour. Therefore, SCAQMD staff assumed that there is no substantial difference between diesel and natural gas fueled engine in-use NMHC and CO emissions.

It is anticipated that the proposed amendments to Rule 1193 would result in the accelerated retirement of some diesel refuse vehicles and replacement with natural gas vehicles. To assess PM emission impacts of the proposed amendments, PM emission levels of in-use diesel and natural gas refuse vehicles must be compared, taking into account existing CARB regulations that would affect PM emission levels. In 2002, CARB adopted the SWCV regulation which requires PM emissions control for virtually all existing solid waste collection vehicles by the end of 2010. As a result of the CARB SWCV regulation, PM emissions for in-use diesel refuse vehicles are expected to be controlled at levels that are comparable to natural gas vehicles in the post-2010 timeframe. This assumption is based on the expected availability of Level 3 (minimum 85 percent PM reduction) PM retrofit technology currently meeting a 0.1 gram per brake horsepower-hour certification emission standard that could be installed on in-use solid waste vehicles. Thus, it is not expected that substantive PM emission reductions would result from the proposed amendments. It should be noted that, to the extent that refuse fleets are operating 1193-compliant or older model-year refuse vehicles meeting a 0.25 gram per brake horsepower-hour PM standard (or less stringent), with PM filters installed as required by the ARB SWCV regulation, there would be a slight PM emissions benefit from the replacement of these vehicles with natural gas vehicles as a result of the proposed amendments.

3. Sulfur oxide (SOx) emissions are a function of sulfur content in the fuel. Current CARB diesel fuel specification regulations allow a maximum sulfur content level of 15 ppm, and refiners typically produce diesel fuel at even lower sulfur concentrations to maintain a compliance margin with the sulfur content requirement. SOx emissions from diesel-fueled vehicles were estimated based on an in-use sulfur content level in diesel fuel of 10 ppm. The same in-use sulfur content was used to estimate existing SOx emissions from diesel-fueled solid waste collection vehicles.

Diesel Vehicles

$$(2,965 \text{ vehicles}) \times (10,000 \text{ gal/year}) \times (7.2 \text{ lb/gal}) \times (10/1000000) \times (1 \text{ yr}/365 \text{ days}) \times (64/32) = 11.7 \text{ lb/day SOx (expressed as SO}_2\text{)}$$

Natural Gas Vehicles

$$(2,965 \text{ vehicles}) \times (10,000 \text{ gal/year}) \times (7.2 \text{ lb/gal}) \times (0.5/1000000) \times (1 \text{ yr}/365 \text{ days}) \times (64/32) = 0.6 \text{ lb/day SOx (expressed as SO}_2\text{)}$$

Note, 64/32 is the molecular weight ratio of SO₂ to S.

NOx emission factors, provided in Table B-1 quantify criteria pollutant emissions on a per vehicle basis from use of diesel vehicles. A fuel consumption rate factor of 18.5 brake-horsepower-hour per gallon

and an assumed 10,000 diesel gallon equivalent (dge) consumption per vehicle per year was used to develop NOx emissions in tons of NOx per year.

**Table B-1
NOx Emission Factors**

Model Year	Diesel Fueled Heavy-Duty Vehicle Emission Factors (grams per brake-horsepower-hour)	Natural Gas Heavy-Duty Vehicle Emission Factors (grams per brake-horsepower-hour)
1998-1999	10.7	N/A
1990	6	N/A
1991-1997	5	N/A
1998-2002	4	N/A
2003-2006	2.38*	N/A
2007-2009	1.2	N/A
2010-2011	0.5	0.2
2012 +	0.2	0.2

* Incorporates 0.95 NOx/HC Pollution Fraction

1. Baseline NOx Emissions

$$E_{Baseline} = \sum_{i=MY1}^{MYn} (N_{i,Diesel,Baseline} \times 10,000 \times 18.5 \times EF_i \times 1/907185) + (N_{Alt,Baseline} \times 10,000 \times 18.5 \times 0.2 \times 1/907185)$$

Where,

E_{Baseline}: Baseline NOx Emissions (tons per year)

N_{i,Diesel,Baseline}: Number of diesel vehicles for model year i under baseline scenario

N_{Alt,Baseline}: Number of alternative fuel vehicles under baseline scenario

EF_i: NOx Emission Factor of diesel vehicles for model year i (see Table 1)

0.2: NOx Emission Factor of alternative fuel vehicles (g/bhp-hr)

10,000: Annual diesel equivalent consumption rate (gallons per year)

18.5: Rate factor (bhp-hr/gal)

1/907185: Unit conversion factor (ton/gram)

MY1: Model Year 1 (Oldest)

MYn: Model Year n (Newest)

2. NOx Emissions under PAR 1193

$$E_{PAR} = \sum_{i=MY1}^{MYn} (N_{i,Diesel,PAR} \times 10,000 \times 18.5 \times EF_i \times 1/907185) + (N_{Alt,PAR} \times 10,000 \times 18.5 \times 0.2 \times 1/907185)$$

Where,

E_{PAR}: NOx Emissions under PAR 1193 (tons per year)

N_{i,Diesel,PAR}: Number of diesel vehicles for model year i under PAR 1193

N_{Alt,PAR}: Number of alternative fuel vehicles under PAR 1193

3. NOx Emission Reductions

$$ER = E_{Baseline} - E_{PAR}$$

Where,

ER: NOx Emission Reductions (tons per year)

E_{Baseline}: NOx Emissions under Baseline scenario

E_{PAR}: NOx Emissions under PAR 1193 scenario

GHG Emission Calculations from Solid Waste Collection Vehicles

Greenhouse gases (GHG) are known as contributors to emerging global climate change. California has been one of the leaders in the world in developing and implementing measures to reduce GHG emissions. In 2006, the Global Warming Solutions Act of 2006 (AB32) was signed to set the 2020 greenhouse gas emissions reduction goal into law. As an important early action item, the California Low Carbon Fuel Standard (LCFS) regulation was adopted by the California Air Resources Board in April 2009 and was approved by the California Office of Administrative Law on January 12, 2010. The LCFS calls for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. According to CARB's greenhouse gas inventory, the transportation sector is the largest contributor with 38 percent of the State's total GHG emissions. As end users of the transportation fuels, solid waste collection vehicles are also important contributors of GHG emissions.

The GHG emissions from solid waste collection vehicles are analyzed using the latest carbon intensities provided by CARB and energy density values contained in the LCFS.

The following equations were used to calculate GHG emissions:

1. Baseline GHG Emissions

$$GHG_{Baseline} = (N_{Diesel,Baseline} \times 10,000 \times 134.47 \times 94.71 \times 1/907185) + (N_{Alt,Baseline} \times 10,000 \times 134.47 \times 75.56 \times 1/907185)$$

Where,

GHG_{Baseline}: Baseline GHG Emissions (tons CO₂e per year)

N_{Diesel,Baseline}: Number of diesel vehicles under baseline scenario

N_{Alt,Baseline}: Number of alternative fuel vehicles under baseline scenario

10,000: Annual diesel equivalent consumption rate (gallons per year)

134.47: Energy density for diesel (MJ/gal)

94.71: Carbon intensity for diesel (gCO₂e/MJ)

75.56: Carbon intensity for alternative fuel (gCO₂e/MJ)*

1/907185: Unit conversion factor (ton/gram)

*: Assuming 50% CNG vehicles and 50% LNG vehicles, combined carbon intensity = carbon intensity for CNG×50% + carbon intensity for LNG×50% = 68.00×0.5 + 83.13×0.5 = 75.56

Source:California Low Carbon Fuel Standard

2. GHG Emissions under PAR 1193

$$GHG_{PAR} = (N_{Diesel,PAR} \times 10,000 \times 134.47 \times 94.71 \times 1/907185) + (N_{Alt,PAR} \times 10,000 \times 134.47 \times 75.56 \times 1/907185)$$

Where,

GHG_{PAR} : GHG Emissions under PAR 1193 (tons CO₂e per year)

$N_{Diesel, PAR}$: Number of diesel vehicles under PAR 1193 scenario

$N_{Alt, Baseline}$: Number of alternative fuel vehicles under PAR 1193 scenario

3. GHG Emission Reductions

$$GHGER = GHG_{Baseline} - GHG_{PAR}$$

Where,

GHGER: GHG Emission Reductions (tons CO₂e per year)

$GHG_{Baseline}$: GHG Emissions under Baseline scenario

GHG_{PAR} : GHG Emissions under PAR 1193 scenario

Fuel properties used for this calculation are listed in Table B-2. Data for energy density and carbon intensity are taken from the LCFS.

