BOARD MEETING DATE: September 1, 2023 AGENDA NO. 34

PROPOSAL: Certify Final Environmental Assessment for Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities; and Amend Rule 1178.

SYNOPSIS: Proposed Amended Rule 1178 will establish enhanced leak detection and repair requirements and more stringent control requirements on tanks that store crude oil, additional seals for internal floating roof tanks, and a higher control efficiency requirement for emission control systems. The proposed amended rule will also include provisions for true vapor pressure testing and will update reporting and recordkeeping requirements.

COMMITTEE: Stationary Source, June 16, and August 18, 2023, Reviewed

RECOMMENDED ACTIONS:
Adopt the attached Resolution:
1. Certifying the Final Environmental Assessment for Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities; and
2. Amending Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities.

Wayne Nastri
Executive Officer

SR:MK:MM:RC:MG

Background

California Assembly Bill 617 (AB 617) was signed into state law in 2017 and required strategies to reduce toxic air contaminants and criteria pollutants in overburdened communities. During the development of the Wilmington, Carson, West Long Beach (WCWLB) Community Emission Reduction Plan (CERP), community members expressed concern about refinery emissions. Development of PAR 1178 was initiated in response to Chapter 5b, Action 4 in the WCWLB CERP that was adopted by the South Coast AQMD Governing Board on September 6, 2019. Recommendations for proposed

amendments to Rule 1178 included improving leak detection and repair requirements by incorporating advanced leak detection technologies and requiring additional controls.

Public Process

PAR 1178 was developed through a public process. Eight Working Group meetings for PAR 1178 were held on March 17, 2021, July 15, 2021, December 9, 2021, March 24, 2022, July 14, 2022, October 27, 2022, January 5, 2023, and July 6, 2023. Working Group meeting participants included attendees from affected businesses, environmental and community representatives, public agencies, consultants, and other interested parties. A Public Workshop was held on March 1, 2023, where staff presented the proposed amended rule to the general public and stakeholders and solicited comments. An update on PAR 1178 was presented to the Wilmington, Carson, West Long Beach Community Steering Committee Meeting on February 9, 2023. Staff has also held numerous individual meetings regarding PAR 1178 with stakeholders, including facilities and environmental groups to understand specific concerns and how the rule may uniquely affect them. Staff also met with technology and leak detection service providers. In addition, staff conducted 13 site visits to understand facility operations involving storage tanks and the effect of PAR 1178.

Proposal

PAR 1178 establishes enhanced leak detection and repair (LDAR) and more stringent control requirements. This is the first South Coast AQMD rule to require optical gas imaging technology for leak detection. PAR 1178 requires weekly optical gas imaging inspections for tank farms and semi-annual optical gas imaging inspections on individual floating roof tank components. PAR 1178 requires doming for crude oil tanks that are currently exempt from doming requirements. Full implementation for doming will occur in 2038 for most tanks. An alternative doming schedule is proposed for certain facilities that will require full implementation in 2041. PAR 1178 requires secondary seals on all floating roof tanks. Installation of secondary seals will be required the next time the tank is emptied and degassed but no later than 10 years after date of rule adoption. Additionally, PAR 1178 will require more stringent gap requirements for floating roof tanks and increased emission control efficiency of 98 percent by weight for fixed roof tanks. These requirements will be effective immediately. PAR 1178 also establishes additional requirements for true vapor pressure testing, reporting, and recordkeeping.

Emission Reductions

Total VOC emission reductions associated with the implementation of PAR 1178 is 0.82 ton per day from baseline VOC emissions of 1.23 tons per day for sources that are subject to proposed requirements that result in emission reductions. Optical gas imaging inspections will result in 0.45 ton per day of VOC reduction from estimated baseline VOC emissions of 0.49 ton per day. Doming will result in 0.28 ton per day of VOC reduction from estimated baseline VOC emissions of 0.44 ton per day. Floating roof seal requirements will result in 0.02 ton per day of VOC reduction from baseline VOC

emissions of 0.18 ton per day. Increased emission control efficiency for fixed roof tanks will result in 0.07 tons per day of VOC emission reduction from estimated baseline VOC emissions of 0.12 ton per day.

Key Issues

Throughout the rulemaking process, staff has worked with stakeholders to address their comments and have resolved all key issues. One stakeholder expressed concern about the proposed doming schedule requiring full implementation in 2038 stating that removing more than one tank from service to meet the proposed schedule may impact the fuels market. To address this issue, an alternative doming schedule is proposed to allow three additional years to complete doming for facilities meeting certain criteria. Staff is not aware of any remaining key issues.

California Environmental Quality Act

PAR 1178 is considered a "project" as defined by the California Environmental Quality Act (CEQA), and the South Coast AQMD is the designated lead agency. Pursuant to South Coast AQMD's Certified Regulatory Program (Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110) and CEQA Guidelines Section 15070, the South Coast AQMD has prepared an Environmental Assessment (EA) for PAR 1178, which is a substitute CEQA document pursuant to CEQA Guidelines Section 15252, prepared in lieu of a Negative Declaration. Implementation of the proposed project is estimated to reduce VOC emissions by 0.82 ton per day, and the Final EA did not identify any environmental topic areas that would be significantly adversely affected by physical modifications resulting from the proposed project. The Final EA is included as an attachment to this Board package (see Attachment H).

Socioeconomic Analysis

PAR 1178 affects owners and operators of storage tanks located at petroleum facilities that emit more than 20 tons of volatile organic compounds per year. PAR 1178 identified 27 facilities in the oil and gas extraction, petroleum products manufacturing, and bulk storage and terminal industries. One facility may qualify as a small business according to the South Coast AQMD's Rule 102, while none of the affected facilities qualify as small business under South Coast AQMD's Small Business Assistance Office definition or the 1990 Clean Air Act Amendments definition. Subsequent to the release of Socioeconomic Impact Assessment, three additional facilities were identified as subject to Rule 1178.

The average annual compliance cost of PAR 1178 is estimated to range from $5.86 to $7.04 million, depending on the assumed real interest rate (1 to 4 percent). Recurring weekly optical gas imaging inspection costs account for approximately 60 percent of the average annual compliance cost, while domed roof related capital costs account for approximately 38 percent of the average annual compliance cost. The Petroleum and

Coal Products Manufacturing industry will bear most of the costs of PAR 1178, accounting for approximately 53 percent of the total average annual compliance cost.

The implementation of PAR 1178 is expected to have a near-zero annual impact on job counts from 2024 to 2080 when compliance costs are annualized using a 4 percent real interest rate. The small net job impact reflects the fact that some industries are expected to gain a small number of jobs from additional demand and spending for their products and services while others may forgo a small number of jobs as a result of compliance costs. Finally, staff does not expect PAR 1178 to have a significant impact on the competitiveness of both the industries of refinery and bulk storage, and the regional economy.

AQMP and Legal Mandate

PAR 1178 implements strategies identified in the WCWLB CERP to reduce VOC emissions from refineries and partially implements Control Measure FUG-01 that commits to improved leak detection requirements in South Coast AQMD rules. PAR 1178 updates BARCT requirements by establishing more stringent leak detection and repair and control requirements pursuant to Health and Safety Code section 40920.6.

Control Measure FUG-03 – Further Reductions of Fugitive VOC Emissions in the 2012 Final Air Quality Management Plan (AQMP) identified the implementation of advanced leak detection technologies, including optical gas imaging, as a method to reduce the emissions impact from leaks. The 2016 Final AQMP included Control Measure FUG-01 – Improved Leak Detection and Repair to utilize advanced remote sensing technologies to allow for faster identification and repair of leaks from equipment at oil and gas and other facilities that are currently required to maintain a leak detection and repair (LDAR) program. The 2022 Final AQMP also included Control Measure FUG-01 - Improved Leak Detection and Repair to reduce emissions of VOC from fugitive leaks from process and storage equipment.

Implementation and Resource Impacts

Existing staff resources are adequate to implement the proposed amendments.

Attachments

A. Summary of Proposal
B. Key Issues and Responses
C. Rule Development Process
D. Key Contacts List
E. Resolution
F. Proposed Amended Rule 1178
G. Final Staff Report
H. Final Environmental Assessment
I. Socioeconomic Impact Assessment
J. Board Meeting Presentation

ATTACHMENT A

SUMMARY OF PROPOSAL

Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities
Applicability • Removed true vapor pressure applicability threshold *Requirements* • Gaps in the primary seal greater than 1.3 cm cannot exceed 10% of tank circumference and gaps greater than 0.32 cm cannot exceed 30% of tank circumference • Tanks must be maintained free of visible vapors resulting from a defect in equipment • Domes required on all crude oil external floating roof tanks except those for which a permit application has been submitted to limit the crude oil true vapor pressure to less than 3 psia within one year from date of adoption • True vapor pressure testing for external floating roof tanks without domes • Domes required to be maintained free of gaps and other openings that are not part of the dome design • Secondary seals required on all floating roof tanks • Fixed roof tanks required to have 98% by weight emission control *Compliance Schedules* • Facilities with crude oil tanks subject to doming must have a dome installed on one-third of applicable tanks by December 31, 2031, two-thirds of applicable tanks by December 31, 2033, and all applicable tanks by December 31, 2038 • Facilities with 12 or more tanks subject to doming where 5 or more tanks are 260 feet in diameter or larger must have a dome installed on a quarter of applicable tanks by December 31, 2030, half of applicable tanks by December 31, 2036, three-quarters of applicable tanks by December 31, 2040, and all applicable tanks by December 31, 2041 • Crude oil tanks that become subject to doming after date of adoption must have a dome installed within 3 years of becoming subject to the doming requirement • Starting two years after date of adoption, tanks required to have a secondary seal installed on the date of adoption must have one installed when the tank is next emptied or degassed and no later than 10 years after date of adoption

Monitoring

- Tank farm inspections required at least once every calendar week
- Component inspections required for floating roof tanks at least once every six months

Maintenance

- Tanks found in non-compliance during an inspection with an OGI device must be repaired within three days after the inspection

Record Keeping and Reporting

- Reporting when defect or visible vapors from vapor tight components are identified during a tank farm inspection
- Written records for tank farm and component inspections
- Digital time-stamped recordings of visible vapors requiring reporting identified during tank farm inspections
- True vapor pressure testing for external floating roof tanks without domes
- Allowance for electronic report forms that contain all information required in the Compliance Report Form
- Allowance of electronic submittal of written and electronic inspection and non-compliance reports
- Maintain all records for a minimum of five years

Test Methods and Procedures

- Allowance for ASTM Method D-6377 when correlated to ASTM Method D-323

Exemptions

- Require periodic true vapor pressure testing for tanks exempt from rule requirements based on true vapor pressure of material stored
- Modified exemption from doming for crude oil tanks to require submitting a permit application to limit true vapor pressure of crude to less than 3 psia
- Exemption from OGI inspections when a tank is out of service
- Exemption from certain OGI inspection requirements when required procedure is deemed unsafe

ATTACHMENT B

KEY ISSUES AND RESPONSES

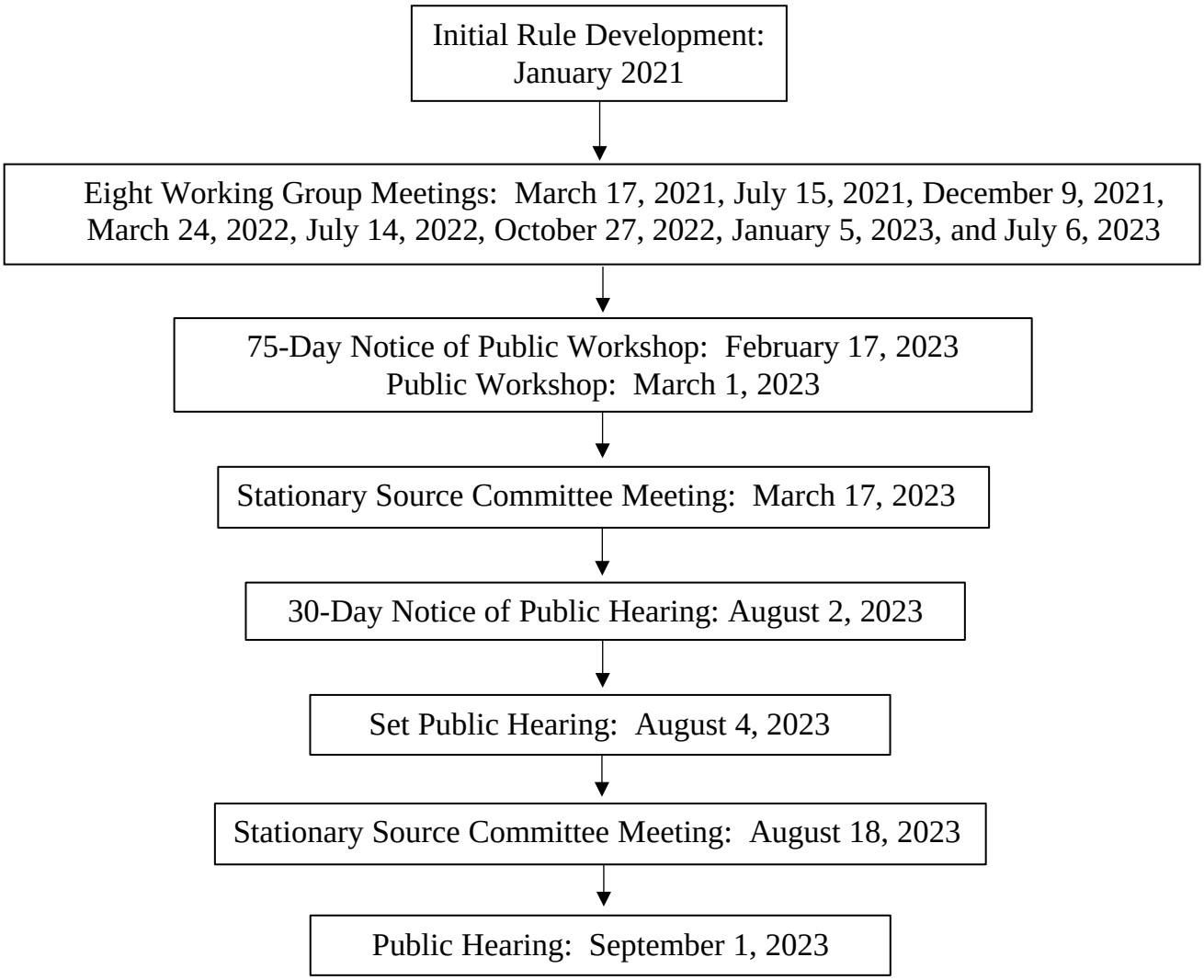
Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities

Throughout the rulemaking process, staff worked with stakeholders to address their comments and have resolved all key issues. Staff is not aware of any remaining key issues.

ATTACHMENT C

RULE DEVELOPMENT PROCESS

Proposed Amended Rule 1178 – Further Emission Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities



Thirty-three (33) months spent in rule development

Eight (8) Working Group Meetings

One (1) Public Workshop

Two (2) Stationary Source Committee Meetings

ATTACHMENT D

KEY CONTACTS LIST

Altair Paramount, LLC
Center for Biological Diversity
Chevron Products Company
Communities for a Better Environment
Earth Justice
East Yard Communities for Environmental Justice
Equilon Enterprises LLC
Kinder Morgan Liquids Terminal
Marathon Petroleum
Petro Diamond Terminal Company
Phillips 66
R.A. Nichols Engineering
Regulatory Flexibility Group
Sierra Club
Shell Oil Products
Tank and Environmental Technologies
Torrance Refining Company LLC
Ultramar Inc Wilmington Refinery
Valero Energy Corporation
Western States Petroleum Association

ATTACHMENT E

RESOLUTION NO. 23-____

A Resolution of the Governing Board of the South Coast Air Quality Management District (South Coast AQMD) certifying the Final Environmental Assessment for Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities.

A Resolution of the South Coast AQMD Governing Board amending Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities.

WHEREAS, the South Coast AQMD Governing Board finds and determines that Proposed Amended Rule 1178 is considered a "project" as defined by the California Environmental Quality Act (CEQA); and

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

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

WHEREAS, the South Coast AQMD prepared a Draft EA pursuant to its Certified Regulatory Program and CEQA Guidelines Sections 15070 and 15252 setting forth the potential environmental consequences of Proposed Amended Rule 1178 and determined that the proposed project would not have the potential to generate significant adverse environmental impacts; and

WHEREAS, a Draft EA was prepared and circulated for a 30-day public review and comment period from July 19, 2023 to August 18, 2023, and four comment letters were received; and

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

WHEREAS, it is necessary that the South Coast AQMD Governing Board review the Final EA prior to its certification, to determine that it provides adequate information on the potential adverse environmental impacts that may occur as a result of adopting Proposed Amended Rule 1178, including the responses to the comments received relative to the Draft EA; and

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

WHEREAS, Findings pursuant to Public Resources Code Section 21081.6 and CEQA Guidelines Section 15091 and Statement of Overriding Considerations pursuant to CEQA Guidelines Section 15093 were not prepared because the analysis shows that Proposed Amended Rule 1178 would not have a significant adverse effect on the environment, and thus, are not required; and

WHEREAS, the South Coast AQMD Governing Board voting to adopt Proposed Amended Rule 1178 has reviewed and considered the information contained in the Final EA, including responses to comments, and all other supporting documentation, prior to its certification, and has determined that the Final EA, including the responses to the comments received, has been completed in compliance with CEQA; and

WHEREAS, Proposed Amended Rule 1178 and supporting documentation, including but not limited to, the Final EA, the Final Staff Report, and the Socioeconomic Impact Assessment were presented to the South Coast AQMD Governing Board and the South Coast AQMD Governing Board has reviewed and considered this information, as well as has taken and considered staff testimony and public comment prior to approving the project; and

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

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

WHEREAS, the South Coast AQMD Governing Board finds and determines, taking into consideration the factors in Section (d)(4)(D) of the Governing Board Procedures (codified as Section 30.5(4)(D)(i) of the Administrative Code), that the modifications to paragraph (c)(46) to include "VOC" to specify the type of vapor referenced in the definition, clause (f)(4)(C)(i) to include "floating roof" to specify the type of tank to which the rule provision applies, paragraph (h)(1) to remove "subparagraph" and add "paragraph" for rule reference accuracy, subparagraph (h)(2)(B) to remove the "s" from "subparagraphs" for rule refence accuracy, paragraph (h)(5) to correct the paragraph number, paragraph (j)(4) to include language to clarify intent of the rule provision, and paragraph (j)(4) to remove "subparagraph" and add "clause" for rule

reference accuracy, since the notice of public hearing was published are clarifications and are not so substantial as to significantly affect the meaning of the proposed amended rule within the meaning of Health and Safety Code Section 40726 because: (a) the changes do not impact emission reductions, (b) the changes do not affect the number or type of sources regulated by the rule, (c) the changes are consistent with the information contained in the notice of public hearing, and (d) the consideration of the range of CEQA alternatives is not applicable because Proposed Amended Rule 1178 does not cause significant impacts and therefore, alternatives are not required; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Socioeconomic Impact Assessment of Proposed Amended Rule 1178 is consistent with the March 17, 1989 Governing Board Socioeconomic Resolution for rule amendment; and

WHEREAS, the South Coast AQMD Governing Board has determined that the Socioeconomic Impact Assessment is consistent with the provisions of Health and Safety Code Sections 40440.8, 40728.5, and 40920.6; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1178 will result in increased costs to the affected industries, which are considered to be reasonable, with a total annualized cost as specified in the Socioeconomic Impact Assessment of Proposed Amended Rule 1178; and

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

WHEREAS, the South Coast AQMD staff conducted a Public Workshop regarding Proposed Rule 1178 on March 1, 2023; and

WHEREAS, Proposed Amended Rule 1178 will be submitted for inclusion into the State Implementation Plan; and

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

WHEREAS, the South Coast AQMD Governing Board has determined that a need exists to adopt Proposed Amended Rule 1178 to implement Best Available Retrofit Control Technology, partially implement Control Measure FUG-01 of the 2022 Final Air Quality Management Plan, and fulfill a commitment contained in the Wilmington, Carson, West Long Beach Community Emission Reduction Plan; and

WHEREAS, the South Coast AQMD Governing Board has determined, pursuant to Health and Safety Code Section 40001(c), that there is a problem that the proposed amended rule will alleviate, namely nonattainment of several federal ozone standards, and the rule will help attain state and federal ambient air quality standards; and

WHEREAS, the South Coast AQMD Governing Board obtains its authority to adopt, amend or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40441, 40506, 40510, 40522, 40702, 40725 through 40728, 41508, 41510, 41511, and 41700, 42300 et seq. and Federal Clean Air Act Section 116; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1178 is written or displayed so that its meaning can be easily understood by the persons directly affected by it; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1178 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations; and

WHEREAS, the South Coast AQMD Governing Board has determined that Proposed Amended Rule 1178 does not impose the same requirements as any existing state or federal regulations, and the proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, South Coast AQMD; and

WHEREAS, the South Coast AQMD Governing Board, in adopting Proposed Amended Rule 1178, references the following statutes which the South Coast AQMD hereby implements, interprets, or makes specific: Health and Safety Code Sections 39002, 40001, 40702, 40440(a), 40440(b), 40406, and 40725 through 40728.5; and

WHEREAS, Health and Safety Code Section 40727.2 requires the South Coast AQMD to prepare a written analysis of existing federal air pollution control requirements applicable to the same source type being regulated whenever it adopts, or amends a rule, and the South Coast AQMD's comparative analysis of Proposed Amended Rule 1178 is included in the Final Staff Report; and

WHEREAS, the Public Hearing has been properly noticed in accordance with all provisions of Health and Safety Code Section 40725 and 40440.5; and

WHEREAS, the South Coast AQMD Governing Board has held a Public Hearing in accordance with all provisions of law; and

WHEREAS, the South Coast AQMD specifies the Planning and Rules Manager overseeing the rule development for Proposed Amended Rule 1178 as the custodian of the documents or other materials which constitute the record of proceedings upon which the adoption of this proposed project is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE BE IT RESOLVED, that the South Coast AQMD Governing Board has considered the Final EA for Proposed Amended Rule 1178 together with all comments received during the public review period, and, on the basis of the whole record before it, the South Coast AQMD Governing Board: 1) finds that the Final EA, including the responses to comments, was completed in compliance with CEQA and the South Coast AQMD's Certified Regulatory Program, 2) finds that the Final EA and all supporting documents were presented to the South Coast AQMD Governing Board, whose members exercised their independent judgment and reviewed, considered, and approved the information therein prior to acting on Proposed Amended Rule 1178, and 3) certifies the Final EA; and

BE IT FURTHER RESOLVED, that because no significant adverse environmental impacts were identified as a result of adopting Proposed Amended Rule 1178, Findings, a Statement of Overriding Considerations, and a Mitigation, Monitoring, and Reporting Plan are not required and were not prepared; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board does hereby adopt, pursuant to the authority granted by law, Proposed Amended Rule 1178 as set forth in the attached, and incorporated herein by reference; and

BE IT FURTHER RESOLVED, that the South Coast AQMD Governing Board requests that Proposed Amended Rule 1178 be submitted into the State Implementation Plan; and

BE IT FURTHER RESOLVED, that the Executive Officer is hereby directed to forward a copy of this Resolution and Proposed Amended Rule 1178 to the California Air Resources Board for approval and subsequent submittal to the U.S. Environmental Protection Agency for inclusion into the State Implementation Plan.

DATE: _____ _____

CLERK OF THE BOARDS

ATTACHMENT F

(Adopted December 21, 2001)(Amended April 7, 2006)(Amended April 6, 2018)
(Amended November 6, 2020)(Amended May 5, 2023)(PAR 1178 September 1, 2023)

RULE 1178 FURTHER REDUCTIONS OF VOC EMISSIONS FROM STORAGE TANKS AT PETROLEUM FACILITIES

(a) Purpose

The purpose of this rule is to further reduce emissions of Vvolatile Oorganic Ccompounds (VOC) from Sstorage Ttanks located at Ppetroleum Ffacilities.

(b) Applicability

The rule applies to the following Sstorage Ttanks used to store Oorganic Lliquid located at any Petroleum Facility that emits more than 40,000 pounds (20 tons) per year of VOC as reported in the Annual Emissions Report pursuant to Rule 301 – Permit Fees in any Eemission Iinventory Yyear starting with the Eemission Iinventory Yyear 2000:.

(1) Aboveground Sstorage Ttanks with capacity equal to or greater than 75,000 liters (19,815 gallons) storing Oorganic Lliquid with a true vapor pressure greater than 5 mm Hg (0.1 psi) absolute under actual storage conditions; and

(2) Storage Ttanks with a Potential For VOC Emissions of 6 tons per year used in Crude Oil And Natural Gas Production Operations.

(c) Definitions

(1) ACCESS HATCH is an opening in the roof with a vertical well and a cover attached to it. Access Hhatch provides passage for workers and materials through the roof for construction or maintenance.

(2) AMBIENT TEMPERATURE is the temperature of an Oorganic Lliquid within a Sstorage Ttank that has been influenced by atmospheric conditions only and is not elevated by a non-atmospheric means of heating at the tank which includes but is not limited to steam, hot water, heaters, heat exchangers, tank insulation, or tank jacketing.

(3) CERTIFIED PERSON is a person who has successfully completed the South Coast AQMDDistrict tank self-inspection program and a South Coast AQMDDistrict approved fugitive emissions compliance inspection program, and who holds a certificate issued by the Executive Officer evidencing that such person is in good standing in this program.

(4) COMPONENT INSPECTION is monitoring for Visible Vapors with a handheld Optical Gas Imaging Device of a Storage Tank roof and individual components, including but not limited to Roof Openings and Rim Seal Systems, viewable from the tank platform, and ground for components not viewable from the tank platform but viewable at ground level.~~CONTINUOUS SEAL is a seal that forms a continuous closure that completely covers the annular space between the wall of the storage vessel and the edge of the floating roof. A continuous seal may be a vapor-mounted, liquid-mounted, or metallic shoe seal. A continuous seal may be constructed of fastened segments so as to form a continuous seal.~~

(5) CRUDE OIL AND NATURAL GAS PRODUCTION OPERATIONS are any operations from a crude oil well to the point of custody transfer to a refinery and any operations from a natural gas well to the natural gas customer.

(6) DOMED ROOF is a self-supporting fixed roof attached to the top of an Eexternal Ffloating Rroof Ttank to reduce evaporative losses. An External Floating Roof Tank equipped with a Domed Roof is a Domed External Floating Roof Tank.

(7) EMISSION CONTROL SYSTEM is a combination of capture system(s) and control equipment used to recover, reduce, remove or control the release of VOC to the atmosphere. Such equipment includes, but is not limited to, absorbers, adsorbers, compressors, condensers, incinerators, flares, boilers, and process heaters.

(8) EMISSION INVENTORY YEAR is the annual emission-reporting period specified by the Annual Emission Reporting (AER) Program requirements for a given year.~~beginning from July 1 of the previous year through June 30 of a given year. For example, emission inventory year 2000 covers the period from July 1, 1999 through June 30, 2000~~.

(9) EXTERNAL FLOATING ROOF TANK is a Sstorage Ttank with a roof consisting of a double deck or pontoon single deck which rests or floats on the liquid being contained and is not equipped with a fixed roof above the floating roof.

~~(10) EXEMPT COMPOUNDS are as defined in Rule 102.~~

(10~~1~~) FACILITY is any equipment or group of equipment or other VOC-emitting activities, which are located on one or more contiguous properties within the South Coast AQMD~~District~~, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control), or an outer continental shelf (OCS) source as determined in 40 CFR Section 55.2. Such above- described

groups, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one Ffacility.

(112) FIXED ROOF SUPPORT COLUMN AND WELL is a column made of round pipe or of structural shape with an irregular cross section that passes through the floating roof via a peripheral vertical well and is used to support the roof of an internal floating roof tank.

(123) FIXED ROOF TANK is a Sstorage Ttank with a permanently affixed roof

(134) FLEXIBLE ENCLOSURE SYSTEM is a VOC emission reduction system made of a VOC impervious material which is resistant to ultraviolet radiation, completely enclosing a Sslotted Gguidepole and controls the vapor emission pathway from inside the storage vessel through the Gguidepole slots to the outside air.

(145) FUEL GAS SYSTEM is the piping and control system that gathers gaseous stream(s) generated by onsite operations and transports the gaseous stream for sale or for use as fuel gas in combustion devices, or in-process combustion equipment such as furnaces and gas turbines, either singly or in combination.

(156) GAUGE FLOAT is a device that is used to indicate the level of liquid within the tank. The float rests on the liquid surface and is housed inside a well that is closed by a removable cover.

(167) GAUGE HATCH/SAMPLE PORT is an opening in the roof that provides access for gauging or sampling. A Ggauge Hhatch/Ssample Pport is usually equipped with a closing cover or a funnel and slit-fabric seal to cover the opening.

(178) GUIDEPOLE is an anti-rotation device that is fixed to the top and bottom of the tank, passing through a well that is equipped with a sliding cover. The Gguidepole is used to prevent adverse movement of the roof and subsequent damage to the roof fittings and rim seals, or as access for level gauging or sampling of the liquid stock. The Gguidepole can be solid or equipped with slots or holes for gauging purpose.

(189) INTERNAL FLOATING ROOF TANK is a Sstorage Ttank equipped with a fixed roof and a floating roof which rests on the liquid being contained.

(1920) LADDER AND WELL is a ladder that passes through a well, and is used to access the tank bottom of an Iinternal Ffloating Rroof Ttank.

(2021) LIQUID MOUNTED PRIMARY SEAL is a Pprimary Sseal that is mounted in full contact with the liquid in the annular space between the tank shell and the floating roof.

(21~~2~~) MECHANICAL SHOE PRIMARY SEAL is a metallic band attached to the floating roof sliding in contact with the tank shell. The shoes are supported and held against the tank shell by a mechanical device, and are joined together to form a ring. The vapor space between the shoe and the roof is sealed from the atmosphere by a P~~p~~rimary S~~s~~eal of coated or VOC impervious fabric.