Table B-2
Fuel Properties Used in the Calculation of GHG Emissions

Fuel	Diesel	CNG	LNG
Energy Density	134.47 (MJ/gal)	---	---
Carbon Intensity (gCO ₂ e/MJ)	94.71	68.00 ^(a)	83.13 ^(b)
Fuel Use (per vehicle)	10,000 (gal/yr)	---	---

(a): North American natural gas delivered via pipeline, compressed in California

(b): North American natural gas delivered via pipeline, liquefied in California using liquefaction with 80% efficiency

Emission Calculations for Exemption (g)(7)

The emissions impact associated with proposed rule language contained in paragraph (g)(7) were calculated for NO_x, GHG, and SO_x. The calculations assumed a worst case scenario, where a maximum three percent of affected solid waste collection vehicles and 20 percent of rolloff vehicles would remain as diesel-fueled by public and private fleet operators, as allowed under the proposed language. The overall methodology in quantifying these impacts, therefore, is to take the difference in emissions between alternative-fueled vehicles that would have been operated by the affected fleets in the absence of proposed paragraph (g)(7) and the diesel vehicles that would be allowed under the proposed language. The emission factors used for quantifying the NO_x emissions impact are based on the applicable emission standards by model year, and it is assumed that the diesel vehicles that are allowed to continue operating in public and private fleets under proposed paragraph (g)(7) are the newest diesel vehicles remaining in the fleet. It is assumed that no NO_x impact occurs for these vehicles as a result of the proposed language, because the proposed language requires that the remaining 20 percent of rolloff vehicles meet 2010 NO_x emission standards (the same emission standards that would be applicable to alternative-fuel vehicles). The emission factors and associated activity levels utilized for determining the NO_x, GHG and SO_x emission impacts are the same as those utilized in quantifying the overall emissions impact of the proposed rule, for both alternative-fueled and diesel-fueled vehicles. The additional emissions resulting from the proposed language are 59.6 pounds per day NO_x, 31,100 pounds per day GHG, and 0.4 pounds per day SO_x.

Table B-3
Replacement of Diesel-Fueled Vehicles with Natural Gas Vehicles under the Existing Rule

Year	Fleets of 15-50 Vehicles	Fleets of 51 or More Vehicles	Fleets of less than 15 Vehicles	Government	Total
2011	11	177	4	1	193
2012	11	177	4	1	193
2013	11	175	4	2	192
2014	11	175	4	2	192
2015	11	175	4	2	192
2016	11	175	4	2	192
2017	11	175	4	2	192
2018	11	175	4	0	190
2019	11	175	4	0	190
2020	11	175	4	0	190
2021	11	175	4	0	190
2022	11	175	4	0	190
2023	11	175	5	0	191
2024	11	175	5	0	191
2025	9	175	5	0	189
2026	9	0	5	0	14
2027	9	0	5	0	14
2028	9	0	5	0	14
2029	9	0	5	0	14
2030	9	0	5	0	14
2031	9	0	5	0	14
2032	9	0	5	0	14

Table B-4
Replacement of Diesel-Fueled Vehicles with Natural Gas Vehicles under the March 9, 2010 PAR 1193

Year	Fleets of 15-50 Vehicles	Fleets of 51 or More Vehicles	Fleets of less than 15 Vehicles	Government	Total
2011	14	199	0	1	214
2012	14	199	0	1	214
2013	14	197	0	2	213
2014	50	460	40	2	552
2015	23	263	10	2	298
2016	23	263	10	2	298
2017	23	262	10	2	297
2018	23	262	10	0	295
2019	21	262	10	0	293
2020	21	262	8	0	291
2021	0	0	0	0	0
2022	0	0	0	0	0
2023	0	0	0	0	0
2024	0	0	0	0	0
2025	0	0	0	0	0
2026	0	0	0	0	0
2027	0	0	0	0	0
2028	0	0	0	0	0
2029	0	0	0	0	0
2030	0	0	0	0	0
2031	0	0	0	0	0
2032	0	0	0	0	0

Table B-5
Replacement of Diesel-Fueled Vehicles with Natural Gas Vehicles under the July 2010 PAR 1193

<u>Year</u>	<u>Fleets of 15-50 Vehicles</u>	<u>Fleets of 51 or More Vehicles</u>	<u>Fleets of less than 15 Vehicles</u>	<u>Government</u>	<u>Total</u>
<u>2011</u>	<u>195</u>	<u>12</u>	<u>6</u>	<u>2</u>	<u>214</u>
<u>2012</u>	<u>200</u>	<u>15</u>	<u>6</u>	<u>2</u>	<u>223</u>
<u>2013</u>	<u>252</u>	<u>18</u>	<u>6</u>	<u>2</u>	<u>278</u>
<u>2014</u>	<u>252</u>	<u>18</u>	<u>6</u>	<u>2</u>	<u>278</u>
<u>2015</u>	<u>252</u>	<u>18</u>	<u>6</u>	<u>2</u>	<u>278</u>
<u>2016</u>	<u>252</u>	<u>18</u>	<u>6</u>	<u>2</u>	<u>278</u>
<u>2017</u>	<u>252</u>	<u>18</u>	<u>6</u>	<u>2</u>	<u>278</u>
<u>2018</u>	<u>268</u>	<u>23</u>	<u>8</u>	<u>0</u>	<u>300</u>
<u>2019</u>	<u>142</u>	<u>16</u>	<u>10</u>	<u>0</u>	<u>168</u>
<u>2020</u>	<u>562</u>	<u>70</u>	<u>36</u>	<u>0</u>	<u>668</u>
<u>2021</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2022</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2023</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2024</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2025</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2026</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2027</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2028</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2029</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2030</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2031</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>2032</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

Table B-6-5
Affected Fleet Natural Gas Consumption under Existing Rule

Year	Baseline Demand (diesel-fuel equivalence)	Cumulative Baseline Natural Gas Demand (diesel-fuel equivalence)	Number of LNG Stations Expected
2011	1,930,000	1,930,000	1
2012	1,930,000	3,860,000	2
2013	1,920,000	5,780,000	3
2014	1,920,000	7,700,000	4
2015	1,920,000	9,620,000	5
2016	1,920,000	11,540,000	5
2017	1,920,000	13,460,000	6
2018	1,900,000	15,360,000	7
2019	1,900,000	17,260,000	8
2020	1,900,000	19,160,000	9
2021	1,900,000	21,060,000	9
2022	1,900,000	22,960,000	10
2023	1,910,000	24,870,000	11
2024	1,910,000	26,780,000	12
2025	1,890,000	28,670,000	13
2026	140,000	28,810,000	13
2027	140,000	28,950,000	13
2028	140,000	29,090,000	13
2029	140,000	29,230,000	13
2030	140,000	29,370,000	13
2031	140,000	29,510,000	13
2032	140,000	29,650,000	13
2033	0	29,650,000	13
2034	0	29,650,000	13
2035	0	29,650,000	13

* The number of refueling stations is not additive. Instead, the number of refueling stations represents the number of stations needed for the corresponding number of affected fleet vehicles. The total number of stations needed as a result of Rule 1193 is 13.

Table B-7-6
Affected Fleet Natural Gas Consumption under the March 9, 2010 PAR 1193

Year	Difference in Natural Gas Solid Waste Collection Vehicles Between Existing Rule and PAR 1193	PAR 1193 Demand (diesel-fuel equivalence)	PAR 1193 Cumulative Demand (diesel-fuel equivalence)	Number of LNG Stations Expected
2011	21	2,140,000	2,140,000	1
2012	21	2,140,000	4,280,000	2
2013	21	2,130,000	6,410,000	3
2014	360	5,520,000	11,930,000	6
2015	106	2,980,000	14,910,000	7
2016	106	2,980,000	17,890,000	8
2017	105	2,970,000	20,860,000	9
2018	105	2,950,000	23,810,000	10
2019	103	2,930,000	26,740,000	12
2020	101	2,910,000	29,650,000	13
2021	-190	0	29,650,000	0
2022	-190	0	29,650,000	0
2023	-191	0	29,650,000	0
2024	-191	0	29,650,000	0
2025	-189	0	29,650,000	0
2026	-14	0	29,650,000	0
2027	-14	0	29,650,000	0
2028	-14	0	29,650,000	0
2029	-14	0	29,650,000	0
2030	-14	0	29,650,000	0
2031	-14	0	29,650,000	0
2032	-14	0	29,650,000	0
2033	0	0	29,650,000	0
2034	0	0	29,650,000	0
2035	0	0	29,650,000	0

* The number of refueling stations is not additive. Instead, the number of refueling stations represents the number of stations needed for the corresponding number of affected fleet vehicles. The total number of stations needed as a result of PAR 1193 is 13.

Table B-8
Affected Fleet Natural Gas Consumption under the July 2010 PAR 1193

<u>Year</u>	<u>Difference in Natural Gas Solid Waste Collection Vehicles Between Existing Rule and PAR 1193</u>	<u>PAR 1193 Demand (diesel-fuel equivalence)</u>	<u>PAR 1193 Cumulative Demand (diesel-fuel equivalence)</u>	<u>Number of LNG Stations Expected</u>
<u>2011</u>	<u>23</u>	<u>2,142,340</u>	<u>2,142,340</u>	<u>1</u>
<u>2012</u>	<u>31</u>	<u>2,228,203</u>	<u>4,370,543</u>	<u>2</u>
<u>2013</u>	<u>87</u>	<u>2,784,822</u>	<u>7,155,365</u>	<u>3</u>
<u>2014</u>	<u>87</u>	<u>2,784,822</u>	<u>9,940,187</u>	<u>5</u>
<u>2015</u>	<u>87</u>	<u>2,784,822</u>	<u>12,725,008</u>	<u>6</u>
<u>2016</u>	<u>87</u>	<u>2,784,822</u>	<u>15,509,830</u>	<u>7</u>
<u>2017</u>	<u>87</u>	<u>2,784,822</u>	<u>18,294,652</u>	<u>8</u>
<u>2018</u>	<u>110</u>	<u>2,998,795</u>	<u>21,293,447</u>	<u>9</u>
<u>2019</u>	<u>-22</u>	<u>1,676,033</u>	<u>22,969,480</u>	<u>10</u>
<u>2020</u>	<u>478</u>	<u>6,680,520</u>	<u>29,650,000</u>	<u>13</u>
<u>2021</u>	<u>-190</u>		<u>29,650,000</u>	<u>13</u>
<u>2022</u>	<u>-190</u>		<u>29,650,000</u>	<u>13</u>
<u>2023</u>	<u>-190</u>		<u>29,650,000</u>	<u>13</u>
<u>2024</u>	<u>-190</u>		<u>29,650,000</u>	<u>13</u>
<u>2025</u>	<u>-190</u>		<u>29,650,000</u>	<u>13</u>
<u>2026</u>	<u>-15</u>		<u>29,650,000</u>	<u>13</u>
<u>2027</u>	<u>-15</u>		<u>29,650,000</u>	<u>13</u>
<u>2028</u>	<u>-15</u>		<u>29,650,000</u>	<u>13</u>
<u>2029</u>	<u>-15</u>		<u>29,650,000</u>	<u>13</u>
<u>2030</u>	<u>-15</u>		<u>29,650,000</u>	<u>13</u>
<u>2031</u>	<u>-15</u>		<u>29,650,000</u>	<u>13</u>
<u>2032</u>	<u>-15</u>		<u>29,650,000</u>	<u>13</u>

* The number of refueling stations is not additive. Instead, the number of refueling stations represents the number of stations needed for the corresponding number of affected fleet vehicles. The total number of stations needed as a result of PAR 1193 is 13.