(22) OPTICAL GAS IMAGING DEVICE is an infrared camera with a detector capable of visualizing gases in the 3.2-3.4 micrometer waveband.

(23) ORGANIC LIQUID is any liquid containing VOC.

(24) PETROLEUM FACILITY is any F~~f~~acility primarily engaged in the production, refining, storage, transfer or distribution of crude petroleum or petroleum products as defined in the Standard Industrial Classification for crude petroleum and natural gas (SIC code 1311), petroleum refining (SIC code 2911), petroleum bulk stations and terminals (SIC code 5171), or other related industries (e.g., SIC codes 4226, 4612, 4613, 4923 and 5541).

(25) POLE FLOAT is a device located inside a G~~g~~uidepole that floats on the surface of the stored liquid, and is used to indicate the liquid level inside the tank.

(26) POLE SLEEVE is a device that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.

(27) POLE WIPER is a seal that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.

(28) POTENTIAL FOR VOC EMISSIONS means emissions calculated using a generally accepted model or calculation methodology, based on permitted throughput limits or, when permitted throughput limits are not available, based on the maximum throughput in a calendar month, where at least 30 days of production occurred, in years 2019 to 2022.

(29) PRESSURE-VACUUM VENT is a vent that is used to minimize tank emissions due to breathing effects.

(30) PRIMARY SEAL is a seal mounted below a S~~s~~econdary S~~s~~eal of a R~~r~~im S~~s~~eal S~~s~~ystem that consists of two seals. A P~~p~~rimary S~~s~~eal, which is in contact with the floating roof tank shell, can be either M~~m~~echanical S~~s~~hoe, R~~r~~esilient F~~f~~illed, or W~~w~~iper T~~t~~ype.

(31) RESILIENT FILLED PRIMARY SEAL is an envelope filled with resilient foam (non-metallic polyurethane) mounted at the rim of the floating roof that makes contact with the shell. ~~A resilient filled nonmetallic primary seal can be liquid-mounted or vapor-mounted.~~

(32) RIM MOUNTED SECONDARY SEAL is a Ssecondary Sseal mounted on the rim of the floating roof of a Sstorage Ttank. Rim Mmounted Ssecondary Sseals are effective at reducing losses from the Pprimary Sseal fabric.

(33) RIM SEAL SYSTEM is a closure device between the shell of the Sstorage Ttank and the floating roof edge. A Rrim Sseal Ssystem may consist of two seals, one above the other. The lower seal is referred to as the Pprimary Sseal and the upper seal is referred to as the Ssecondary Sseal.

(34) RIM VENT is a device consisting of a weighted pallet that rests on a valve seat. Rim Vvents are used to release any excess pressure or vacuum present in the vapor pocket between the seal and the rim area of a floating roof tank.

(35) ROOF DRAIN is a drain on the roof of a floating roof tank that is used to remove rainwater from the floating roof. There are two types of Rroof Ddrains. A closed Rroof Ddrain removes the rainwater from the surface of the roof through a flexible hose through the stored liquid prior to exiting the tank. With a closed Rroof Ddrain, the rainwater does not come in contact with the liquid stored in the tank. An open Rroof Ddrain is any drain other than the closed Rroof Ddrain. An open Rroof Ddrain is typically used only during an emergency.

(36) ROOF LEG is a device that holds the floating roof at a predetermined distance from the tank bottom to allow for tank cleaning or repair. There are two types of Rroof Llegs, adjustable or fixed. Fixed legs are attached to the floating roof or hangers suspended from the roof, whereas adjustable legs pass through a well or sleeve, and penetrate the roof.

(37) ROOF OPENING is any opening through a floating roof of a Sstorage Ttank for any roof fitting including but not limited to Aaccess Hhatch, Ffixed Rroof Ssupport Ccolumn Aand Wwell, Ggauge Ffloat, Ggauge Hhatch, Ssample Pport, Gguidepole, Lladder Aand Wwell, Rrim Vvent, Rroof Ddrain, Rroof Lleg, and Vvacuum Bbreaker, and excluding Rrim Sseal Ssystem.

(38) SECONDARY SEAL is a seal mounted above the Pprimary Sseal of a Rrim Sseal Ssystem that consists of two seals. Secondary Sseals can be Sshoe Mmounted or Rrim -Mmounted.

~~(39) SHOE MOUNTED SECONDARY SEAL is a secondary seal mounted on the primary mechanical shoe. Shoe mounted secondary seals are effective at reducing vapor losses from the gaps between the shoe and the tank shell.~~

(394~~0~~) SLOTTED GUIDEPOLE is a Gguidepole that has slots or holes through the wall of the Gguidepole. The slots or holes allow the stored liquid to flow into the pole at liquid levels above the lowest operating level.

(40~~1~~) STORAGE TANK or TANK is a stationary container primarily constructed of non-earthen materials that meets the applicability criteria of this rule.

(41) TANK FARM INSPECTION is monitoring for Visible Vapors with a handheld Optical Gas Imaging Device of all applicable Storage Tanks at a Facility where the person conducting the inspection views the top of the tank shell, and fixed roof or dome if applicable. Tank Farm Inspections may be conducted from an elevated position and/or from ground level.

(42) TRUE VAPOR PRESSURE is the vapor pressure of a liquid at actual storage conditions.

(43) VACUUM BREAKER is a device used to equalize the pressure of the vapor space across the deck as the floating roof is either being landed on or floated off its legs. A V~~v~~acuum B~~b~~reaker consists of a well with a cover. Attached to the underside of the cover is a guided leg long enough to contact the tank bottom as the floating roof is being landed. When in contact with the tank bottom, the guided leg mechanically lifts the cover off the well.

~~(44) VAPOR MOUNTED PRIMARY SEAL is a primary seal that does not come in contact with the liquid in the annular space between the tank shell and the floating roof.~~

(44~~5~~) VAPOR TIGHT CONDITION is a condition that exists when the reading on a portable hydrocarbon analyzer is less than 500 parts per million (ppm), expressed as methane, above background, measured using EPA Reference Method 21.

(45~~6~~) VISIBLE GAP is a gap of more than 1/8 inch between any gasket or seal and the opening that it is intended to seal. Visible G~~g~~ap for primary and S~~s~~econdary S~~s~~eals is a gap that does not meet the requirements specified in subdivision (d).

(46) VISIBLE VAPORS are any VOC vapors detected with an Optical Gas Imaging Device during a Component or Tank Farm Inspection, when operated and maintained in accordance with manufacturer training, certification, user manuals, specifications, and recommendations.

(47) VOLATILE ORGANIC COMPOUNDS (VOC) as defined in Rule 102.

(48) WASTE STREAM TANK is a S~~s~~torage T~~t~~ank containing at least 75% water by volume, and some liquid waste stream generated in a manner which contains petroleum liquid, emulsified oil, VOC or other hydrocarbons. For the purpose of this rule, W~~w~~aste S~~s~~tream T~~t~~anks include waste water tanks and recovered oil (or slop oil) tanks.

~~(49) WIPER PRIMARY SEAL is a continuous annular blade of flexible material (e.g. rubber, urethane, or foam filled) fastened to a mounting bracket on the deck perimeter that spans the annular rim space and contacts the tank shell. A wiper~~

~~seal system may consist of a single primary seal, or dual (multiple) seals where one seal is mounted above the other.~~

(d) Requirements

(1) External Floating Roof Tanks

(A) Floating Roof Requirements

The owner or~~No later than July 1, 2003, the~~ operator of an Eexternal Ffloating Rroof Ttank shall:

(i) Equip each Aaccess Hhatch and Ggauge Ffloat well with a cover that is gasketed and bolted. The cover shall be closed at all times, with no Vvisible Ggaps, except when the hatch or well must be opened for access.

(ii) Equip each Ggauge Hhatch/sample well with a cover that is gasketed. The cover shall be closed at all times, with no Vvisible Ggaps, except when the hatch or well must be opened for access.

(iii) Gasket or cover each adjustable Rroof Lleg with a VOC impervious sock at all times when the roof is floating.

(iv) Gasket each Rrim Vvent. Rim Vvents shall be closed at all times, with no Vvisible Ggaps, when the roof is floating; and shall be set to open only when the roof is being floated off the Rroof Lleg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.

(v) Gasket each Vvacuum Bbreaker. Vacuum Bbreakers shall be closed at all times, with no Vvisible Ggaps, when the roof is floating; and shall be set to open only when the roof is being floated off or is being landed on the Rroof Lleg supports.

(vi) Equip each open floating Rroof Ddrain with a slotted membrane fabric cover or other device with an equivalent control efficiency that covers at least 90 percent of the area of the opening.

(vii) Equip each unslotted Gguidepole well with a gasketed sliding cover and a flexible fabric sleeve or wiper.

(viii) Equip each unslotted Gguidepole with a gasketed cover at the end of the pole. The cover shall be closed at all times, with no Vvisible Ggaps, except when gauging or sampling.

(ix) Equip each Sslotted Gguidepole with the following combination of components:

(A) A gasketed cover, a Ppole Wwiper, and a Ppole Ffloat with a wiper or seal; or

(B) A gasketed cover, a Ppole Wwiper, and a Ppole Ssleeve that shall be extended into the stored liquid; or

(C) A gasketed cover, a Ppole Wwiper, a Ppole Ssleeve that shall be extended into the stored liquid, and a Fflexible Eenclosure Ssystem.

(x) Maintain the Ppole Ffloat in a condition such that it floats within the Gguidepole at all times, except when it must be removed for sampling or when the tank is empty. The wiper or seal of the Ppole Ffloat shall be at or above the height of the Ppole Wwiper.

(xi) An owner or operator that equips the Sslotted Gguidepole with a Fflexible Eenclosure Ssystem shall ensure that the Fflexible Eenclosure Ssystem:

(A) Completely encloses the Sslotted Gguidepole;

(B) Is free of holes, tears, slots, or rips; and

(C) Is double-clamped tightly at the top of the Gguidepole and secured to the tank roof with no Vvisible Ggaps.

(xii) Cover each Sslotted Gguidepole opening with a gasketed cover at all times, with no Vvisible Ggaps, except when the cover must be opened for access.

(xiii) Except for Vvacuum Bbreakers and Rrim Vvents, ensure that each opening in the external floating roof shall provide a projection below the liquid surface.

(xiv) Except for Vvacuum Bbreakers, Rrim Vvents, Rroof Ddrains, and leg sleeves, equip all other openings in the roof with a gasketed cover or seal which is closed at all times, with no Vvisible Ggaps, except when the cover or seal must be opened for access.

(B) In lieu of complying with the requirements of no Visible Gap in subparagraph (d)(1)(A), the owner or operator of a floating roof tank containing Organic Liquid shall maintain all Roof Openings in a Vapor Tight Condition at all times except during preventive maintenance or repair specified in subdivision (g) of this rule.

(CB) Rim Seal System Requirements

The owner or~~No later than July 1, 2003, the~~ operator of an Eexternal Ffloating Rroof Ttank shall equip the tank with a Rrim Sseal Ssystem meeting the following requirements:

(i) The Pprimary Sseal shall be a Mmechanical Sshoe or Lliquid Mmounted.

(ii) The Ssecondary Sseal shall be Rrim Mmounted and shall not be attached to the Pprimary Sseal.

(iii) Gaps between the tank shell and the Pprimary Sseal shall not exceed 1.3 centimeters (1/2 inch) for a cumulative length of 1030 percent of the circumference of the tank, and 0.32 centimeter (1/8 inch) for 3060 percent of the circumference of the tank. No gap between the tank shell and the Pprimary Sseal shall exceed 3.8 centimeters (1-1/2 inches). No continuous gap between the tank shell and the Pprimary Sseal greater than 0.32 centimeter (1/8 inch) shall exceed 10 percent of the circumference of the tank.

(iv) Gaps between the tank shell and the Ssecondary Sseal shall not exceed 0.32 centimeter (1/8 inch) for a cumulative length of 95 percent of the circumference of the tank. No gap between the tank shell and the Ssecondary Sseal shall exceed 1.3 centimeters (1/2 inch).

(v) Mechanical Sshoe Pprimary Sseals shall be installed so that one end of the shoe extends into the stored Oorganic Lliquid and the other end extends a minimum vertical distance of 61 centimeters (24 inches) above the stored Oorganic Lliquid surface.

(vi) The geometry of the shoe shall be such that the maximum gap between the shoe and the tank shell is no greater than double the gap allowed by the seal gap criteria specified in clause (d)(1)(CB)(iii) for a length of at least 46 centimeters (18 inches) in the vertical plane above the liquid surface.

(vii) The Pprimary Sseal envelope shall be made available for unobstructed inspection by the Executive Officer along its circumference. In the case of riveted tanks with Rresilient Ffilled Pprimary Sseals, at least eight such locations shall be made available; for all other types of seals, at least four such locations shall be made available. If the Executive Officer deems it necessary, further unobstructed inspection of the Pprimary Sseal may be required to determine the seal's condition along its entire circumference.

(viii) The Ssecondary Sseal shall be installed in a way that permits the Executive Officer to insert probes up to 3.8 centimeters (1-1/2 inches) in width to measure gaps in the Pprimary Sseal.

(ix) There shall be no holes, tears or openings in the Ssecondary Sseal or in the Pprimary Sseal envelope surrounding the annular vapor space enclosed by the roof edge, seal fabric, and Ssecondary Sseal.

(x) Except during the preventive maintenance, repair, or inspection periods specified in subdivision (f) and (g) of this rule that do not exceed 72 hours with prior notification to the Executive Officer, both the Pprimary Sseal and the Ssecondary Sseal shall cover the annular space between the external floating roof and the wall of the Sstorage Ttank in a continuous fashion, with no Vvisible Ggaps.

(xi) The owner or operator shall use a Rrim Sseal Ssystem that is identified on the current list of seals approved by the Executive Officer. The owner or operator requesting the use of an alternative Rrim Sseal Ssystem shall submit a written application including emission test results and analysis demonstrating that the alternative Rrim Sseal Ssystem is better in performance and has a rim seal loss emission factor that is less than or equal to the current design.

~~(C) No later than July 1, 2003, in lieu of complying with the requirement of no visible gap in subparagraph (d)(1)(A), the operator of an external floating roof tank shall maintain all roof openings in a vapor tight condition at all times except during preventive maintenance, repair, or inspection periods specified in subdivision (f) and (g) of this rule.~~

(D) Tank Condition Requirements

The owner or operator shall maintain the tank in a condition free of Visible Vapors resulting from a defect in equipment as determined pursuant to the schedule and inspection requirements specified in paragraph (f)(4).

(E) Doming Requirements

The owner or operator shall install a Domed Roof on tanks meeting the following criteria:

(i) All External Floating Roof Tanks used to store Organic Liquid with a True Vapor Pressure of 3 psia or greater as demonstrated pursuant to subparagraph (d)(1)(F), except for tanks permitted to contain more than 97% by volume crude oil.

(ii) All External Floating Roof Tanks permitted to contain more than 97% by volume crude oil.