Table B-9-7
NOx Emission Inventory in Tons per Year from Affected Solid Waste Collection Vehicles under the Existing Rule

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	1,959	1,800	1,641	1,482	1,323	1,193	1,067	941	815	689	564	438	312	202	136	107	107	107	107	107	107	107	107	107
Private 15-49	220	199	183	171	162	152	143	134	124	115	106	96	87	78	68	61	53	46	39	31	24	17	9.2	
Private <15	72	64	59	55	51	47	43	39	35	31	27	24	21	18	15	13	11	9.1	7.3	6.4	5.5	4.5	4.3	
Public <15	3.7	3.2	2.5	1.7	1.4	1.0	0.70	0.59	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Private Total	2,251	2,063	1,883	1,708	1,535	1,392	1,253	1,113	974	835	697	558	420	298	219	181	172	162	153	145	137	128	121	
Total	2,255	2,066	1,885	1,710	1,537	1,393	1,253	1,114	975	836	697	559	421	298	219	181	172	163	154	145	137	129	121	

Table B-10-8
NOx Emissions in Tons per Year from Affected Solid Waste Collection Vehicles from the March 9, 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	1,959	1,780	1,601	1,422	1,067	878	689	501	312	166	107	107	107	107	107	107	107	107	107	107	107	107	107	107
Private 15-49	220	193	176	163	117	96	76	58	42	25	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
Private <15	72	64	59	55	22	15	11	6.9	4.9	4.1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Public <15	3.7	3.0	2.3	1.6	1.3	0.9	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Private Total	2,251	2,037	1,836	1,640	1,205	989	776	565	359	196	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Total	2,255	2,040	1,838	1,642	1,207	990	776	566	359	196	121	121	121	121	121	121	121	121	121	121	121	121	121	121

Table B-11
NOx Emissions in Tons per Year from Affected Solid Waste Collection Vehicles from the July 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Private 50+	1,959	1,783	1,601	1,376	1,178	995	814	633	492	400	107	107	107	107	107	107	107	107	107	107	107	107	107
Private 15-49	220	197	176	159	142	126	110	96	77	63	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
Private <15	72	61	55	49	44	39	34	29	23	18	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Public <15	3.75	3.05	2.35	1.64	1.29	0.94	0.59	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Private Total	2,251	2,041	1,833	1,584	1,364	1,159	957	758	592	480	120	120	120	120	120	120	120	120	120	120	120	120	120
Total	2,255	2,044	1,835	1,585	1,366	1,160	958	758	593	481	121	121	121	121	121	121	121	121	121	121	121	121	121

Table B-12-9

NOx Emission Reductions in Tons per Year from Affected Solid Waste Collection Vehicles from the March 9, 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total	
Private 50+	0	20	40	60	256	315	377	440	503	523	456	331	205	95	29	0	0	0	0	0	0	0	0	0	3,649
Private 15-49	0	6.1	6.8	8.7	45	56	67	76	83	90	97	87	78	69	59	52	44	37	29	22	15	7.4	0	0	1,034
Private <15	0	0	0	0	29	32	32	32	30	27	23	20	17	14	11	8.7	6.9	5.1	3.3	2.4	1.5	0.55	0.27	0	295
Public <15	0	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73
Private Total	0	26	47	68	330	403	477	548	616	639	576	438	300	177	98	60	51	42	33	24	16	7.9	0.27	0	4,978

Table B-13

NOx Emission Reductions in Tons per Year from Affected Solid Waste Collection Vehicles from the July 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total	
Private 50+	0	18	40	107	145	198	253	308	323	290	456	331	205	95	29	0	0	0	0	0	0	0	0	0	2,795
Private 15-49	0	2.1	6.4	13	20	27	33	38	47	52	97	87	78	69	59	52	44	37	29	22	15	7.4	0	0	834
Private <15	0	2.2	3.6	5.3	7.0	8.1	9.1	10	11	13	23	20	17	14	11	8.7	6.9	5.1	3.3	2.4	1.5	0.55	0.27	0	183
Public <15	0	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.73
Private Total	0	22	50	125	171	232	295	356	382	355	576	438	300	177	98	60	51	42	33	24	16	8	0.27	0	3,812
Total	0	22	50	125	171	232	295	356	382	355	576	438	300	177	98	60	51	42	33	24	16	8	0.27	0	3,813

Table B-14-10

GHG Emission Inventory in 1,000s of Metric Tons from Affected Vehicles per Year under the Existing Rule

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	335	330	326	321	317	312	308	303	299	294	290	285	281	276	272	267	267	267	267	267	267	267	267	267
Private 15-49	29	29	28	28	28	27	27	27	27	26	26	26	26	25	25	25	25	24	24	24	23	23	23	23
Private <15	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Public <15	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Private Total	376	371	367	362	357	352	347	343	338	333	328	324	319	314	309	304	304	304	304	303	303	303	303	303
Total	378	373	368	363	358	354	349	344	339	335	330	325	320	316	311	306	306	305	305	305	305	304	304	304

Table B-15-11
GHG Emissions in 1,000s of Metric Tons per Year from Affected Vehicles from the March 9, 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	335	330	325	320	308	301	294	287	281	274	267	267	267	267	267	267	267	267	267	267	267	267	267	267
Private 15-49	29	28	28	28	26	26	25	25	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23
Private <15	12	12	12	12	11	11	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Public <15	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Private Total	376	371	365	360	346	338	330	323	315	308	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Total	378	372	367	361	347	339	332	324	316	309	301	301	301	301	301	301	301	301	301	301	301	301	301	301

Table B-16
GHG Emissions in 1,000s of Metric Tons per Year from Affected Vehicles from the July 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	335	326	320	313	306	300	293	288	283	279	267	267	267	267	267	267	267	267	267	267	267	267	267	267
Private 15-49	29	28	28	27	27	26	26	25	25	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23
Private <15	12	12	12	12	12	11	11	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Public <15	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Private Total	376	367	360	352	344	337	330	324	319	313	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Total	378	368	361	353	346	339	331	326	320	314	301	301	301	301	301	301	301	301	301	301	301	301	301	301

Table B-17-12
GHG Emission Reductions in Metric Tons per Year from Affected Vehicles from the March 9, 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	0	564	1,128	1,692	9,024	11,280	13,536	15,792	18,048	20,304	22,560	18,048	13,536	9,024	4,512	0	0	0	0	0	0	0	0	0
Private 15-49	0	79	159	238	1,269	1,587	1,904	2,221	2,539	2,856	3,174	2,909	2,645	2,380	2,116	1,851	1,587	1,322	1,058	793	529	264	0	0
Private <15	0	0	0	0	1,009	1,261	1,514	1,766	2,018	2,271	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523
Public <15	0	44	88	132	177	221	265	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309
Private Total	0	643	1,287	1,930	11,303	14,128	16,954	19,780	22,605	25,431	28,257	23,480	18,704	13,927	9,151	4,374	4,110	3,845	3,581	3,316	3,052	2,787	2,523	0
Total	0	687	1,375	2,062	11,479	14,349	17,219	20,089	22,914	25,740	28,566	23,789	19,013	14,236	9,460	4,683	4,419	4,154	3,890	3,625	3,361	3,096	2,832	0

Table B-18
GHG Emission Reductions in Metric Tons per Year from Affected Vehicles from the July 2010 Proposed Amendments to Rule 1193

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Private 50+	0	497	1,129	3,115	5,100	7,086	9,072	11,058	13,449	12,593	22,560	18,048	13,536	9,024	4,512	0	0	0	0	0	0	0	0	0
Private 15-49	0	35	156	357	557	758	958	1,159	1,498	1,641	3,174	2,909	2,645	2,380	2,116	1,851	1,587	1,322	1,058	793	529	264	0	0
Private <15	0	162	325	487	650	812	975	1,137	1,349	1,602	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523	2,523
Public <15	0	44	88	132	177	221	265	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309	309
Private Total	0	695	1,610	3,959	6,307	8,656	11,004	13,353	16,297	15,835	28,257	23,480	18,704	13,927	9,151	4,374	4,110	3,845	3,581	3,316	3,052	2,787	2,523	0
Total	0	739	1,698	4,091	6,484	8,877	11,269	13,662	16,606	16,144	28,566	23,789	19,013	14,236	9,460	4,683	4,419	4,154	3,890	3,625	3,361	3,096	2,832	0

Table B-19-13
Input Variables for Estimating Fugitive Dust Emissions for Construction of One LPG or LNG Refueling Station

Variable	Value	Unit	Reference
Soil Silt Content, s	6.9	%	ASTM Test Method Default
Soil Moisture Content, M or H	15	%	SCAQMD 1993 CEQA Air Quality Hand Book
Soil Density, SD	2430	lbs/CY	Handbook of Solid Waste Management, Table 2.46
Mean Wind Speed, U or G	3.5	mph	A Climatological Air Quality Profile, Table XIII, SCAQMD, December 1981.
Mean Vehicle Speed, S	5	mph	Assumption
Mean Vehicle Weight (loaded), W			
Employee (Light-Duty Trucks - Cat)	2.4	tons	CARB Vehicle Classifications
Haul Truck (Heavy-Heavy Duty Diesel)	20	tons	CARB Vehicle Classifications
Cement Truck (Medium-Heavy Duty Diesel)	15	tons	CARB Vehicle Classifications
Mean Vehicle Wheels, w	4	per vehicle	Assumption
Silt Loading, SL	0.037	g/m2	Final Report – Phase 1 PM10 Fugitive Dust Integration Project, Countess Environmental, July 1996.
Precipitation, p	34	inches/yr	SCAQMD Meteorological Records
Unobstructed Wind, UW	95	%	Assumption
Area Covered by Stockpile, A	0.018	acre	Assumption
Mass of Dirt Moved During 15,000 gal Tank Excavation, I/J	75	tons	Assumption
Mass of Dirt Moved During 15,000 gal Tank Removal, I/J	30	tons	Assumption
Mass of Dirt Moved During Backfill, I/J	180	tons	Assumption

Table B-20-14
Fugitive Emissions Based on Area Disturbed

Activity	Equipment Type	Volume (cu. ft./ Area (acre))	Fugitive PM10 lb/day	Fugitive PM2.5 lb/day	Notes
Driveway Demolition	Backhoe	15	0.01	0.0013	Note: lb/day = 0.00042 x cu. yd. demolished, from SCAQMD CEQA Handbook, 1993, Table A9-9-H
Backfill and Grading	Stock Pile	0.018	0.01	0.0013	Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, EPA, September 1992.

Table B-21-15
Fugitive Emissions Based on Weight of Material Disturbed

Activity	Equipment Type	Weight tons/day	Fugitive PM10 lb/day	Fugitive PM2.5 lb/day	Note
Tank Excavation	Backhoe	75	0.0000006	0.00000012	See SCAQMD CEQA Handbook, 1993, Table A9-9-G
Tank Removal	Backhoe	30	0.0000014	0.00000029	See SCAQMD CEQA Handbook, 1993, Table A9-9-G
Backfill and Grading	Backhoe	180	0.0000002	0.00000005	See SCAQMD CEQA Handbook, 1993, Table A9-9-G

Table B-22-16
Input Variables for Estimating Combustion Emissions from Construction of One LPG or LNG Refueling Station

Construction Activity	Equipment Type	Pieces of Equipment	Total Hours	Hrs/day	Crew Size	Comments
Tank Excavation					3	
Driveway Demolition	Tractors/Loaders/Backhoes	1	8	8		12'x54'x6"
Excavation	Tractors/Loaders/Backhoes	1	2	2		
Concrete Removal	Tractors/Loaders/Backhoes	1	2	2		Load 15 cu. yd.
Tank Degassing					3	
All	Generator Sets	1	2	2		
Tank Removal					3	
All	Tractors/Loaders/Backhoes	1	8	8		
Backfill and Grading					3	
All	Tractors/Loaders/Backhoes	1	8	8		Backfill 120 cu. yd.

Table B-22-16 (Concluded)
Input Variables for Estimating Combustion Emissions from Construction of One LPG or LNG Refueling Station

Construction Activity	Equipment Type	Pieces of Equipment	Total Hours	Hrs/day	Crew Size	Comments
Paving All	Cement and Mortar Mixers	1	4	4	3	
LPG System Installation Pour Pad for LPG System	Cement and Mortar Mixers	1	8	8	3	
All	Generator Sets	1	8	8		

Table B-23-17
Construction Vehicles

Vehicle	Number of One-Way Trips/Day	Trip Length (miles)	Start-Ups*/Trip	Total Miles	Total Start-Ups	Vehicle Weight	Trip Purpose
Employee (Light-Duty Trucks - Cat)	6	20	1	120	6	2.4	Commuting
Haul Truck (Heavy-Heavy Duty Diesel)	2	25	1	50	2	20	Dispose of debris
Employee (Light-Duty Trucks - Cat)	6	20	1	120	6	2.4	Commuting
Employee (Light-Duty Trucks - Cat)	6	20	1	120	6	2.4	Commuting
Haul Truck (Heavy-Heavy Duty Diesel)	2	25	1	50	2	20	Remove old tank
Employee (Light-Duty Trucks - Cat)	6	20	1	120	6	2.4	Commuting
Haul Truck (Heavy-Heavy Duty Diesel)	20	25	1	500	20	20	Deliver 120 cu. yd.
Employee (Light-Duty Trucks - Cat)	6	20	1	120	6	2.4	Commuting
Cement Truck (Medium-Heavy Duty Diesel)	2	25	1	50	2	15	Paving
Employee (Light-Duty Trucks - Cat)	6	20	1	120	6	2.4	Commuting
Cement Truck (Medium-Heavy Duty Diesel)	2	25	1	50	2	15	Pour pad
Haul Truck (Heavy-Heavy Duty Diesel)	2	25	1	50	2	20	Deliver and install tank

Table B-24-18
OFFROAD2007 Construction Equipment Combustion Emission Factors for 2010

Description	CO, lb/hr	VOC, lb/hr	NOx, lb/hr	SOx, lb/hr	PM10, lb/hr	PM2.5, lb/hr	CO2, lb/hr	CH4, lb/hr	<u>N2O</u> lb/hr
Tractors/Loaders/Backhoes	0.393	0.102	0.675	0.001	0.052	0.048	66.805	0.009	<u>0.00866</u>
Generator Sets	0.329	0.096	0.644	0.001	0.040	0.036	60.993	0.009	<u>0.00815</u>
Cement and Mortar Mixers	0.043	0.010	0.060	0.000	0.004	0.003	7.248	0.001	<u>0.00086</u>
Generator Sets	0.329	0.096	0.644	0.001	0.040	0.036	60.993	0.009	<u>0.00815</u>
Welders	0.225	0.081	0.292	0.000	0.027	0.025	25.603	0.007	<u>0.00683</u>

SCAB values provided by the ARB, Oct 2006. Assumed equipment is diesel fueled except the welders which are powered by the generator. N2O values estimated from ratio of N2O and CH4 EF presented for on-road vehicles in the ARB Regulation for Mandatory Reporting of GHG Emissions.

Table B-25-19
EMFAC2007 On-Road Mobile Source Construction Emission Factors for 2010

Vehicle Type	CO lb/mile	VOC lb/mile	NOx lb/mile	SOx lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO2 lb/mile	CH4 lb/mile	<u>N2O</u> lb/mile
Haul Truck (Heavy-Heavy Duty Diesel)	0.0120	0.0030	0.0382	0.00004	0.0018	0.0016	4.2112	0.00014	<u>0.00013</u>
Employee (Light-Duty Trucks - Cat)	0.0083	0.0009	0.0009	0.00001	0.0001	0.0001	1.0957	8.1E-05	<u>7.7E-05</u>
Cement Truck (Medium-Heavy Duty Diesel)	0.0184	0.0026	0.0206	0.00003	0.0008	0.0006	2.7322	0.00013	<u>0.00012</u>

2010 fleet year. <http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html>. N2O values from ARB Regulation for Mandatory Reporting of GHG Emissions.

Table B-26-20
Construction Equipment Emissions

Construction Activity	Equipment Type	CO lbs/day	VOC lbs/day	NOx lbs/day	SOx lbs/day	Combustion PM10 lbs/day	Fugitive PM10 lbs/day	Total PM10 lb/day	Combustion PM2.5 lb/day	Fugitive PM2.5 lb/day	Total PM2.5 lb/day	CO2 lbs/day	CH4 lbs/day	<u>N2O</u> lbs/day
Tank Excavation														
Driveway Demolition	Tractors/Loaders/Backhoes	3.14	0.82	5.40	0.01	0.42	0.01	0.42	0.38	0.00	0.38	534	0.07	<u>0.069</u>
Excavation	Tractors/Loaders/Backhoes	0.79	0.20	1.35	0.00	0.10	0.00	0.10	0.10	1.163E-07	0.10	134	0.02	<u>0.017</u>
Concrete Removal	Tractors/Loaders/Backhoes	0.79	0.20	1.35	0.00	0.10	negligible	0.10	0.10	negligible	0.10	134	0.02	<u>0.017</u>
	Subtotal Day 1	4.72	1.22	8.10	0.01	0.62	0.01	0.63	0.57	0.00	0.58	802	0.11	