(F) Verification of True Vapor Pressure

Effective January 1, 2024, an owner or operator of an External Floating Roof Tank shall demonstrate the True Vapor Pressure of the Organic Liquid stored is less than 3 psia, with one representative sample, at least once every six calendar months pursuant to the requirements of subdivision (i). For facilities that have committed to a testing frequency in writing on or before January 1, 2003, the applicability and compliance verification of Waste Stream Tanks and recovered oil tanks shall be based on a monthly average True Vapor Pressure greater than or equal to 3 psia. The monthly average True Vapor Pressure of waste stream shall be determined based on at least one representative sample or multiple samples collected from the top surface layer that is no deeper than 6 inches at the frequency committed to in writing by the affected Facility.

(G) In lieu of complying with the requirements in subparagraph (d)(1)(E), the owner or operator of a wastewater tank where the conversion to a Domed External Floating Roof Tank may create a hazard due to the accumulation of pyrophoric material, as confirmed by the Executive Officer, shall accept permit conditions to limit the True Vapor Pressure of the Organic Liquid stored in a tank to less than 3 psia.

(2) Domed External Floating Roof Tanks

The owner or operator of a Domed External Floating Roof Tanks shall:

~~(A) Phase I: The operator at any petroleum facility with annual VOC emissions exceeding 40,000 lbs (20 tons) for emission inventory year 2000 shall install domed roofs on all external floating roof tanks that contain organic liquids having true vapor pressure greater than or equal to 3 psia as reported in the Annual Emissions Report pursuant to Rule 301 - Permit Fees for the emission inventory year 2000 according to the following schedule:~~

~~(i) At least 1/3 of the tanks subject to this provision by January 1, 2004;~~

~~(ii) At least 2/3 of the tanks subject to this provision by January 1, 2006;~~

~~(iii) All tanks subject to this provision by January 1, 2008.~~

~~(iv) As an alternative to clauses (i) through (iii) above, an operator may submit a compliance plan demonstrating that 75% of the~~

~~tanks subject to this provision have domes installed by December 31, 2006, and 100% of such tanks shall have domes installed by December 31, 2008. The Executive Officer shall approve any plan which convincingly demonstrates compliance and may impose conditions of approval necessary to assure compliance. The operator shall comply with all provisions and conditions of an approved plan.~~

~~(B) Phase II: For additional external floating roof tanks that are not identified under Phase I but contain organic liquids having true vapor pressure greater than or equal to 3 psia as reported in the Annual Emissions Report pursuant to Rule 301 - Permit Fees for any emission inventory year after 2000, the operator who is subject to Phase I shall comply with the requirements specified in subparagraph (d)(2)(A) no later than two years after becoming subject to the rule. In those cases where the two-year period falls within Phase I, the operator shall complete the installation of the domes on all Phase II tanks by no later than January 1, 2010, or December 31, 2010 if choosing to comply with the alternative in clause (d)(2)(A)(iv). The applicability and compliance verification of waste stream tanks and recovered oil tanks shall be based on a monthly average true vapor pressure greater than or equal to 3 psia. The monthly average true vapor pressure of waste stream shall be determined based on at least one representative sample or multiple samples collected from the top surface layer that is no deeper than 6 inches at a frequency committed to in writing by the affected facility no later than January 1, 2003. The facility shall monitor and keep records of sampling results and monthly average true vapor pressures on site and make them available to the Executive Officer upon request.~~

~~(C) In lieu of complying with the requirements in subparagraph (d)(2)(B):~~

~~(i) The operator who is subject to Phase I shall accept permit conditions to limit the true vapor pressure of the organic liquids stored in a tank to lower than 3 psia by the end of Phase I.~~

~~(ii) The operator of a waste water tank where the installation of a domed roof may create a hazard due to the accumulation of pyrophoric material, as confirmed by the Executive Officer, who is subject to Phase II shall accept permit conditions to limit the true vapor pressure of the organic liquids stored in a tank to lower than 3 psia.~~

(AD) ~~The operator of a domed external floating roof tank shall~~ Eequip and maintain all Rroof Ooopenings and Rim Seal Systems and in accordance with the specifications listed in subparagraphs (d)(1)(A) and (d)(1)(C), except for Slotted Guidepoles~~by the applicable compliance date in subparagraph (d)(2)(A) and (d)(2)(B)~~. Each Sslotted Gguidepole shall be equipped with the following combination of components:

(i) A gasketed cover, a Ppole Wwiper, a Ppole Ffloat with a wiper or seal; or

(ii) A gasketed cover, a Ppole Wwiper, and a pole sleeve that shall be extended into the stored liquid; or

(iii) A gasketed cover, a Ppole Wwiper, and a flexible enclosure system.

~~(E) The operator of a domed external floating roof tank shall equip the tank with a rim seal system consisting of a primary and a secondary seal meeting the specifications listed in subparagraph (d)(1)(B) by the applicable compliance date in subparagraphs (d)(2)(A) and (d)(2)(B).~~

(BF) ~~The operator shall~~ Eensure that the concentration of organic vapor in the vapor space above the~~a domed external~~ floating roof does~~shall~~ not exceed 30 percent of its lower explosive limit (LEL)~~ by the applicable compliance date in subparagraph (d)(2)(A) and (d)(2)(B)~~.

(C) Comply with the requirements of subparagraph (d)(1)(D).

(D) Maintain the Domed Roof in a condition that is free of gaps, cracks, punctures, and other openings, except where vents and access points are located.

~~(G) The operator shall submit to the Executive Officer an annual status report including at a minimum all of the following:~~

~~(i) A list of all external floating roof tanks subject to the requirement in subparagraphs (d)(2)(A) and (d)(2)(B);~~

~~(ii) A general description of each tank including information such as tank identification, District permit number or District device identification, tank type, tank capacity, type of liquid stored, and if applicable, number of representative samples, frequency of sampling, averaging method used to determine the monthly average true vapor pressure of waste stream or recovered oil tanks, and the results.~~

~~(iii) A compliance status for each tank; and~~

~~(iv) An estimated compliance date for each external floating roof tank that is not yet in compliance with the requirement in subparagraph (d)(2)(A) and (d)(2)(B).~~

(3) Internal Floating Roof Tanks

The owner or operator of an Internal Floating Roof Tank shall:

~~When an internal floating roof tank is scheduled for emptying and degassing, but no later than January 1, 2007, the operator of an internal floating roof tank shall:~~

(A) Equip each Ffixed Rroof Ssupport Ccolumn Aand Wwell with a sliding cover that is gasketed or with flexible fabric sleeves;

(B) Equip each Lladder Wwell with a gasketed cover. The cover shall be closed at all times, with no Vvisible Ggaps, except when the well must be opened for access;

(C) Equip and maintain other Rroof Ooopenings according to the specifications listed in subparagraph (d)(1)(A) or (d)(1)(BC). Each Sslotted Gguidepole shall be equipped with the following combination of components:

(i) A gasketed cover, a Ppole Wwiper, a Ppole Ffloat with a wiper or seal; or

(ii) A gasketed cover, a Ppole Wwiper, and a Ppole Ssleeve that shall be extended into the stored liquid; or

(iii) A gasketed cover, a Ppole Wwiper, and a flexible enclosure system.

(D) Equip the tank with a Rrim Sseal Ssystem consisting of ~~either~~ a Pprimary Sseal~~, or a primary~~ and a Ssecondary Sseal meeting the specifications listed in subparagraph (d)(1)(CB), with the exception of a Mmechanical Sshoe Pprimary Sseal which shall have one end extend a minimum vertical distance of 15 centimeters (6 inches) above the liquid surface and the other end extend into the liquid a minimum of 10 centimeters (4 inches); and

(E) Ensure that the concentration of organic vapor in the vapor space above the ~~internal~~ floating roof doesshall not exceed 50 percent of its lower explosive limit (LEL) for those installed prior to June 1, 1984 and 30 percent of its LEL for those installed after June 1, 1984.

(F) Comply with the requirements of subparagraph (d)(1)(D).

(4) Fixed Roof Tanks

(A) ~~No later than January 1, 2007,~~ Tthe owner or operator of a Ffixed Rroof Ttank shall equip each Ffixed Rroof Ttank ~~-~~with an Eemission Cecontrol Ssystem meeting the following requirements:

(i) Vent tank emissions to a Fuel Gas System, or vent tank emissions to an ~~The tank emissions are vented to an~~ Eemission Cecontrol Ssystem with an overall control efficiency of at least 98~~5~~% by weight ~~or the tank emissions are vented to a fuel gas system~~.

(ii) Any tank gauging or sampling device on a tank shall be equipped with a vapor tight cover which shall be closed at all times, with no Vvisible Ggaps, except during gauging or sampling. The roof of such tank shall be properly maintained in a Vvapor Ttight Cecondition with no holes, tears or uncovered opening.

(iii) All openings on the roof shall be properly installed and maintained in a Vvapor Ttight Cecondition at all times.

(iv) ~~The operator shall~~ Eequip each Ffixed Rroof Ttank with Ppressure-~~-~~Vvacuum Vvents that shall be set to the lesser of 10% below the maximum allowable working pressure of the roof or 0.5 psig.

(v) ~~The operator shall~~ Mmaintain Ppressure-Vvacuum Vvents in a Vvapor Ttight Cecondition at all times except when the operating pressure of the Ffixed Rroof Ttank exceeds the manufacturer's recommended setting.

(B) In lieu of complying with the requirement in subparagraph (d)(4)(A), the owner or operator may choose to convert the Ffixed Rroof Ttank to an Eexternal Ffloating Rroof Ttank, a Domed External Floating Roof Tank or an Iinternal Ffloating Rroof Ttank meeting the requirements specified in paragraph~~s~~ (d)(1), (d)(2) or (d)(3).

(C) The owner or operator shall comply with the requirements of subparagraph (d)(1)(D).

(5) Compliance Schedules

The owner or operator of a~~ny petroleum facility with annual VOC emissions exceeding 40,000 lbs (20 tons) for any emission inventory year subsequent to 2000 reporting pursuant to Rule 301 – Permit Fees~~ Storage Tank that becomes subject to this rule or requirements of this rule on or after [Date of Adoption] shall meet the following compliance schedules:

(A) The owner or operator of a Facility that becomes subject to this rule after [Date of Adoption] shall:~~Comply with the requirements for external~~

~~floating roof tanks specified in paragraph (d)(1) no later than one year after becoming subject to this rule.~~

(i) Comply with the requirements for External Floating Roof Tanks specified in paragraph (d)(1), except for subparagraph (d)(1)(E) no later than one year after becoming subject to this rule.

(ii) Comply with the requirements of subparagraph (d)(1)(E) no later than two years after becoming subject to the requirement.

(iii) Comply with the requirements for Internal Floating Roof Tanks specified in paragraph (d)(3) when the tanks are scheduled for emptying and degassing, but no later than five years after becoming subject to this rule.

(iv) Comply with the requirements for Fixed Roof Tanks specified in paragraph (d)(4) no later than five years after becoming subject to this rule.

(B) The owner or operator shall install a Domed Roof on any Storage Tanks under common ownership permitted to contain more than 97% by volume crude oil that become subject to the doming requirements of subparagraph (d)(1)(E) upon [Date of Adoption], in accordance with the following schedule:~~Comply with the requirements for domed external floating roof tanks specified in paragraph (d)(2) no later than six years after becoming subject to this rule . Any external floating roof tank that later becomes subject to this requirement based on any subsequent emission inventory year, shall comply with the requirements in paragraph (d)(2) no later than two years after becoming subject to this rule.~~

(i) No later than December 31, 2031 for at least 1/3 of the applicable Storage Tanks; and

(ii) No later than December 31, 2033 for at least 1/2 of the applicable Storage Tanks; and

(iii) No later than December 31, 2038 for all of the applicable Storage Tanks.

(C) In lieu of meeting the compliance schedule specified in subparagraph (d)(5)(B), the owner or operator of a Facility containing 12 or more tanks permitted to contain more than 97% by volume crude oil located at a single location where five or more tanks are 260 feet in diameter or larger, shall install a Domed Roof pursuant to the following compliance schedule:

(i) No later than December 31, 2030 for at least 1/4 of the applicable Storage Tanks; and

(ii) No later than December 31, 2036 for at least 1/2 of the applicable Storage Tanks; and

(iii) No later than December 31, 2040 for at least 3/4 of the applicable Storage Tanks; and

(iv) No later than December 31, 2041 for all of the applicable Storage Tanks.

(DC) The owner or operator of an External Floating Roof Tank permitted to contain more than 97% by volume crude oil with a True Vapor Pressure of less than 3 psia that becomes subject to the doming requirements of subparagraph (d)(1)(E) after [Date of Adoption], after a test demonstrates that the True Vapor Pressure of the crude oil is 3 psia or greater, shall comply with subparagraph (d)(1)(E) no later than 3 years after becoming subject the requirement.~~Comply with the requirements for internal floating roof tanks specified in paragraph (d)(3) when the tanks are scheduled for emptying and degassing, but no later than five years after becoming subject to this rule.~~

(ED) The owner or operator of an Internal Floating Roof Tank not equipped with a Secondary Seal shall comply with the requirements of subparagraph (d)(3)(D) when the tank is next emptied or degassed, or prior to refilling for any tank that is out of service, beginning 2 years after [Date of adoption]. The owner or operator shall install a Secondary Seal no later than 10 years after [Date of Adoption].~~Comply with the requirements for fixed roof tanks specified in paragraph (d)(4) no later than five years after becoming subject to this rule.~~

~~(6) The operator of all tanks for which a permit to construct and operate has been issued by the Executive Officer on and after January 1, 2002 for new construction shall comply with the requirements of subdivision (d).~~

(e) Identification Requirements

(1) The owner or operator shall permanently identify all tanks subject to the requirements of this rule by a visible sign that includes the tank number, on the outside wall of the tank for inventory, inspection and record keeping purposes.

(2) The owner or operator shall notify the Executive Officer of any change(s) in tank identification.

(f) Monitoring Requirements

(1) External Floating Roof Tanks

To demonstrate compliance with paragraph (d)(1), the operator shall have a Cc~~c~~ertified Pp~~p~~erson conduct the following in accordance with the procedures and guidelines specified in Attachment A:

(A) Conduct an EPA Method 21 inspection or measure gaps of all Rr~~r~~oof Oo~~o~~penings on a semiannual basis and each time the tank is emptied and degassed.

(B) Perform complete gap measurements of the Rr~~r~~im Ss~~s~~eal Ss~~s~~ystem on a semiannual basis and each time the tank is emptied and degassed.

(2) Domed External Floating Roof Tanks and Internal Floating Roof Tanks

To demonstrate compliance with paragraph (d)(2) and (d)(3), the owner or operator shall have a Cc~~c~~ertified Pp~~p~~erson conduct the following in accordance with the procedures and guidelines specified in Attachment A:

(A) Visually inspect the Rr~~r~~im Ss~~s~~eal Ss~~s~~ystem and r~~R~~Roof Oo~~o~~penings and use an explosimeter to measure the lower explosive limit (LEL) on a semiannual basis.

(B) Perform complete gap measurements of the Rr~~r~~im Ss~~s~~eal Ss~~s~~ystem each time the tank is emptied and degassed but no less than once every ten years.

(C) Perform complete gap measurements of all Rr~~r~~oof Oo~~o~~penings each time the tank is emptied and degassed but no less than once every ten years.

(3) Fixed Roof Tanks

(A) No later than 180 days after the effective date of the requirements, the owner or operator of a Ff~~f~~acility who elects to install an Ee~~e~~mission Cc~~c~~ontrol Ss~~s~~ystem to comply with the requirements in clause (d)(4)(A)(i) shall conduct an initial performance testing to determine the overall efficiency of the Ee~~e~~mission Cc~~c~~ontrol Ss~~s~~ystem and submit a complete test report to the Executive Officer. The performance testing of the Ee~~e~~mission Cc~~c~~ontrol Ss~~s~~ystem shall be repeated when the system is modified or an operating parameter is changed in a manner that affects the capture or control efficiency. In such case, the performance test shall be conducted and the test report submitted to the Executive Officer within 180 days after the modification. Subsequent to the initial performance test, the operator shall conduct annual performance tests, and shall monitor and record applicable operating parameters on a weekly basis to ensure that the Ee~~e~~mission Cc~~c~~ontrol Ss~~s~~ystem is achieving 98~~5~~% overall control efficiency.

(B) To demonstrate compliance with clauses (d)(4)(A)(ii), (d)(4)(A)(iii) and (d)(4)(A)(v), the owner or operator shall have a Ccertified Pperson conduct EPA Method 21 measurements on a quarterly basis.

(C) To demonstrate compliance with clause (d)(4)(A)(iv), the operator shall keep engineering data sheet for Ppressure-Vvacuum Vvents installed after January 1, 2002.

(4) Optical Gas Imaging Inspections

Effective July 1, 2024, the owner or operator shall demonstrate compliance with subparagraphs (d)(1)(D), (d)(2)(C), (d)(3)(F) and (d)(4)(C), by conducting OGI inspections in accordance with the following requirements:

(A) The person conducting an OGI inspection shall:

(i) Complete a manufacturer's certification or training program for the OGI Device used to conduct the inspection; and

(ii) Operate and maintain the OGI Device in accordance with the manufacturer's specifications and recommendations.

(B) Tank Farm Inspections

A person meeting the requirements of subparagraph (f)(4)(A) shall:

(i) Conduct a Tank Farm Inspection at least once every calendar week; and

(ii) When Visible Vapors are detected from a tank, conduct an inspection from the tank's platform to identify components and/or equipment emitting Visible Vapors.

(A) If determined that Visible Vapors are emitted from components required to be maintained in a Vapor Tight Condition or in a condition with no Visible Gaps, the owner or operator shall make necessary repairs or adjustments pursuant to subdivision (g), or demonstrate compliance with a Vapor Tight Condition or a condition with no Visible Gaps for the component from which Visible Vapors are emitted within 3 days.

(B) If determined that Visible Vapors are emitted from equipment not specified in subclause (f)(4)(B)(ii)(A), a visual inspection for defects in equipment shall be conducted, which may include the use of the OGI Device. The owner or operator shall make necessary repairs or adjustments pursuant to subdivision (g) for any defects identified.

(iii) If, during an inspection of a tank conducted pursuant to clause (f)(4)(B)(i), Visible Vapors are detected and no repairs or demonstrations were required pursuant to clause (f)(4)(B)(ii), an owner or operator is not required to conduct inspections required by clause (f)(4)(B)(ii) for that tank for the following weeks within that calendar month provided the inspector:

(A) Records the Visible Vapors detected during the Tank Farm Inspection; and

(B) Makes a determination that there are no visually identifiable departures indicating an increase in Visible Vapors by comparing the Visible Vapors detected during subsequent Tank Farm Inspections in the same calendar month to the Visible Vapors recorded pursuant to subclause (f)(4)(B)(iii)(A). Departures may include, but are not limited to, increases in the size, density, flowrate, or number of Roof Openings from which Visible Vapors are emitted.

(C) Component Inspections

A person that meets the requirements of subparagraph (f)(4)(A) shall:

(i) Conduct a Component Inspection for each floating roof tank at least once every six months; and

(ii) When Visible Vapors are detected, and are not emitted from the Rim Seal System, the owner or operator shall make any necessary repairs or adjustments pursuant to subdivision (g), or demonstrate compliance with the applicable rule requirements for the components or equipment from which Visible Vapors are detected within 3 days; and

(iii) When the Visible Vapors are detected from the Rim Seal System, the owner or operator shall identify any defects in the equipment and make any necessary repairs or adjustments pursuant to subdivision (g). If no defects are identified, an inspection from ground level shall be conducted. If Visible Vapors are detected at the top of the tank shell or roof vents, the owner or operator shall demonstrate compliance with the Rim Seal requirements of this rule, or make any necessary repairs, within 3 days.

(g) Maintenance Requirements

The owner or operator shall maintain tanks in accordance with the following requirements:

(1) Repair, or replace any piping, valves, vents, seals, gaskets, or covers of Roof Openings that are found to have defects or Visible Gaps, or are not in a Vapor Tight Condition and do not meet all the requirements of this rule before filling or refilling an emptied and degassed Storage Tank, or within 72 hours after an inspection, including one conducted by the operator as specified in paragraphs (f)(1) through (f)(3), determines that the equipment is not operating in compliance.

(2) Make any necessary repairs or adjustment on tanks found in non-compliance during an inspection required by paragraph (f)(4) within 3 days after the inspection.

~~The operator shall repair, or replace any piping, valves, vents, seals, gaskets, or covers of roof openings that are found to have defects or visible gaps, or are not vapor tight and do not meet all the requirements of this rule before filling or refilling an emptied and degassed storage tank, or within 72 hours after an inspection, including one conducted by the operator as specified in subdivision (f), determines that the equipment is not operating in compliance.~~

(h) Record Keeping and Reporting Requirements

(1) ~~During the inspections specified subdivision (f), the operator~~For inspections required by ~~*sub*~~paragraphs (f)(1) through (f)(3), the owner or operator shall: ~~keep records of all findings, including but not limited to the readings measured according to EPA Reference Test Method 21.~~

~~(2) The operator shall record all inspections of primary, secondary seals, a flexible enclosure system (if any), and roof openings on compliance inspection report forms approved by the Executive Officer as described in Attachment A.~~

~~(3) The operator shall submit all inspection reports and documents to the Executive Officer semiannually within five working days of completion of the inspections specified in paragraph (f)(1) and (f)(2); and on January 31 and July 31, respectively, upon the completion of two consecutive quarterly inspections conducted as specified in subparagraph (f)(3)(B).~~

(A) Keep records of all findings, including but not limited to the readings measured according to EPA Reference Test Method 21;

(B) Record all inspections of Primary Seals, Secondary Seals, a Flexible Enclosure System (if any), and Roof Openings on compliance inspection report forms approved by the Executive Officer as described in Attachment A. An owner or operator may use an electronic compliance

inspection report form provided that all required information specified in Appendix A is contained in the electronic report form; and

(C) Submit all inspection reports and documents to the Executive Officer semi-annually within five working days of completion of the inspections specified in paragraphs (f)(1) and (f)(2); and on January 31 and July 31, respectively, upon the completion of two consecutive quarterly inspections conducted as specified in subparagraph (f)(3)(B). Inspection reports may be submitted electronically to the email address designated by the Executive Officer.

(2) For OGI inspections required by subparagraph (f)(4), the owner or operator shall:

(A) Report Visible Vapors detected during a Tank Farm Inspection requiring a demonstration with rule requirements or a repair pursuant to clause (f)(4)(B)(ii) to the Executive Officer by phone (1-800-CUT-SMOG or 1-800-288-7664) within 24 hours after the inspection is completed;

(B) Keep written records and digital recordings of Visible Vapors detected during a Tank Farm Inspection resulting from a defect or emitted from a component required to be maintained in a Vapor Tight Condition or a condition with no Visible Gaps. Written records shall include tank identification, date of inspection, and findings. Findings shall include identification of tanks from which Visible Vapors were identified and any repairs or determinations made pursuant to subparagraph~~s~~ (f)(4)(B). Digital recordings shall be accurately time-stamped and capture the Visible Vapors for a minimum of 5 seconds; and

(C) Keep written records of Component Inspections that include tank identification, date of inspection and findings. Findings shall include identification of Storage Tanks from which Visible Vapors were identified, any repairs or determinations made pursuant to subparagraph (f)(4)(C).

(3~~4~~) If the owner or operator determines that a tank is in violation of the requirements of this rule during the inspections specified subdivision (f), the owner or operator shall submit a written report to the Executive Officer within 5 calendar days~~120 hours~~ of the determination of non-compliance, indicating corrective actions taken to achieve compliance. Written reports may be submitted electronically to the email address designated by the Executive Officer.

(4~~5~~) The owner or operator who elects to install or modify an E~~e~~mission C~~c~~ontrol S~~s~~ystem to comply with the requirement in clause (d)(4)(A)(i) shall conduct an initial performance test as described in ~~clause~~ subparagraph (f)(3)(A) and submit

a complete test report to the Executive Officer no later than 180 days after the effective date of the requirement for new installation; or 180 days after the modification. Subsequent annual performance test and test report shall be submitted annually within 60 days after the end of each Eemission Iinventory Yyear.

(56) The owner or operator shall keep all required records for monitoring, inspection, maintenance, and repair records, sampling results, and type of Organic Liquid stored at the Ffacility for a period of five years and shall make the records available to the Executive Officer upon request.

(i) Test Methods and Procedures

The following test methods and procedures shall be used to determine compliance with this rule. Alternative test methods may be used if they are determined to be equivalent and approved in writing by the Executive Officer, the California Air Resources Board, and the U.S. Environmental Protection Agency.

(1) Measurements of gaseous Vvolatile Oorganic Cecompound leaks shall be conducted according to EPA Reference Method 21 using an appropriate analyzer calibrated with methane.

(2) Organic Lliquids that are stored at Aambient Ttemperatures with a Ttrue Vvapor Ppressure of greater than 5 mm Hg (0.1 psi) absolute under actual storage conditions shall be determined as those with a flash point of less than 100 °F as determined by ASTM Method D-93.

(3) Organic Lliquids that are stored at above Aambient Ttemperatures with a Ttrue Vvapor Ppressure greater than 5 mm Hg (0.1 psi) absolute under actual storage conditions shall be determined as those whose volume percent evaporated is greater than ten percent at an adjusted temperature T_{Adj} as determined by ASTM Method D-86 of:

$$T_{Adj} = 300\ ^oF + T_l - T_a$$

Where:

T_l = Liquid Storage Temperature (^oF)

T_a = Ambient Temperature (^oF) = 70 ^oF

(4) Organic liquids with aThe Ttrue Vvapor Ppressure of Organic Liquid greater than or equal to 3 psia shall be determined by ASTM Method D-323 for Reid Vvapor Ppressure, or ASTM Method D-6377 correlated to ASTM D-323, and converted to Ttrue Vvapor Ppressure using applicable nomographs in EPA AP-42 or South Coast AQMDDistrict and EPA approved nomographs. The actual storage temperature used for

determining Ttrue Vvapor Ppressure shall be 70 degrees Fahrenheit for Oorganic Lliquids that are stored at Aambient Ttemperatures, and actual storage temperature for Oorganic Lliquids that are stored at above Aambient Ttemperatures.

(5) Control efficiency of an Eemission Ccontrol Ssystem, on a mass emissions basis, and the VOC concentrations in the exhaust gases shall be determined by U.S. EPA Test Methods 25, 25A; South Coast AQMDDistrict Method 25.1 - Determination of Total Gaseous Non-Methane Organic Emissions as Carbon; or District Method 25.3 – Determination of Low Concentration Non-Methane Non- Ethane Organic Compound Emissions from Clean Fueled Combustion Sources, as applicable.

(6) When more than one test method or set of test methods are specified for any testing, the application of these methods to a specific set of test conditions is subject to approval by the Executive Officer. In addition, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of the rule.

(7) The sampling, analysis, and reporting shall be conducted by a laboratory that has been approved under the South Coast AQMDDistrict Laboratory Approval Program (LAP) for the cited South Coast AQMDDistrict reference test methods, where LAP approval is available. For South Coast AQMDDistrict reference test methods for which no LAP program is available, the LAP approval requirement shall become effective one year after the date that the LAP program becomes available for that South Coast AQMDDistrict reference test method.

(8) Tests to determine emission factors for an alternative control device for rim seal or deck opening shall accurately simulate conditions under which the device will operate, such as wind, temperature, and barometric pressure. Test methods that can be used to perform the testing required in this paragraph include, but are not limited to, the following methods, which shall be performed by a laboratory certified by American Petroleum Institute (API):

(A) API Manual of Petroleum Measurement Standards, Chapter 19, Section 3, Part A, Wind Tunnel Test Method for the Measurement of Deck-Fitting Loss Factors for External Floating-Roof Tanks;

(B) API Manual of Petroleum Measurement Standards, Chapter 19, Section 3, Part B, Air Concentration Test Method for the Measurement of Rim Seal Loss Factors for Floating-Roof Tanks.

(C) API Manual of Petroleum Measurement Standards, Chapter 19, Section 3, Part E; Weight Loss Test Method for the Measurement of Deck-Fitting Loss Factors for Internal Floating-Roof Tanks.

(j) Exemptions

(1) The provisions of this rule shall not apply to pressurized Ssstorage Tttanks designed to operate in excess of 15 pounds per square inch gauge (psig) without any emissions to the atmosphere except under emergency conditions.

~~(2) Domed external floating roof tanks installed prior to January 1, 2002 shall be exempt from the requirements of subparagraph (d)(2)(D) and (d)(2)(E) for secondary seals.~~

~~(3) Any facility with a facility emission cap equal to or less than 40,000 pounds (20 tons) per year of VOC shall be exempt from the requirements of this rule.~~

(24) Portable Baker tanks containing Ooorganic Llliquids having Tttrue Vvvapor Pppressures from 0.1 psia to 0.5 psia equipped with carbon canisters to reduce the emissions from the Ssstorage Tttanks to less than 500 ppm outlet concentration shall be exempt from the performance testing requirements specified in clause (d)(4)(A)(i) and subparagraph (f)(3)(A) provided that the operator conducts EPA Reference Method 21 measurement weekly to ensure that the system achieves the emission standard of 500 ppm.

(35) External Fffloating Rrroof tanks having permit conditions that limit the Tttrue Vvvapor Pppressure of the Ooorganic Llliquids stored in the tanks to lessower than 3 psia shall be exempt from the requirements of clauseparagraph (d)(12)(E)(i) provided that the True Vapor Pressure of the Organic Liquid is less than 3 psia as demonstrated pursuant to subparagraph (d)(1)(F).