Table B-26-20 (Concluded)
Construction Equipment Emissions

Construction Activity	Equipment Type	CO lbs/day	VOC lbs/day	NOx lbs/day	SOx lbs/day	Combustion PM10 lbs/day	Fugitive PM10 lbs/day	Total PM10 lb/day	Combustion PM2.5 lb/day	Fugitive PM2.5 lb/day	Total PM2.5 lb/day	CO2 lbs/day	CH4 lbs/day	<u>N2O lbs/day</u>
Tank Degassing														
All	Generator Sets	0.66	0.19	1.29	0.00	0.08	negligible	0.08	0.07	negligible	0.07	122	0.02	<u>0.016</u>
	Subtotal Day 2	0.66	0.19	1.29	0.00	0.08	negligible	0.08	0.07	negligible	0.07	924	0.13	<u>0.069</u>
Tank Removal														
All	Tractors/Loaders/Backhoes	3.14	0.82	5.40	0.01	0.42	0.00	0.42	0.38	2.91E-07	0.38	534	0.07	<u>0.069</u>
	Subtotal Day 3	3.14	0.82	5.40	0.01	0.42	0.00	0.42	0.38	0.00	0.38	1,458	0.20	<u>0.069</u>
Backfill and Grading														
All	Tractors/Loaders/Backhoes	3.14	0.82	5.40	0.01	0.42	0.00	0.42	0.38	4.85E-08	0.38	534	0.07	<u>0.069</u>
	Stock Pile	N/A	N/A	N/A	N/A	N/A	0.01	0.01		0.00	0.00			
	Subtotal Day 4	3.14	0.82	5.40	0.01	0.42	0.01	0.42	0.38	0.00	0.38	534	0.07	<u>0.069</u>
Paving														
All	Cement and Mortar Mixers	0.17	0.04	0.24	0.00	0.01	negligible	0.01	0.01	negligible	0.01	29	0.00	<u>0.0034</u>
	Subtotal Day 5	0.17	0.04	0.24	0.00	0.01	negligible	0.01	0.01	negligible	0.01	563	0.08	<u>0.0034</u>
LPG System Installation														
Pour Pad for LPG System	Cement and Mortar Mixers	0.35	0.08	0.48	0.00	0.03	negligible	0.03	0.03	negligible	0.03	58	0.01	<u>0.0069</u>
All	Generator Sets	2.63	0.77	5.15	0.01	0.32	negligible	0.32	0.29	negligible	0.29	488	0.07	<u>0.065</u>
	Subtotal Day 6	2.98	0.85	5.63	0.01	0.35	0.00	0.35	0.32	0.00	0.32	546	0.08	<u>0.072</u>

Table B-27-21
Off-Site Motor Vehicle Emissions

Activity	Vehicle Type	CO lbs/day	VOC lbs/day	NOx lbs/day	SOx lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO2 lbs/day	CH4 lbs/day	<u>N2O lbs/day</u>
Tank Excavation	Employee (Light-Duty Trucks - Cat)	0.99	0.11	0.11	0.00	0.01	0.01	131.48	0.01	<u>0.0092</u>
Tank Excavation	Haul Truck (Heavy-Heavy Duty Diesel)	0.60	0.15	1.91	0.00	0.09	0.08	210.56	0.01	<u>0.0067</u>
	Subtotal Day 1	1.59	0.26	2.02	0.00	0.10	0.09	342.04	0.02	<u>0.016</u>
Tank Degassing	Employee (Light-Duty Trucks - Cat)	0.99	0.11	0.11	0.00	0.01	0.01	131.48	0.01	<u>0.0092</u>
	Subtotal Day 2	0.99	0.11	0.11	0.00	0.01	0.01	131.48	0.01	<u>0.0092</u>
Tank Removal	Employee (Light-Duty Trucks - Cat)	0.99	0.11	0.11	0.00	0.01	0.01	131.48	0.01	<u>0.0092</u>
Tank Removal	Haul Truck (Heavy-Heavy Duty Diesel)	0.60	0.15	1.91	0.00	0.09	0.08	210.56	0.01	<u>0.0067</u>
	Subtotal Day 3	1.59	0.26	2.02	0.00	0.10	0.09	342.04	0.02	<u>0.016</u>

Table B-27-21 (Concluded)
Off-Site Motor Vehicle Emissions

Activity	Vehicle Type	CO lbs/day	VOC lbs/day	NO _x lbs/day	SO _x lbs/day	PM10 lbs/day	PM2.5 lbs/day	CO ₂ lbs/day	CH ₄ lbs/day	N ₂ O lbs/day
Backfill and Grading	Employee (Light-Duty Trucks - Cat)	0.99	0.11	0.11	0.00	0.01	0.01	131.48	0.01	<u>0.0092</u>
Backfill and Grading	Haul Truck (Heavy-Heavy Duty Diesel)	5.98	1.52	19.11	0.02	0.92	0.80	2105.60	0.07	<u>0.067</u>
	Subtotal Day 4	6.97	1.63	19.22	0.02	0.93	0.81	2237.08	0.08	<u>0.076</u>
Paving	Employee (Light-Duty Trucks - Cat)	0.99	0.11	0.11	0.00	0.01	0.01	131.48	0.01	<u>0.0059</u>
Paving	Cement Truck (Medium-Heavy Duty Diesel)	0.92	0.13	1.03	0.00	0.04	0.03	136.61	0.01	<u>0.0092</u>
	Subtotal Day 5	1.91	0.24	1.14	0.00	0.05	0.04	268.09	0.02	<u>0.015</u>
LPG System Installation	Employee (Light-Duty Trucks - Cat)	0.99	0.11	0.11	0.00	0.01	0.01	131.48	0.01	<u>0.0092</u>
LPG System Installation	Cement Truck (Medium-Heavy Duty Diesel)	0.92	0.13	1.03	0.00	0.04	0.03	136.61	0.01	<u>0.0059</u>
LPG System Installation	Haul Truck (Heavy-Heavy Duty Diesel)	0.60	0.15	1.91	0.00	0.09	0.08	210.56	0.01	<u>0.0067</u>
	Subtotal Day 6	2.51	0.39	3.05	0.00	0.14	0.12	478.65	0.02	<u>0.022</u>

Table B-28-22
Peak Daily LPG or LNG Refueling Station Construction Onsite & Off-Site Criteria Emissions

Description	CO lbs/day	VOC lbs/day	NO _x lbs/day	SO _x lbs/day	PM10 lbs/day	PM2.5 lbs/day
Single Facility	10.11	2.45	24.62	0.03	1.35	1.19
Three Facilities	30.34	7.34	73.86	0.08	4.05	3.57

Table B-29-23
Peak Daily LPG or LNG Refueling Station Construction Onsite & Off-Site GHG Emissions

Description	CO ₂ metric ton/station	CH ₄ metric ton/station	N ₂ O metric ton/station	CO ₂ eq metric ton/station
Single Station	12.6	0.001	0.0009	12.59 <u>12.9</u>
13 Stations	37.7	0.01	0.012	37.98 <u>41.7</u>
30-Year Average	1.3	0.00	0.00040	1.27 <u>1.4</u>

Table B-30-24
Increase In Fuel Delivery Trips

Heavy Duty Vehicles	Value
Number of Vehicles	2,965
Single Truck Diesel Fuel Consumption (gal/year)	10,000
Total Diesel Fuel Consumption (gal/year)	29,650,000
Conversion, LNG gal/diesel gal	1.7
Single Truck LNG Fuel Consumption (gal/year)	17,000
Total LNG Fuel Consumption (gal/year)	50,405,000
Diesel Tanker Truck Capacity, gal	7,250
LNG Tanker Truck Capacity, gal	10,000
Number of Diesel Tanker Trucks per Year	4,090
Number of LNG Tanker Trucks per Year	5,041
Difference in Annual Trips	951
Difference in Daily Trips	4

Table B-31-25
EMFAC2007 Fuel Worker Commute and Delivery Truck Emission Factors for 2010

Description	CO lb/mile	VOC* lb/mile	NOx lb/mile	SOx lb/mile	PM10 lb/mile	PM2.5 lb/mile	CO2 lb/mile	CH4 lb/mile	N2O lb/mile
Heavy-Duty Truck	0.0120	0.0030	0.0382	0.00004	0.0018	0.0016	4.2112	0.000142	0.000133
Employee	0.0083	0.0009	0.0009	0.00001	0.0001	0.0001	1.0957	8.1E-05	7.67E-05

2010 fleet year. <http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html>. N2O values from ARB Regulation for Mandatory Reporting of GHG Emissions.

Table B-32-26
Worker Commute and Fuel Delivery Truck Criteria Emissions

Description	Air Basin	Trips per Day	Miles per Trip	Miles per Day	CO lb/day	VOC lb/day	NOx lb/day	SOx lb/day	PM10 lb/day	PM2.5 lb/day
Delivery Truck	SCAB	4	80	294	3.5	0.9	11.2	0.01	0.5	0.5
Worker Commute	SCAB	13	40	520	4.3	0.5	0.5	0.01	0.05	0.03
Delivery Truck	MDAB	4	360	1,440	17.2	4.4	55.0	0.06	2.6	2.3

Table B-33-27
Fuel Delivery Truck GHG Emissions from March 9, 2010 PAR 1193

Year	Fuel Consumption, gallons diesel fuel eq	Natural Gas Fuel Consumption, gallons	Diesel Annual Trips	LNG Annual Trips	Difference in Annual Trips	Distance, mile/trip	CO2, lb/year	CH4, lb/year	<u>N2O, lb/year</u>	CO2 eq metric ton/year
2011	2,140,000	3,638,000	296	364	68	500	143,181	4.8	<u>4.5</u>	65 <u>66</u>
2012	4,280,000	7,276,000	591	728	137	500	288,468	9.7	<u>9.2</u>	131 <u>132</u>
2013	6,410,000	10,897,000	885	1,090	205	500	431,649	15	<u>14</u>	196 <u>198</u>
2014	11,930,000	20,281,000	1,646	2,029	383	500	806,446	27	<u>26</u>	366 <u>370</u>
2015	14,910,000	25,347,000	2,057	2,535	478	500	1,006,478	34	<u>32</u>	457 <u>461</u>
2016	17,890,000	30,413,000	2,468	3,042	574	500	1,208,616	41	<u>38</u>	549 <u>554</u>
2017	20,860,000	35,462,000	2,878	3,547	669	500	1,408,648	48	<u>45</u>	639 <u>646</u>
2018	23,810,000	40,477,000	3,285	4,048	763	500	1,606,575	54	<u>51</u>	729 <u>736</u>
2019	26,740,000	45,458,000	3,689	4,546	857	500	1,804,502	61	<u>57</u>	819 <u>827</u>
2020	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2021	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2022	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2023	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2024	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2025	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2026	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2027	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2028	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2029	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2030	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2031	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2032	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>
2033	29,650,000	50,405,000	4,090	5,041	951	500	2,002,428	68	<u>64</u>	909 <u>918</u>

The distance from the Ports to Los Angeles is 25 miles (50 miles round trip). The distance between Topock, Arizona and Los Angeles is 275 miles (550 miles round trip). The difference is 500 miles round trip.

Table B-34
Fuel Delivery Truck GHG Emissions for July 2010 PAR 1193

<u>Year</u>	<u>Fuel Consumption, gallons diesel fuel eq</u>	<u>Natural Gas Fuel Consumption, gallons</u>	<u>Diesel Annual Trips</u>	<u>LNG Annual Trips</u>	<u>Difference in Annual Trips</u>	<u>Distance, mile/trip</u>	<u>CO2, lb/year</u>	<u>CH4, lb/year</u>	<u>N2O, lb/year</u>	<u>CO2 eq metric ton/year</u>
2011	<u>2,142,340</u>	<u>3,641,978</u>	<u>296</u>	<u>365</u>	<u>69</u>	<u>500</u>	<u>145,287</u>	<u>5</u>	<u>4.61</u>	<u>67</u>
2012	<u>4,370,543</u>	<u>7,429,924</u>	<u>603</u>	<u>743</u>	<u>140</u>	<u>500</u>	<u>294,784</u>	<u>10</u>	<u>9.36</u>	<u>135</u>
2013	<u>7,155,365</u>	<u>12,164,120</u>	<u>987</u>	<u>1,217</u>	<u>230</u>	<u>500</u>	<u>484,289</u>	<u>16</u>	<u>15.37</u>	<u>222</u>
2014	<u>9,940,187</u>	<u>16,898,317</u>	<u>1,372</u>	<u>1,690</u>	<u>318</u>	<u>500</u>	<u>669,582</u>	<u>23</u>	<u>21.25</u>	<u>307</u>
2015	<u>12,725,008</u>	<u>21,632,514</u>	<u>1,756</u>	<u>2,164</u>	<u>408</u>	<u>500</u>	<u>859,086</u>	<u>29</u>	<u>27.27</u>	<u>394</u>
2016	<u>15,509,830</u>	<u>26,366,711</u>	<u>2,140</u>	<u>2,637</u>	<u>497</u>	<u>500</u>	<u>1,046,485</u>	<u>35</u>	<u>33.21</u>	<u>480</u>
2017	<u>18,294,652</u>	<u>31,100,908</u>	<u>2,524</u>	<u>3,111</u>	<u>587</u>	<u>500</u>	<u>1,235,989</u>	<u>42</u>	<u>39.23</u>	<u>567</u>
2018	<u>21,293,447</u>	<u>36,198,859</u>	<u>2,938</u>	<u>3,620</u>	<u>682</u>	<u>500</u>	<u>1,436,021</u>	<u>48</u>	<u>45.58</u>	<u>658</u>
2019	<u>22,969,480</u>	<u>39,048,116</u>	<u>3,169</u>	<u>3,905</u>	<u>736</u>	<u>500</u>	<u>1,549,724</u>	<u>52</u>	<u>49.19</u>	<u>710</u>
2020	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2021	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2022	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2023	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2024	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2025	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2026	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2027	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2028	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2029	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2030	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2031	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2032	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>
2032	<u>29,650,000</u>	<u>50,405,000</u>	<u>4,090</u>	<u>5,041</u>	<u>951</u>	<u>500</u>	<u>2,002,428</u>	<u>68</u>	<u>63.55</u>	<u>918</u>

Table B-35-28
Natural Gas Polycyclic Aromatic Hydrocarbon Toxic Air Contaminant Emission Factors

Toxic Air Contaminant	CBD Test Cycle		CBD Tunnel	
	DDC with Oxidation Catalyst ug/mi	Cwest with Oxidation Catalyst ug/mi	DDC with Oxidation Catalyst ug/mi	Cwest with Oxidation Catalyst ug/mi
Naphthalene	27	36	56	39
Benz[a]anthracene	0.13	0.11	0.11	0.12
Chrysene	0.13	0.36	0.08	
Benzo[b]fluoranthene		0.14		0.13
Indeno(1,2,3-cd)pyrene	0.13			

Okamoto, Robert, et al., Unregulated Emissions from Compressed Natural Gas Transit Bus Configured with and without Oxidation Catalyst, Environmental Science and Technology, Vol. 40, No. 1, 2006.

Table B-36-29
BTEX Ratios Used to Estimate Individual Emission Factors from Know Benzene Emission Factor

Toxic Air Contaminant	CBD Test Cycle	CBD Tunnel
	DDC with Oxidation Catalyst mg/mi	DDC with Oxidation Catalyst mg/mi
Formaldehyde	56.8	
Acetaldehyde	19.4	
Benzene	1.86	0.44
Ethylbenzene	0.31	1.96

Ayala, Alberto, et al., Oxidation Catalyst Effect on CNG Transit Bus Emissions, Society of Automotive Engineers of Japan, JSAE 20030101, SAE 2003-01-1900, 2003.

Table B-37-30
Natural Gas-Fueled Solid Waste Collection Vehicle Weighted Toxicity Factors

Toxic Air Pollutant	Diesel Consumption, gal/yr	Diesel Fuel Efficiency, mile/gal	Diesel Distance, mile/yr	CNG Distance, mile/yr	EF, g/mile	Emissions, lb/yr	Cancer Potency Factor, (mg/kg-d) ⁻¹	Weighted Toxicity Factor
Naphthalene	10,000	4	40,000	43,235	0.000056	0.01	0.12	6.41E-04
Benz[a]anthracene	10,000	4	40,000	43,235	0.00000013	0.00	0.39	4.83E-06
Chrysene	10,000	4	40,000	43,235	0.00000036	0.00	0.039	1.34E-06
Benzo[b]fluoranthene	10,000	4	40,000	43,235	0.00000014	0.00	0.39	5.20E-06
Indeno(1,2,3-cd)pyrene	10,000	4	40,000	43,235	0.00000013	0.00	0.39	4.83E-06
Formaldehyde	10,000	4	40,000	43,235	0.0568	5.41	0.021	1.14E-01
Acetaldehyde	10,000	4	40,000	43,235	0.0194	1.85	0.01	1.85E-02
Benzene	10,000	4	40,000	43,235	0.00186	0.18	0.1	1.77E-02
Ethylbenzene	10,000	4	40,000	43,235	0.00196	0.19	0.0087	1.63E-03
Total TACs from CNG								0.15

Diesel consumption from PAR 1193 Staff Report assumptions.

Diesel fuel efficiency from Final PE for Fleet Rules

CNG distance, mile year includes the June 2000 Final PEA assumptions of an eight percent increase in distance because of differences in payload and 35 mile increase from fuel centralization.

Weighted toxicity factor is the emissions per year multiplied by the cancer potency factor.

Table B-38-31
Diesel-Fueled Solid Waste Collection Vehicle Weighted Toxicity Factors

Consumption, gal/yr	Rate Factor, bhp-hr/gal	EF, g/bhp-hr	PM, lb/year	Cancer Potency Factor, (mg/kg-d) ⁻¹	Weighted Toxicity Factor
10,000	18.5	0.001	0.41	1.1	0.45

Diesel consumption from PAR 1193 Staff Report assumptions.

Rate Factor from Staff Report assumptions.

Emission factor from a review of ARB Executive Orders (A-021-0524, A-242-0057-1, A-242-0056-1, A-021-0523, A-004-0333-1, A-013-0197, A-021-04798 and A-021-0483-1)

Weighted toxicity factor is the emissions per year multiplied by the cancer potency factor.

Table B-39-32
Energy Used by Construction Equipment to Convert Diesel Refueling Stations to LNG Refueling Stations

Construction Activity	Equipment Type	Equipment HP	Pieces of Equipment	Total Hours	Diesel Usage
LNG Fueling Station					
Tank Excavation					
Driveway Demolition	Backhoe	79	1	8	41.71
Excavation	Backhoe	79	1	2	10.43
Concrete Removal	Backhoe	79	1	2	10.43
Tank Degassing					
All	IC Engine	200	1	2	26.40
Tank Removal					
All	Backhoe	79	1	8	41.71
Backfill and Grading					
All	Backhoe	79	1	8	41.71
Paving					
All	Cement Truck	161	1	4	42.50
LNG System Installation					
Pour Pad for LPG System	Cement Truck	161	1	8	85.01
All	Generator Set < 50 HP	22	1	8	11.62
				Total	311.52

Used conversion factors of 0.066 gal/BHP-hr for diesel equipment. SCAQMD 1993 CEQA Air Quality Handbook.