(46) Except for Storage Tanks with*that do not have* a Potential For VOC Emissions of 6 tons per year or greater used in Crude Oil And Natural Gas Production Operations, tanks*and are* storing Organic Liquid with a True Vapor Pressure equal to or less than 5 mm Hg (0.1 psia) under actual storage conditions shall be*are* exempt from the requirements of this rule, provided the owner or operator demonstrates that the Organic Liquid stored has a True Vapor Pressure of 5 mm Hg (0.1 psia) or less under actual storage conditions with a method specified in a permit condition, or with the appropriate test method specified in subdivision (i) pursuant to subparagraphs (j)(4)(A) and (j)(4)(B), with the first test conducted no later than July 1, 2024 or within one month from refilling a tank that is out of

service after July 1, 2024.~~External floating roof tanks subject to clause (d)(1)(A)(i) shall be exempt from this requirement until the next time the tank is emptied and degassed, provided that the operator has demonstrated to the satisfaction of the Executive Officer that in order to properly bolt, the covers for access hatches and gauge float wells must be welded. The operator shall use equivalent means, such as clamping, to secure the covers during the interim period.~~

(A) Test every 5 years for tanks storing refined Organic Liquid meeting specifications for sale; and

(B) Test annually for tanks storing an Organic Liquid that does not meet the criteria requirements of subparagraph (j)(4)(A).

If the Organic Liquid stored is not an Organic Liquid intended to have a True Vapor Pressure of 0.1 psia or less at the time testing is required, the owner or operator shall test the True Vapor Pressure when the tank is refilled with an Organic Liquid intended to have a True Vapor Pressure of 0.1 psia or less within one month from refilling. The owner or operator shall, for a minimum of five years, keep records on the type of Organic Liquid stored with its corresponding dates of storage, and the results of all tests conducted pursuant to this paragraph.

(5~~7~~) External F~~f~~loating R~~r~~oof tanks permitted to contain more than 97% by volume crude oil shall be exempt from the doming requirements of clause~~subparagraphparagraph~~ (d)(1~~2~~)(E~~A~~)(ii)~~ and (d)(2)(B)~~ provided that a permit application is submitted to the Executive Officer no later than one year from [Date of Adoption] to limit the True Vapor Pressure of the crude oil stored to less than 3 psia~~ but shall comply with other remaining applicable requirements of this rule~~ and the True Vapor Pressure of the crude oil stored is less than 3 psia as demonstrated pursuant to subparagraph (d)(1)(F) or by a True Vapor Pressure test requested by the Executive Officer.

(6) Any tank that is out of service, where the tank has been emptied or has been opened to the atmosphere pursuant to the requirements of Rule 1149 – Storage Tank and Pipeline Cleaning and Degassing, shall be exempt from the requirements of paragraph (f)(4) until the tank is refilled.

(7) An owner or operator shall be exempt from the requirements of ~~*subparagraph*~~clause (f)(4)(B)(ii) if a determination is made that it is unsafe to conduct an inspection from a tank platform, provided that the reason(s) and date(s) the inspection was not conducted is documented. The inspections shall resume on the first day determined to be safe.

ATTACHMENT A

INSPECTION PROCEDURES AND COMPLIANCE REPORT FORMS

Equipment Needed:

Organic Vapor Analyzer (OVA) calibrated with methane in accordance with EPA Test Method 21, explosimeter calibrated with methane (for internal floating roof tanks), liquid resistant measuring tape or device, tank probe (to measure gaps in tank seals - 1/8 inch, 1/2 inch, 1-1/2 inch), flashlight.

Inspection Procedures:

1. The findings of all tank self-inspections, whether completed or not, shall be recorded on the Rule 1178 Compliance Report forms prescribed by the Executive Officer and submitted to South Coast AQMD's ~~the District's~~ Refinery Section in accordance with the rule's requirements. If an inspection is stopped before completion, indicate the reason for this action in the Comments section of the compliance report form.
2. During the compliance inspection, the person(s) conducting the inspection must have a copy of the Permit to Operate or Permit to Construct pertinent to the tank being inspected. Any discrepancies between the permit equipment description and the existing tank or the permit conditions and the actual operating conditions of the tank as verified during inspection must be recorded in the Comments section of the compliance report form.
3. Inspect the ground level periphery of each tank for possible leaks in the tank shell. Complete the tank information section (D) on the report.
4. For external floating roof tanks:
    - o From the platform, conduct an overall visual inspection of the roof and check for obvious permit or rule violations. Record the information as shown under section F of the compliance report form.
    - o During visual inspection of the roof, check for unsealed roof legs, open hatches, open emergency roof drains or vacuum breakers and record the findings on the report accordingly. Indicate presence of any tears in the fabric of both seals.
    - o Conduct an inspection of the roof fittings for vapor tight condition and record any leaks above 500 ppm in the fugitive emissions tank report OR conduct an inspection of the roof fittings using the 1/8" probes.

- o Conduct an inspection of the entire secondary seal using the 1/8" and 1/2" probes. Record the gap data in section F(4) of the report.
- o Conduct an inspection of the entire primary seal using the 1/8", 1/2", and 1-1/2" probes. Inspect the primary seal by holding back the secondary seal. Record the gap data in section F(5) of the report.
- o Record all cumulative gaps between 1/8 inch and 1/2 inch; between 1/2 inch and 1-1/2 inch; and in excess of 1-1/2 inches, for both primary and secondary seals in section G of the report. Secondary seal gaps greater than 1/2 inch should be measured for length and width, and recorded in Comments under section (J) of the report.
- o For slotted guidepoles with a flexible enclosure system, conduct a visual inspection of the flexible enclosure system. Record any holes, tears, slots, or rips in the flexible enclosure system and any tightening or replacement of clamps at the top and the bottom of the flexible enclosure system pursuant to clause (d)(1)(A)(xi).

5. For internal floating roof and domed tanks:
   - o Using an explosimeter, measure the concentration of the vapor space above the floating roof in terms of lower explosive limit (LEL), and record the reading in section (E) of the report.
   - o Conduct a visual inspection of the roof openings and the secondary seal, if applicable, and record findings on the report.
   - o Conduct gap measurements of the rim seal system and roof openings each time the tank is emptied and degassed but no less than once every ten years.
   - o Conduct a visual inspection of the slotted guidepole flexible enclosure system.
6. For fixed roof tanks:
   - o Conduct an inspection of the pressure relief valves, piping, valves and fittings located on the roof for vapor tight condition and record any readings in excess of 500 ppm in the fugitive emissions tank report.
7. Complete all necessary calculations and record all required data accordingly on the report.

South Coast Air Quality
Management District
21865 East Copley Drive
Diamond Bar, CA 91765
(909) 396-2000

(Amended [Amended Date])

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

RULE 1178 COMPLIANCE REPORT

PLEASE COMPLETE FORM LEGIBLY IN BLACK INK

SCAQMD ID No.: _____

Tank No. _____ SCAQMD Permit No. _____ Inspection Date _____ Time _____

Is This a Follow-up Inspection? No ☐ Yes ☐ If yes, Date of Previous Inspection _____

A. COMPANY INFORMATION:

Company Name _____

Location Address _____ City _____ Zip _____

Mailing Address _____ City _____ Zip _____

Contact Person _____ Title _____

Phone _____ E-mail _____

B. INSPECTION CONDUCTED BY:

Name _____ Title _____

Company Name _____ Phone _____

Mailing Address _____ City _____ Zip _____

C. TANK INFORMATION:

Capacity _____ (bbls) Installation Date _____ Tank Diameter _____ (ft) Tank Height _____ (ft)

Product Type _____ Product RVP _____

Type of Tank: Riveted ☐ Welded ☐ Other ☐ (describe) _____

Color of Shell _____ Color of Roof _____

Roof Type: Pontoon ☐ Double Deck ☐ Other(describe) _____

External floating roof ☐ Internal floating roof or domed tank ☐ Flexible enclosure system ☐

D. GROUND LEVEL INSPECTION:

1) Product Temperature _____ ° F 2) Product level _____ (ft)

3) List type and location of leaks found in tank shell.

_____

4) List any discrepancies between the existing equipment and the equipment description on the Permit.

_____

5) Is tank in compliance with Permit conditions? No ☐ Yes ☐ If no, explain _____

_____

_____

E. INTERNAL FLOATING ROOF OR DOMED TANK:

1) Check vapor space between floating roof and fixed roof with explosimeter. _____ % LEL

2) Conduct visual inspection of roofs, secondary seals, and slotted guidepole flexible enclosure system, if applicable.

3) Are all roof openings covered? No ☐ Yes ☐ If no, explain in Comments section (J) and proceed to part (H)(6).

F. EXTERNAL FLOATING ROOF TANK (or DOMED TANK AND INTERNAL FLOATING ROOF TANK when needed)

1) On the diagram (below) indicate the location of the ladder, roof drain(s), anti-rotation device(s), platform, gauge well, and vents or other appurtenances. *Note information in relation to North (to the top of the worksheet).*

2) Describe any uncovered openings found on the roof in the Comments section (J). (Refer to Rule 463(a)(1)(F)):

3) Identify any tears in the seal fabric. Describe and indicate on diagram (below):

4) Secondary Seal Inspection

a) Type of Secondary Seal: __

b) Does 1/2" probe drop past seal? No ☐ Yes ☐ if yes, measure length(s) and show on diagram

c) Does 1/8" probe drop past seal? No ☐ Yes ☐ if yes, measure length(s) and show on diagram.

d) Record dimensions of gap for gaps > 1/8" _____ > 1/2" _____

NOTE: Record the actual width and cumulative length of gaps in feet and inches. (Do not include gaps > 1/2" in 1/8" measurements)

5) Primary Seal Inspection

a) Type of Primary Seal: ☐ Shoe; ☐ Tube; ☐ Other ___

b) (shoe seal) does 1-1/2" probe drop past seal? No ☐ Yes ☐; if yes, measure length(s) and show on diagram.

c) (shoe seal) does 1/2" probe drop past seal? No ☐; Yes ☐; if yes, measure length(s) and show on diagram.

d) (tube seal) does 1/2" probe drop past seal? No ☐ Yes ☐ if yes, measure length(s) and show on diagram.

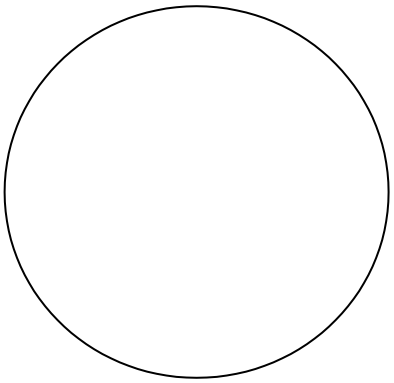
e) (all seal types) does 1/8" probe drop past seal? No ☐ Yes ☐ if yes, measure (length(s) and show on diagram.

f) Record dimensions of gaps for gaps >1/8" _ > 1/2" _____

>1-1/2" _____ *NOTE: Record the actual width and cumulative length of gaps in feet and inches. (Do not include gaps > 1/2" in 1/8" measurements, or gaps > 1-1/2" in 1/2" measurements)*

6) Deck Fitting Inspection
(circle one) does 1/8" probe drop past gasket seal or pass Method 21? No ☐ Yes ☐ if yes, identify

NOTE: Show defects using symbols. Show seal gaps and lengths.



LEGEND:
Equipment:
Antirotational device
Gauge well
⊤ Leg stand
Roof drain
* Emergency roof drain
∞ Vacuum breaker
σ Vent
Platform & ladder
Defects:
Leg top
⫲ Leg pin
Open hatch
\/\ Torn seal
|-P-| Primary seal gap
|-S-| Secondary seal gap

Tank No. _____ SCAQMD Permit No. _____

7) Flexible Enclosure System Inspection

Does flexible enclosure system have any holes, tears, slots, or rips? If yes, identify location and approximate size:	No ☐	Yes ☐
Does the flexible enclosure system have double-clamps at the top that are fitted tightly to prevent fugitive emissions from being released to the outside?	No ☐	Yes ☐
Is the flexible enclosure system properly secured to the roof of the tank, with no visible gaps to prevent fugitive emissions from being released to the outside?	No ☐	Yes ☐

IF INTERNAL FLOATING ROOF OR DOMED TANK, PROCEED TO PART H(6) WHEN APPROPRIATE:

G. CALCULATIONS - complete all applicable portions of the following:

Record dimensions of indicated gaps [from F(4)(d), F(5)(b), and F(5)(f)]. Record in feet and inches.

Gaps in primary seal between 1/8 and 1/2 inch: _____

Gaps in primary seal between 1/2 and 1-1/2 inch: _____

Gaps in primary seal greater than 1-1/2 inches: _____

Gaps in secondary seal between 1/8 and 1/2 inch: _____

Gaps in secondary seal greater than 1/2 inch: _____

Multiply diameter (ft) of tank to determine appropriate gap limits:

5% circumference = diameter X 0.157 =	_____	60% circ. = diam. X 1.88 =	_____
10% circumference = diameter X 0.314 =	_____	90% circ. = diam. X 2.83 =	_____
30% circumference = diameter X 0.942 =	_____	95% circ. = diam. X 2.98 =	_____

H. DETERMINE COMPLIANCE STATUS OF TANK:

1)	Were any openings found on the roof?		No ☐	Yes ☐
2)	Were any tears in the seals found:		No ☐	Yes ☐
3)	Is the product level lower than the level at which the roof would be floating?		No ☐	Yes ☐
4)	Secondary Seal:			
		Did 1/2" probe drop between shell and seal?	No ☐	Yes ☐
		Did cumulative 1/8" - 1/2" gap exceed 95% circumference length?	No ☐	Yes ☐
5)	Primary Seal			
	Shoe	Did 1-1/2" probe drop between shell and seal?	No ☐	Yes ☐
		Did cumulative 1/2" - 1-1/2" gap exceed 30% circumference length, and		
		Did cumulative 1/8 - 1/2" gap exceed 60% circumference length?	No ☐	Yes ☐
		Did any <u>single continuous</u> 1/8" - 1-1/2" gap exceed 10% circ. length?	No ☐	Yes ☐
	Tube	Did 1/2" probe drop between shell and seal	No ☐	Yes ☐
		Did cumulative 1/8" - 1/2" gap exceed 95% circumference length?	No ☐	Yes ☐
6)	Internal floating roof (installed before 6/1/84) did LEL exceed 50%		No ☐	Yes ☐
		(installed after 6/1/84) or domed tank did LEL exceed 30%?	No ☐	Yes ☐
7)	Does tank have permit conditions?		No ☐	Yes ☐
		Does tank comply with these conditions?	No ☐	Yes ☐

I. IF INSPECTION WAS TERMINATED PRIOR TO COMPLETION FOR ANY REASON, PLEASE EXPLAIN:

_____

_____

_____

_____

J. COMMENTS:

Use this section to complete answers to above listed items and to describe repairs made to the tank; include date and time repairs were made.

K. ***I(We) certify the foregoing information to be correct and complete to the best of my(our) knowledge.***

Inspection completed by: _____ Date: _____

(Signature) (Certification ID #)

Compliance status by: _____ Date: _____

(Signature) (Certification ID #)

Company Representative: _____ Date: _____

(Signature) (Certification ID #)

SEND COMPLETED REPORT TO:

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 E. Copley Drive
Diamond Bar, CA. 91765 FAX: (909)396 -3341
Attn: Rule 1178 Supervising Inspector
OR
rule463rule1178compliancereports@aqmd.gov

FOR SCAQMD USE ONLY: Date received_____

Reviewed by:_____ Date reviewed_____
(Signature) (Certification ID #)

Tank Status: [ ] in compliance [ ] in violation, Rule(s)_____

Comments:_____

RULE 1178 FUGITIVE EMISSIONS TANK REPORT

Company Information							
Company Name							
Address							
Contact/Phone Number							
SCAQMD ID #				Report Date			
Tank ID	**Type**	**Fitting**	**Date**	**Leak Rate**	**Type of Repair**	**Date**	**Post Repair Leak Rate**

COMMENTS:

Use this section to complete answers to above listed items and to describe repairs made to the tank; include date and time repairs were made.