Table B-40-33
Energy Used by On-Road Vehicles to Convert Diesel Refueling Stations to LNG Refueling Stations

Construction Activity	Vehicle Type	Crew Size	Number of One-Way trips/day	Trip Length miles	Total Miles per Day	Fuel Efficiency miles/gal	Diesel Usage gal/day
Tank Excavation	Employee (Light-Duty Trucks - Cat)	3	6	20	120	20	
Tank Excavation	Haul Truck (Heavy-Heavy Duty Diesel)		2	25	50	10	5
Tank Degassing	Employee (Light-Duty Trucks - Cat)	3	6	20	120	20	
Tank Removal	Employee (Light-Duty Trucks - Cat)	3	6	20	120	20	
Tank Removal	Haul Truck (Heavy-Heavy Duty Diesel)		2	25	50	10	5
Backfill and Grading	Employee (Light-Duty Trucks - Cat)	3	6	20	120	20	
Backfill and Grading	Haul Truck (Heavy-Heavy Duty Diesel)		20	25	500	10	50
Paving	Employee (Light-Duty Trucks - Cat)	3	6	20	120	20	
Paving	Cement Truck (Medium-Heavy Duty Diesel)		2	25	50	10	5
LNG System Installation	Employee (Light-Duty Trucks - Cat)	3	6	20	120	20	
LNG System Installation	Cement Truck (Medium-Heavy Duty Diesel)		2	25	50	10	5
LNG System Installation	Haul Truck (Heavy-Heavy Duty Diesel)		2	25	50	10	5
						Total	75

Assumed that gasoline-fueled vehicles get 20 miles to the gallon. Assumed that diesel-fueled vehicles get 10 miles to the gallon.

Table B-41-34
Energy Used by On-Road Vehicles to Deliver LNG to LNG Refueling Stations

Trips per Day	Miles per Trip	Miles per Day	Fuel Efficiency miles/gal	Daily Diesel Usage gal	Annual Diesel Usage gal
4	340	4,080	10	140	36,400

Table B-42-35
Energy by Electric Compressors at LNG Refueling Stations

Use, hr/yr	Electricity Use per Station kWh/day	Electricity Use at 13 Stations, kWh/year	Total Electricity Use, MW/year
250	960	3,120,000	0.24

Assumed fuel usage rate for two 300-hp electric-powered compressors of 960 KWh/day.

Table B-43-36
Total Projected Fuel Usage for Natural Gas Vehicles

Description	Annual Usage	Daily Usage
Usage, gallon	50,405,000	193,865
Usage, mmBtu	3,674,525	14,133
Usage, mmscf	3,499.55	13

LNG net/low heating value 72,900 Btu/gal

Natural gas heating value = 1,050 mmBtu per mmscf

APPENDIX C

COMMENT LETTER AND RESPONSE TO COMMENTS

California Refuse Recycling Council - Southern District
Inland Empire Disposal Association
Los Angeles County Waste Management Association
Solid Waste Association of Orange County

April 15, 2010

James Koizumi
C/O Office of Planning, Rule Development,
and Area Sources
South Coast Air Quality Management District
21885 Copley Drive
Diamond Bar, CA 91765-4178

RECEIVED

APR 15 2010

By Public Info. Center 9:36

Subject: Comments on Draft Subsequent Environmental Assessment for Proposed Amended Rule 1193 – Clean On-Road Residential and Commercial Refuse collection Vehicles

Dear Mr. Koizumi:

The California Refuse Recycling Council – Southern District, Inland Empire Disposal Association, Los Angeles County Waste Management Association, and the Solid Waste Association of Orange County are local non-profit trade associations comprised of companies involved in the collection, handling, processing, disposing and marketing of recyclables, compostables and wastes. We are deeply committed to working with the South Coast Air Quality Management District (SCAQMD) to address environmental impacts affecting the development of Proposed Amended Rule 1193.

1-1

Pursuant to our review and analysis of potential adverse environmental impacts that could be generated from the proposed amended Rule 1193 project, we find that the Draft Subsequent Environmental Assessments fails to adequately address environmental impacts in the following areas:

1. Creation of significant hazards to the public and the environment through failure to adequately prepare for reasonably foreseeable upsets and accident conditions involving the release of hazardous materials into the environment brought about by the lack of natural gas and/or green gas (biogas) to fuel roll-off and transfer trucks during times of emergencies and disasters.
2. Impairment of implementation of/or physical interference with adopted emergency response plans or emergency evacuation plans brought about by 100% replacement of roll-off and transfer trucks with alternative-fueled vehicles that cannot operate because they lack fuel during emergencies and disasters.
3. Creating potential exposure to sensitive receptors to substantial pollutant concentrations by not constructing an emission inventory that identifies government entities which are both subject to and exempt from Rule 1193. Further, the emissions inventory must include information on truck types and vehicle counts for waste collection trucks, roll-off trucks, and transfer vehicles that correspond to each government entities waste collection services and emergency preparedness requirements.

1-2

1-3

1-4

4. The need for a discussion to address impacts on emergency response and disaster relief brought about by requiring government entities to have 100% compliant alternative-fueled waste collection service vehicles that interfere with compliance of federal, state, and local statutes and regulations related to solid and hazardous waste generation and disposal that exceeds the capacity of designated landfills. This is a significant impact that cannot be mitigated with the use of 100% compliant alternative-fueled waste collection service vehicles.

1-5

As you are aware, many of our members have been active participants with SCAQMD staff in developing rules, regulations and programs that improve air quality in the South Coast Air Basin. We plan to continue this relationship with our government entity partners and the SCAQMD staff to address environmentally sensitive issues critical to the expeditious implementation of PAR 1193.

Please feel free to contact me at (951) 288-5049 if you have questions, need clarification, or would like to discuss our comments further.

Sincerely,



Paul Ryan for:
California Refuse Recycling Council – Southern District
Inland Empire Disposal Association
Los Angeles County Waste Management Association
Solid Waste Association of Orange County

cc: CRRG-SD, IEDA, LACWMA, and SWAOC members
Henry Hogo, SCAQMD
Dean Saito, SCAQMD
David Coel, SCAQMD

Comment Letter 1
California Refuse Recycling Council – Southern District
Inland Empire Disposal Association
Los Angeles County Waste Management Association
Solid Waste Association of Orange County
Dated April 15, 2010

Response to Comment 1-1

The commenter asserts that the Draft Subsequent Environmental Assessment (SEA) fails to adequately address several environmental topics. Specific comments on the environmental analysis are provided in subsequent comments. SCAQMD staff disagrees with the assertion that the Draft SEA fails to adequately address several environmental topics and addresses the specific comments in detail in the following responses.

Response to Comment 1-2

The commenter indicated that there could be a potential release of hazardous materials into the environment because of a lack of natural gas and/or green gas (biogas) to fuel roll-off and transfer trucks in the event of “reasonably foreseeable upsets and accident conditions.” The comment does not specifically identify what constitutes reasonably foreseeable upsets and accident conditions or what hazardous materials would be released into the environment. In addition, the nature of the emergency or disaster is not mentioned or described. Lastly, the commenter did not provide any rationale, basis or data to support why there would be a lack of natural gas and/or green gas (biogas).

Historically, emergencies have typically consisted of small, localized or isolated natural disasters (structural damage to buildings, localized earthquake damage, etc.), which could be addressed by alternative-fuel refueling trucks in nearby areas that are not affected by the emergency or disaster. It is assumed that the comment is related to a large, wide-spread disaster that would prevent natural gas or biogas delivery over a long period of time.

With regard to emergency vehicles being stranded for lack of CNG fuel, emergency vehicles are specifically exempt from the proposed fleet vehicle rules (Rule 1191(f)(1) and Rule 1196(f)(1)).

In the event of a large disaster scenario that could prevent natural gas fueling trucks from providing temporary natural gas fueling capacities or that disrupts a large portion of the natural gas distribution infrastructure, such a large, wide-spread disaster would also likely affect diesel fuel infrastructure and deliveries. LNG is supplied from outside of the district (Boron, California or Topock, Arizona) and is imported into the district by truck. If there is an emergency large enough to disrupt the supply of natural gas imported into the district, Southern California Gas Company has natural gas refueling vehicles that can be used for to fuel Rule 1193-compliant vehicles. The two major suppliers of liquefied natural gas (LNG) in the region (Boron, California or Topock, Arizona) also have mobile natural gas refueling vehicles in their fleet of vehicles. These mobile natural gas refueling vehicles are referred to as ORCA LNG refuelers. Each company has two ORCAs available in their fleet of vehicles. In addition there exist two TrendFuel CNG tube trailers in the greater Los Angeles area operated by the Gas Company and Sunline Transit.

The natural gas pipeline distribution network into Southern California consists of several feeds into the system from the east, north, south and northern coast. Safety valves are built into natural gas line feeds for maintenance and to respond to or isolate leaks or pipeline failures. Once a natural gas line break is isolated – the system can supply natural gas from alternative feeds.

The California Seismic Safety Commission Improving Natural Gas Safety in Earthquakes, adopted July 11, 2002, included the following table that shows that natural gas service was restored within two weeks for three recent earthquakes:

Earthquake	Number of Customer Outages	Restoration Time
Northridge	120,000	12 days
Loma Prieta	156,355	9 days
Whittier	20,600	10 days

California Seismic Safety Commission Improving Natural Gas Safety in Earthquakes adopted July 11, 2002, http://www.seismic.ca.gov/pub/CSSC_2002-03_Natural%20Gas%20Safety.pdf.