ATTACHMENT G

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report

Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities

September 2023

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Rule 1178 - Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (Rule 1178) limits volatile organic compound (VOC) emissions from storage tanks at petroleum facilities that have emitted more than 20 tons of VOC in any reporting year since the rule's adoption in 2001. Applicable storage tanks have a design capacity of 19,815 gallons or more and store materials with a true vapor pressure (TVP) of greater than 0.1 pounds per square inch absolute (psia). Tanks with a potential to emit (PTE) of 6 tons per year (tpy) or more used in crude oil and natural gas production are also subject to the rule. The rule requires more stringent controls for storage tanks located at high emitting facilities. Controls include best available rim seal systems and covers or sleeves on all roof components that are gasketed, bolted, or equipped with wipers to reduce emissions from openings. Additionally, domes are required on tanks storing high volatile material.

California Assembly Bill 617 (AB 617) was signed into state law in 2017 and required strategy development to reduce toxic air contaminants and criteria pollutants in disadvantaged communities. During the development of the Wilmington, Carson, West Long Beach (WCWLB) Community Emission Reduction Plan (CERP), community members expressed concern about refinery emissions. Rule development for Rule 1178 was initiated in response to Chapter 5b, Action 4 in the WCWLB CERP that was adopted by the South Coast AQMD Governing Board on September 6, 2019. Recommendations for proposed amendments to Rule 1178 included improving leak detection and repair requirements by incorporating advanced leak detection technologies and requiring additional emission controls.

Control Measure FUG-03 – Further Reductions of Fugitive VOC Emissions in the 2012 Final Air Quality Management Plan (AQMP) identified the implementation of advanced leak detection technologies, including optical gas imaging, as a method to reduce the emissions impact from leaks. The 2016 Final AQMP included Control Measure FUG-01 – Improved Leak Detection and Repair to utilize advanced remote sensing technologies to allow for faster identification and repair of leaks from equipment at facilities that are currently required to maintain a leak detection and repair (LDAR) program. The 2022 Final AQMP also included Control Measure FUG-01 – Improved Leak Detection and Repair to reduce VOC emissions from fugitive leaks from process and storage equipment. PAR 1178 partially implements Control Measure FUG-01 that commits to improved leak detection requirements in South Coast AQMD rules, including Rule 1178.

Proposed Amended Rule 1178 (PAR 1178) establishes more stringent leak detection and repair and control requirements. PAR 1178 establishes weekly optical gas imaging (OGI) inspections and more stringent requirements for doming, emission control systems, secondary seals, maintenance, recordkeeping, and reporting. PAR 1178 applies to 1,093~~1,059~~ tanks located at 30~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. The proposed requirements will reduce VOC emission by 0.82 ton per day. Overall cost-effectiveness of PAR 1178 is $27,800 per ton of VOC reduced. The cost-effectiveness to implement OGI inspections is $25,400 per ton of VOC reduced. The cost-effectiveness to require domes on additional tanks is $36,800 per ton of VOC reduced. The cost-effectiveness to require secondary seals on all floating roof tanks is $22,800 per ton of VOC reduced. The cost-effectiveness to meet more stringent gap requirements and increased emission control system efficiency is zero since tanks are already

meeting the proposed requirements and no costs are assumed for tanks already meeting the proposed requirements.

PAR 1178 was developed through a public process. Eight Working Group meetings for PAR 1178 were held on March 17, 2021, July 15, 2021, December 9, 2021, March 24, 2022, July 14, 2022, October 27, 2022, January 5, 2023, and July 6, 2023. Working Group meeting participants included attendees from affected businesses, environmental and community representatives, public agencies, consultants, and other interested parties. The purpose of the Working Group meetings was to discuss details of proposed amendments and listen to stakeholder concerns with the objective to build a consensus regarding the proposal and resolve issues. Staff met with multiple stakeholders during the rule development process and conducted several site visits. A Public Workshop for PAR 1178 was held on March 1, 2023. The purpose of the Public Workshop was to present the proposed amended rule language to the general public and to stakeholders, as well as to solicit comments.

CHAPTER 1: BACKGROUND

INTRODUCTION

REGULATORY HISTORY

AFFECTED INDUSTRIES

PUBLIC PROCESS

INTRODUCTION

Rule 1178 limits VOC emissions from storage tanks at petroleum facilities that have emitted more than 20 tons of VOC in any reporting year since the rule's adoption in 2001. Applicable storage tanks have a design capacity of 19,815 gallons or more and store materials with true vapor pressure of greater than 0.1 psia true vapor pressure (TVP). Tanks with a PTE of 6 tpy or more used in crude oil and natural gas production are also subject to the rule. The rule implemented more stringent controls for storage tanks located at higher emitting facilities including gasketed and/or bolted covers on roof openings, sleeves and wipers and best available rim seal systems for floating roof tanks. Fixed roofs vented to the atmosphere were required to be converted to an internal or external floating roof tank or vented to a fuel gas system or an emission control system with at least 95 percent control efficiency. External floating roof tanks were required to be retrofit with domes if storing material with true vapor pressure of 3 psia or greater, excluding tanks storing crude oil.

California Assembly Bill 617 (AB 617) was signed into state law in 2017 and required the development of strategies to reduce toxic air contaminants and criteria pollutants in disadvantaged communities. AB 617 requires the California Air Resources Board (CARB) to select specific disadvantaged communities and requires air districts to prepare and implement a Community Emission Reduction Program (CERP) for each community. In 2018, CARB selected the Wilmington, Carson, West Long Beach (WCWLB) community.

During the development of the WCWLB CERP, community members expressed concern about refinery emissions. Rule development for Rule 1178 was initiated as a result of the Final WCWLB CERP adopted on September 6, 2019. Chapter 5b, Action 4 in the WCWLB CERP initiates rule development for Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities. Recommendations for proposed amendments to Rule 1178 focused on improving leak detection requirements with the use of advanced technologies and requiring additional emission controls.

Control Measure FUG-03 – Further Reductions of Fugitive VOC Emissions in the 2012 Final AQMP identifies the implementation of advanced leak detection technologies, including optical gas imaging, as a method to reduce the emissions impact from leaks. The 2016 Final AQMP included Control Measure FUG-01 – Improved Leak Detection and Repair to utilize advanced remote sensing technologies to allow for faster identification and repair of leaks from equipment at oil and gas and other facilities that are currently required to maintain an LDAR program. PAR 1178 partially implements Control Measure FUG-01 that commits to improved leak detection requirements in South Coast AQMD rules, including Rule 1178.

Staff assessed current Rule 1178 requirements and identified potential areas of improvement including leak detection and repair requirements and the potential for further emission reductions from requiring more stringent controls. Leak detection using enhanced detection technologies have become more widespread since the adoption of Rule 1178. Staff assessed multiple leak detection technologies as part of the PAR 1178 rule development. Staff also analyzed control technologies and methods with potential to further reduce emissions from storage tanks. Proposed amendments to PAR 1178 are based on determination of feasible and cost-effective technologies and methods that were assessed through a best available retrofit control technologies (BARCT) analysis.

REGULATORY HISTORY

Rule 1178 was adopted in 2001 and requires additional emission controls for tanks with a capacity of 19,815 gallons or greater used for the storage of organic liquids with a true vapor pressure of greater than 0.1 psia located at any petroleum facility that emits more than 20 tons of VOC in any reporting year since 2000. The additional emission controls included domes, gasketed and/or bolted covers with sleeves or wipers on all roof openings, best available rim seal systems, and emission control systems for fixed roof tanks.

Rule 1178 was amended on April 7, 2006 to allow an alternative for drain cover, include a modified seal requirement, update the inspection form, and clarify compliance schedules. Rule 1178 was amended again on April 6, 2018 to specify requirements for flexible enclosure systems, require repairs or replacements to be conducted within 72 hours of an identified leak, and clarify report submissions. Rule 1178 was amended again on November 6, 2020 to allow certain operators to accept a permit condition limiting vapor pressure on the material stored in lieu of installing a domed roof.

Rule 1178 was most recently amended on May 5, 2023 to address a reasonably available control technology (RACT) deficiency identified by U.S. EPA. The applicability of the rule was modified to include tanks subject to U.S. EPA's 2016 Control Techniques Guidelines and subject them to RACT controls already required by the rule. Tanks that have a potential to emit of 6 tons per year or more and are used in oil and natural gas production operations became subject to Rule 1178.

AFFECTED INDUSTRIES

PAR 1178 affects 1,093~~1,059~~ tanks located at 30~~27~~ facilities in the petroleum industry including refineries, bulk storage and loading, terminals, and oil production. Nine refineries, seven bulk storage, nine terminals, and two oil production facilities will be affected by PAR 1178.

PUBLIC PROCESS

PAR 1178 was developed through a public process. Eight Working Group meetings for PAR 1178 were held on March 17, 2021, July 15, 2021, December 9, 2021, March 24, 2022, July 14, 2022, October 27, 2022, January 5, 2022, and July 6, 2023. Working Group meeting participants included affected businesses, environmental and community representatives, public agencies, consultants, and other interested parties. The purpose of the Working Group meetings is to discuss details of proposed amendments and to listen to concerns with the objective to build a consensus and resolve issues. Staff met with multiple stakeholders during the rule development process and conducted several site visits.

In addition, a Public Workshop for PAR 1178 was held on March 1, 2023. The purpose of the Public Workshop is to present the proposed amended rule language to the general public and to stakeholders, as well as to solicit comments.

Staff has also held numerous individual meetings regarding PAR 1178 with stakeholders, including facilities and environmental groups to understand specific concerns and how the rule

may uniquely affect them. Staff also met with technology and leak detection service providers. In addition, staff conducted 13 site visits to understand facility operations involving storage tanks and the effect of PAR 1178.

CHAPTER 2: BARCT ASSESSMENT

INTRODUCTION

PAR 1178 development was initiated in response to concerns expressed by community members during the development of the WCWLB CERP. During the AB 617 WCWLB CERP development, recommendations were made for improved leak detection and repair requirements and additional controls. Additionally, South Coast AQMD periodically assesses rules to ensure that BARCT is reflected in rule requirements. To address community member concerns and ensure that Rule 1178 reflects BARCT, a BARCT assessment was conducted to identify the potential to further reduce emissions from storage tanks.

The BARCT assessment included a review of leak detection and emission reducing technologies. Newer leak detection technologies were reviewed and included OGI devices, gas sensors, and open path detection. Leak detection methods were also analyzed and included continuous monitoring and increased inspection frequency. Control technologies were reviewed and included domes, proximity switches, cable suspended floating roof systems, and vapor recovery. Staff analyzed the potential to reduce emissions from leaks with enhanced leak detection technologies and reduce emissions from tank operations by establishing more stringent requirements for existing controls including domes, seals, and emission control systems.

As part of the technology assessment, a cost-effectiveness analysis was conducted for technologies with potential to reduce emissions. A cost-effectiveness analysis determines the cost per ton of pollutant reduced. In the 2022 AQMP, a cost-effectiveness threshold of $36,000 per ton of VOC reduced was established. An incremental cost-effectiveness was also conducted for proposed controls and monitoring methods and is detailed in Chapter 4.

EMISSIONS FROM STORAGE TANKS

Rule 1178 applies to aboveground storage tanks with a design capacity of 19,815 gallons or more and are used to store organic liquids with a true vapor pressure of greater than 0.1 psia under actual storage conditions and are located at petroleum facilities that have emitted 20 tons of VOC or more in any calendar year since year 2000. There are four major categories of storage tanks subject to the rule: fixed roof tanks, external floating roof tanks, domed external floating roof tanks, and internal floating roof tanks. There are a total of 1,0931,059 stationary tanks subject to PAR 1178 and 55 individually permitted portable tanks and 25 permitted portable tank systems consisting of up to 20 portable tanks for each permit.

Storage tanks emit VOC through openings inherent in the tank design. Rule 1178 requires the use of seals and covers to reduce the amount of VOC that can migrate out of the tank through the tank openings. Tank openings on fixed roof tanks include, but are not limited to, vapor recovery connection points, pressure vacuum vents and sample hatches. Floating roof tanks also contain openings that include the annular space around the floating roof, guidepoles, rim vents, pressure vents, hatches, and roof legs. Rule 1178 already requires controls on all roof openings and as part of the PAR 1178 rule development, staff reviewed additional technologies and methods to further reduce emissions from tank operation and leaks.

CURRENT REGULATORY REQUIREMENTS

South Coast AQMD Requirements

Rule 1178 contains requirements for storage tanks with a design capacity of 19,815 gallons or more, storing organic liquid with a TVP greater than 0.1 psia, and that are located at petroleum facilities that have emitted over 20 tons of VOC in any inventory year since 2000. Control requirements include specifications for tank roofs, emission control systems, and covers and seals for roof openings. Inspection and monitoring requirements are specific to the type of tank.

Floating roofs, or fixed roofs with 95 percent (%) by weight emission control, are required for every tank. Domes on external floating roof tanks are required when organic liquid stored has TVP of 3 psia or greater. Tanks used to store crude oil are exempt from the doming requirement. Rim seals systems for floating roofs have gap requirements. Primary seals must not have gaps larger than 1.5 inch. Gaps greater than 0.5 inch cannot exceed a cumulative length of 30% of the circumference of the tank and gaps greater than 0.125 inch cannot exceed 60% of the circumference. There cannot be a continuous gap of greater than 0.125 inch for more than 10% of the circumference. Secondary seals must not have gaps greater than 0.5 inch and gaps greater than 0.125 inch cannot exceed 5% of the circumference of the tank.

Controls for floating roofs include gaskets, gasketed covers, and sleeves or flexible enclosure systems for all roof penetrations. Certain roof openings cannot have a visible gap which is a gap greater than 1/8 inch and must be maintained in a vapor tight condition that does not emit more than 500 parts per million (ppm) of VOC. Fixed roof tanks are required to maintain a vapor tight condition for all roof openings and have at least 95% by weight emission control.

Rule 1178 contains differing inspection requirements dependent on tank type. Below is a summary of the inspection requirements.

Fixed roofs:

- Quarterly measurements per U.S. EPA Method 21
- Annual performance tests on vapor recovery systems

External floating roof tanks:

- Gap measurements on all roof openings semi-annually and each time tank is degassed or emptied, or U.S. EPA Method 21
- Complete gap measurements of the rim seal system on a semi-annual basis and each time the tank is emptied or degassed

Internal and domed external floating roof tanks:

- Visual inspections of rim seals and roof openings and lower explosive limit (LEL) readings semi-annually
- Complete gap measurements of the rim seal system when tank is emptied or degassed and at least every 10 years

Other Regulatory Requirements

Staff reviewed rules and regulations of other air regulating agencies including U.S. EPA, San Joaquin Valley Air Pollution Control District (SJVAPCD), and Bay Area Air Quality Management

District (BAAQMD). Staff identified requirements more stringent than those contained in South Coast AQMD's Rule 1178 for controls and monitoring. It is important to note there are several requirements where South Coast AQMD's Rule 1178 is more stringent than requirements contained in other air districts' rules, such as applicability, inspection frequency, doming and other requirements and may be more stringent overall. However, the following discussion describes the requirements found in other regulations that are more stringent than Rule 1178 requirements.