The Northridge earthquake had a movement magnitude of 6.7, Loma Prieta had a magnitude of 7.2 and Whittier had a magnitude of 5.9, followed by an aftershock of 5.3. The report also notes that approximately 9,000 customers remained without service one month after the earthquake because of building damage or inability to access buildings or facilities. Based on discussions with gas company personnel, outages have been localized such that other natural gas refueling systems could support areas where natural gas service is interrupted during such emergencies.

There are over 100 CNG and LNG stations in the district. The probability of all the stations going offline at the same time is unlikely. In addition, mutual assistance programs with other stations (e.g. City of Los Angeles with their 10 LNG/CNG stations, Clean Energy, etc.) can assist other jurisdictions in the event of a major emergency/shutdown. Such assistance can include renting generators and keeping stations operational.

Diesel fuel is supplied by tank farms and refineries within the district that often depend on underground pipelines, which may also be disrupted in the event of a disaster or emergency that would affect underground natural gas lines. Disasters that would disrupt natural gas delivery by truck or pipeline would also disrupt diesel delivery by truck or pipeline. As a result, emergencies or disasters that could disrupt the natural gas supply infrastructure would also likely also disrupt the diesel fuel infrastructure.

If an emergency is large enough to disrupt fuel and roads, it is likely that the governor would declare a state of emergency in the area. The governor’s powers include the coordination of the state emergency plan and programs to mitigate the effects of an emergency (California Government Code §8570), and authority to suspend statutes (California Government Code §8571), and commandeer private property (California Government Code §8572). In addition, SCAQMD Rule 118 – Emergencies, allows the SCAQMD Executive Officer to waive requirements of any SCAQMD rule during a governor-declared emergency. Therefore, if alternative-fuel is not available, the governor could commandeer conventionally fueled vehicles and the Executive Officer could waive the requirement to use alternative fuel refuse trucks during emergencies.

Three sources of conventionally fueled refuse collection vehicles that would not be subject to PAR 1193 could be commandeered during an emergency. Recently, as part of staff’s effort to develop amendments to Rule 1193, a survey was conducted of private and public fleets. The survey identified that fleets with less than 15 waste collection vehicles totaled approximately 290 diesel collection vehicles. In accordance with staff’s latest proposal, these diesel collection vehicles would likely be unaffected by Rule 1193 and would likely remain diesel vehicles. Second, municipalities where only a permit to operate is required are not affected by PAR 1193. Third, privately-owned refuse collection vehicles that

only service privately-owned facilities or projects are also not affected by PAR 1193. These fleets include large haul and roll off vehicles that remove construction debris from private demolition projects.

For these reasons, it was determined that the potential hazard impacts from the proposed project would be less than significant.

In order to offer financial flexibility to government agencies, SCAQMD staff is proposing an exemption in the proposed amendments to Rule 1193, which provides that refuse fleets with more than 50 vehicles may have up to three percent of the total number of refuse vehicles used under contract to public agencies as vehicles that would not be subject to the requirements of PAR 1193 and no more than 20 percent of the rolloff and transfer vehicles that would not be subject to the requirements of PAR 1193, if they meet the 2010 or cleaner exhaust emissions standards. For public or private fleets with greater than 15, but less than or equal to 50 refuse collection vehicles, the fleet could include no more than three heavy-duty vehicles at any given time that would not be subject to the requirements of PAR 1193. Thus, when the proposed amendments are fully implemented, three vehicles in affected fleets with less than 50 refuse collection vehicles and three percent of the vehicles and no more than 20 percent of the rolloff and transfer vehicles with more than 50 vehicles in affected fleets may be conventionally fueled. The Staff Report for PAR 1193 estimates that 79 solid waste collection conventionally fueled vehicles and 121 roll off conventionally fueled vehicles would be available under this exemption. The 200 (79 + 121) conventionally fueled vehicles would provide another method of accessing conventionally-fueled vehicles for a large-scale emergency.

Therefore, while the exemption is not expected to be needed since sufficient conventionally fueled vehicles are currently available within the SCAQMD's jurisdiction (200 vehicles may be available from municipalities with less than 15 refuse collection vehicles, open permit system vehicles and privately-owned refuse collection vehicles serving privately-owned facilities or projects), these additional vehicles would add to the inventory of available vehicles and provide cost flexibility.

Response to Comment 1-3

Emergency response plans are required to respond to all aspects of an emergency including: building evacuation; crowd control; first aid as necessary; emergency communication; and emergency procedures in the event of fires, chemical spills, earthquakes, utility failures, etc. Consequently, an emergency response plan would be required to include any necessary emergency response procedures for facilities that use alternative fuels.

As stated in Response to Comment 1-2, PAR 1193 has been modified to provide an exemption from the requirement of the proposed project, which means that approximately 200 conventionally-fueled vehicles may be available from municipalities with less than 15 refuse collection vehicles, open permit system vehicles and privately-owned refuse collection vehicles serving privately-owned facilities or projects). The adequacy of the natural gas supply is also addressed in Response to Comment 1-2.

Therefore, based on the above information, it is not expected that PAR 1193 would interfere with existing emergency response plans.

Response to Comment 1-4

Emissions Inventory and Impacts to Sensitive Receptors

Contrary to the opinion expressed in this comment, an emissions inventory was developed for PAR 1193 that identifies government entities which are subject to and exempt from PAR. The Draft SEA analyzed the potential exposure to sensitive receptors in the air quality section in Chapter 2.

Page 1-12 in the Final SEA (formerly page 1-9 in the Draft SEA) states that there would be no difference in CO and NMHC emissions between diesel-fuel vehicles and CNG-fueled vehicles. Page 1-12 in the Final SEA (formerly pages 1-9 and 1-10 of the Draft SEA) state that there may be slight SO_x and PM₁₀ benefits from implementing PAR 1193.

NO_x emissions are presented in Tables 1-3, 2-5 through 2-7 in the Final SEA (formerly Tables 1-3, 2-6 and 2-6 of the Draft SEA). Table 2-7 in the Final EA was added to address emission reductions lost between the March 2010 version of PAR 1193 and the July 2010 version of PAR 1193. Direct greenhouse gas (GHG) emissions are presented in Tables 2-11 through 2-13 in the Final SEA (formerly Tables 2-10 through 2-12 of the Draft SEA). Table 2-13 in the Final EA was added to address emission reductions loss between the March 2010 version of PAR 1193 and the July 2010 version of PAR 1193. Table 2-14 in the Final SEA (formerly Table 2-13 in the Draft SEA) shows overall GHG emissions effects of the proposed project. These tables show that PAR 1193 would provide NO_x and GHG reduction benefits compared to the baseline.

Secondary criteria emissions from construction of natural gas refueling stations are presented in Table 2-4. Secondary emissions from worker commute trips and fuel delivery trips are presented in Tables 2-8 and 2-9 in the Final SEA (formerly Tables 2-7 and 2-8 in the Draft EA). All of the secondary emissions are below applicable significance thresholds. Therefore, it was concluded in the Draft SEA that there would not be any significant adverse criteria pollutant or GHG impacts.

Table 2-10 in the Final SEA (formerly Table 2-9 in the Draft SEA) shows the estimated relative toxic risk between a diesel-fueled vehicle and a CNG-fueled vehicle. Based on toxic air contaminants (TACs) in the exhaust, Table 2-10 shows that replacing a diesel-fueled vehicle with a CNG-fueled vehicle would reduce health risks by a factor of three. Since the replacement of trucks on a one-to-one basis would provide a substantial reduction in health risks, replacing trucks on a fleet level is also expected to reduce health risk. Based on this analysis, one diesel vehicle could be replaced with three CNG-fueled vehicles without an increased health risk. Since it is not expected that more than one CNG-fueled vehicle would be required to replace one diesel-fueled vehicle and no comments were received that indicated otherwise, no increase in potential exposure from substantial toxic pollutants to sensitive receptors is expected.

Information on Truck Types and Vehicle Counts

Table B-3 identifies the government and private fleets that are subject to the existing rule. Table B-4 identifies the government and private fleets that would be subject to PAR 1193.

Emergency Preparedness

With regard to emergency preparedness, the commenter is referred to Responses to Comments 1-2 and 1-3, and the SEA for PAR 1193.

Response to Comment 1-5

With regard to emergency response and preparedness see Responses to Comments 1-2 and 1-3. With regard to PAR 1193 interfering with federal, state, and local statutes related to solid and hazardous waste generation and disposal, both the Draft SEA and the Draft Staff Report evaluated this potential impact and no conflicts with waste generation or disposal statutes were identified. The commenter does not identify any specific waste generation or disposal statutes that would be violated as a result of implementing PAR 1193. It should be noted that, to date, Rule 1193 has not resulted in any conflicts with existing waste generation or disposal statutes.

With regard to the potential for PAR 1193 to generate solid wastes that exceed local landfill capacity, this topic was comprehensively analyzed in Chapter 2 of the Draft SEA. The analysis concluded that potential impacts to local landfills as a result of implementing PAR 1193 would not be significant. Mitigation is only required to address potentially significant adverse impacts (CEQA Guidelines §§15071(f) and 15126.4). Mitigation is only required to lessen or reduce potentially significant adverse impacts to less than significant, or to lessen or reduce the adverse impacts of significant impacts. As already indicated, PAR 1193 is not expected to create significant adverse impacts to local landfills; therefore, no mitigation would be required.