U.S. EPA 40 Code of Federal Regulations (CFR) Part 60 Subpart Kb applies to tanks that were constructed, reconstructed or modified after July 23, 1984. Staff identified requirements for primary seal gaps that are more stringent. Subpart Kb requires primary seal gaps do not exceed 212 square centimeters (cm^2) per meter of tank diameter.

SJVAPCD's Rule 4623 contains more stringent gap requirements. A visible gap is any gap that is 0.06 inch. Primary seal gaps greater than 0.5 inch cannot occur for more than 10% of the tank circumference and primary seal gaps greater than 0.125 inch cannot occur for more than 30% of the tank circumference.

BAAQMD's Regulation 8, Rule 5 has more stringent gap requirements and a more stringent leak definition. BAAQMD defines a visual gap as a gap that is 0.06 inch. Primary seals gaps greater than 0.5 inch cannot occur for more than 10% of the tank circumference, gaps greater than 0.125 inch cannot occur for more than 40% of the tank circumference. BAAQMD also requires that the maximum gap for secondary seals on newer welded tanks cannot exceed 0.06 inch. BAAQMD has a leak definition of 100 ppm for all components except for pressure vacuum vents.

CONTROL TECHNOLOGIES

Domes

Domes are roofs that can be installed onto external floating roof tanks. They are typically a geodesic dome shape and made of lightweight material such as aluminum. Domes that are affixed onto external floating roof tanks are not vapor tight and have vents along the bottom of the dome where it meets the tank shell. This is a required design for floating roof tanks to allow the floating roof to move up and down without adverse effects. Domes are effective at reducing emissions from tanks by eliminating wind moving over the external floating roof. Wind can carry vapors out from inside the tank through the floating roof seals. It is estimated that installing domes on external floating roof tanks storing crude oil can reduce standing losses by 70%-75%[1].

Costs and Cost-effectiveness

Costs to install domes vary with diameter size. External floating roof tanks can be as small as 30 feet in diameter and as large as 260 feet in diameter. Costs associated with doming include

[1] Based on results from TankESP PRO for doming external floating roofs of different diameters storing crude with RVP 6-9 at 80F in Los Angeles, with deck fittings currently required by Rule 1178.

materials, labor, vehicles for supply delivery and crane support, crane rentals, site preparation, cleaning, degassing, storage leasing and permitting. Costs were obtained from vendors for equipment and installation for domes of different sizes. Facilities supplied costs from vendor quotes and past doming projects. Costs were provided by seven facilities for doming external floating roof tanks with diameters ranging from 50 to 260 feet. Doming project costs ranged from approximately $207,000 to $3.7 million and included costs for fire suppression systems and union labor required by Senate Bill 54. Refer to Chapter 4 for additional cost details.

Staff identified 54 external floating roof tanks used to store crude oil, 90 feet to 260 feet in diameter. Tanks storing crude oil were identified using 2019 Annual Emission Reports. Based on cost information provided by facilities, staff developed a cost curve that estimates costs for tanks of all diameters. The cost-effectiveness to require domes on 54 tanks is $36,800 per ton of VOC reduced. Refer to Chapter 4 for additional cost-effectiveness details.

Public Process When a Cost-Effectiveness Threshold is Exceeded

The 2022 Final AQMP requires that staff present options for a control under the established threshold when cost-effectiveness of a proposed requirement exceeds the established threshold. Staff identified two options for doming with cost-effectiveness of less than the established threshold of $36,000 per ton of VOC reduced.

Option 1: Move date of full implementation for 2038 to 2041. This option results in a cost-effectiveness of $35,400 per ton of VOC reduced.

Option 2: Require fewer tanks to dome. Requiring doming for 53 out of 54 proposed to be domed results in a cost-effectiveness of $35,300 per ton of VOC reduced.

Moving the full implementation date to 2041 results in additional tanks for which cleaning and degassing costs would not be considered, resulting in ~~lower~~improved cost-effectiveness. Requiring 53 out of 54 tanks to be domed results in ~~lower~~better cost-effectiveness when the tank with the worst~~highest~~ cost-effectiveness is removed. This tank is one of the largest tanks and has high cost associated with doming due to its size. Additionally, this tank had low reported throughput in the 2019 AER resulting in a cost-effectiveness of greater than $100,000 per ton of VOC reduced.

Alternative to Doming

Staff analyzed alternative options to doming with potential to result in equivalent emission reductions. Staff's analysis showed that limiting the TVP of crude stored has potential to result in equivalent emission reductions to doming. Based on emission calculations using TankESP PRO software, staff found that limiting Reid Vapor Pressure (RVP) of crude to approximately 3.7 psia results in equivalent emission reductions to doming. RVP is the vapor pressure of the organic liquid at 100 degrees Fahrenheit as determined by ASTM Method D-323, whereas TVP is the vapor pressure of the organic liquid at actual storage temperature. The average TVP of crude resulting in equivalent emissions to doming is approximately 2.2 psia (RVP 3.7 psia). Staff is proposing to maintain the requirement for doming on external floating roof tanks used to store organic liquid with TVP of 3 psia or greater and remove the exemption for crude oil tanks. It is

expected that some facilities will elect to only store crude oil with a TVP less than 3 psia in lieu of doming for certain crude oil tanks.

Discussion

Many domes are in use today to effectively reduce emission from storage tanks. Several facilities subject to Rule 1178 have already installed domes on tanks storing non-crude oil material with TVP of 3 psia or greater. The cost-effectiveness to dome crude oil tanks is $36,800 per ton of VOC reduced and staff proposes to require domes for all tanks with true vapor pressure of 3 psia or greater including crude oil storage tanks, with a full implementation date of 2038, unless~~if~~ facilities submit a permit application to limit the crude oil TVP to less than 3 psia by a specified date. Staff proposes to retain the 2038 date for full implementation since it is a cost-effective, reasonable timeline for doming projects to be completed for all facilities, except for one facility.

The implementation date of 2038 is cost-effective and feasible for facilities with fewer and smaller tanks. One facility has the largest and greatest number of tanks at a single location subject to the doming requirements. Requiring full implementation in 2038 may impact the fuels market if the facility takes more than one tank out of service at a time as this facility processes nearly 40% of all the crude processed ~~at the facilities with~~through tanks proposed to be domed (according to reported throughput in 2019 AERs). To avoid potential market impacts, an alternative compliance schedule is proposed to allow the facility to complete doming without removing more than one tank from service at a time. The alternative compliance schedule will allow the facility three additional years to complete doming for all applicable tanks requiring full implementation in 2041.

Subsequent to the release of the Draft Staff Report, an additional facility was identified that is planning to expand operations that increase VOC emissions to over 20 tons of VOC in an emission inventory year and will result in the facility becoming subject to PAR 1178 after date of adoption. The facility contains five crude oil tanks that are expected to become subject to the doming requirement and will be required to install domes on the crude oils tanks no later than two years after becoming subject to the rule pursuant to clause (d)(5)(A)(ii) of PAR 1178.

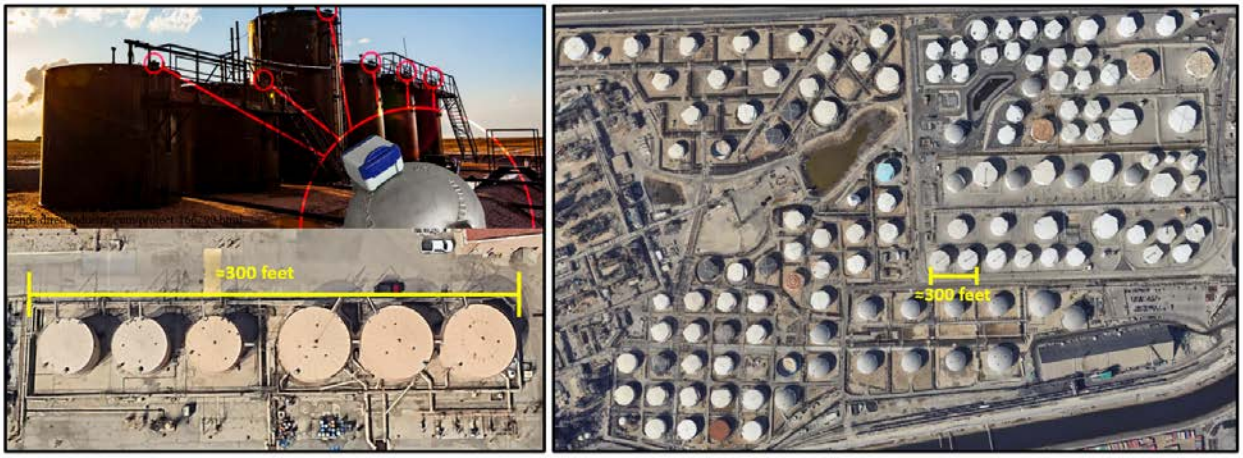
Proximity Switches

Proximity switches are sensors designed to detect when covers to roof openings, such as sample hatches, are not properly closed. Proximity switches are also designed to detect when pressure vacuum relief vents (PVRV) have not re-seated properly. The sensor system consists of a switch, transmitter, and receiver. The switch is constructed on the hatch or PVRV and is connected to a wireless transmitter that sends signals to a base radio when an open hatch or PVRV is detected. Network systems can be designed to alert facilities via email or cellular phone text. These systems require cellular and power service. Solar power options are available for power in remote locations as well as cellular options. The system is intrinsically safe and explosion proof.

Proximity switches can reduce emissions from sample hatches left open or not properly closed, or from PVRVs that do not re-seat properly, by alerting facilities when an opening is detected, resulting in faster repair timelines. Remote tanks that are not frequented and/or not subject to regular inspections may emit VOC through an open hatch or PVRV for extended periods of time. One limitation reported by a provider is the proximity switch's inability to detect small openings of the sample hatch cover or PVRV seat. The provider estimates that covers and/or PVRV seats open 10%-15% may go undetected by the proximity switch.

Many proximity switches are in use today and most found on tank batteries at oil production sites. Staff is not aware of proximity switches implemented at large tank farms containing tanks very large in diameter with large footprints, such as refineries or bulk storage facilities. Proximity switches implemented at large tank farm sites may require complex installation and infrastructure. Figure 2.1 shows the difference in size between a tank battery at an oil production site and a tank farm at a bulk storage facility.

Figure 2.1 – Tank Footprint at Oil Production Site Compared to Bulk Storage Facility



Costs and Cost-effectiveness

Proximity switch costs were obtained from a supplier that provided a quote. Each tank would be required to have one transmitter for each component that would be monitored. A transmitter and a switch is $1,850 for both pieces of equipment. One base radio can accommodate up to 96 transmitters and is required for each facility. The base radio was quoted at $2,650. For facilities without access to grid power, a solar power supply may be used and was quoted at $2,400. Tank farms are not likely to have nearby power supply and would require solar power or another electricity connection. A cellular option is available for sites that do not have internet connection. Cellular connectivity allows the facility to receive alerts via text or email. The cellular option is $1,300.

Costs were estimated for 1,059 tanks. Approximately 75% of all tanks are floating roof tanks and 25% of all tanks are fixed roof tanks. Each floating roof tank is estimated to require one switch for the guidepole cover and each fixed roof tank would require three switches per tank for each of the

PVRVs. The total number of sensors needed for all tanks is 1,587. The total number of transmitters required is also 1,587. The total estimated cost for 1,587 switches and transmitters is $2,935,950. Assuming one base radio can connect to all transmitters at a large facility, staff applied costs for one base radio per facility and one solar power supply per facility. The total estimated cost for base radios and power supply is $136,350. The supplier did not provide costs for installation of the sensor system. Staff assumed installation costs at 50% of equipment costs to include travel, site evaluation, planning, and installation. The total estimated equipment and installation cost is $4,485,230.
Cost-effectiveness was based on available cost information, assumed equipment life of 10 years and assumed emission reductions equivalent to the reductions estimated for continuous monitoring leak detection (refer to Figure 4.1). The total cost-effectiveness is $2,700 per ton of VOC reduced.

Discussion
Inspector reports were reviewed to understand how often inspectors find open sample hatches that are not closed properly. Notice of violations were reviewed for the past five years for Rule 1178 and 463. One notice of violation was written to a facility subject to Rule 463 for a sample hatch cover that was not properly closed. Discussions with facilities revealed that guidepole covers are not often open for sampling but sampling frequency and methods at facilities differ. Some facilities may sample more frequently than others or more frequently at certain times, depending on operations.

Although cost-effectiveness is $2,600 per ton of VOC reduced, staff is not proposing to require proximity switches since PAR 1178 will require facilities to inspect tanks on a weekly basis with an OGI device. OGI inspections will capture leaks resulting from an open sample hatch or PVRV that has not re-seated properly. Additionally, OGI inspections will identify emissions from open sample hatches or open PVRVs when proximity switches cannot, such as when a sample hatch cover or PVRV is open less than 15% or when sample hatch gaskets and covers are worn or degraded. Proposed weekly OGI inspections have the potential to be more effective at reducing emissions from sample hatches and PVRVs compared to proximity switch installations.

<u>Cable Suspension Systems</u>
Cable suspended floating roofs are designed with cable suspension systems to support the floating roof and remove the need for roof legs. Emissions from internal floating roof tanks are reduced with cable suspension systems by the elimination of floating roof leg penetrations that provide a potential opening where VOC can migrate from below the floating roof to atmosphere.

Initially, cable suspended floating roofs were estimated to decrease standing losses by 35%[2], as based on results from TankESP PRO software. Emissions

[2] Based on results from TankESP PRO for eliminating roof legs on internal floating roof tanks 70', 90' and 117' in diameter storing various organic liquids including gasoline with RVP 10 at 80F in Los Angeles, with standard deck fittings currently required by Rule 1178 and TankESP PRO default settings for roof leg controls.

from a tank equipped with a cable suspension system, modeled in TankESP PRO with a tank equipped with zero roof legs, were compared to a tank equipped with the standard number of roof legs and standard controls (default options). Staff was made aware that the default option for roof leg controls did not reflect current requirements in Rule 1178 for roof legs socks on all adjustable roof legs. For this reason, emission reductions were revised to reflect controls currently required on internal floating roof tanks which are impervious VOC socks for adjustable roof legs. The results from the revised calculation show an 8%[3] reduction in total emissions when a tank's roof legs are eliminated.

Costs and Cost-Effectiveness

Costs vary to retrofit internal floating roof tanks with cable suspension systems and depend on factors such as the existing floating roof and the structure of the fixed roof. Not all existing floating roofs are compatible with cable suspension systems and the fixed roof of the tank must be able to support the cable suspension system. Costs were obtained from two suppliers for the retrofit of a cable suspension system on an existing floating roof and the retrofit of a cable suspension system with a new compatible floating roof. Both cost estimates assume that the fixed roof is compatible with the cable suspension system and would not require significant modification or replacement. One supplier provided two cost estimates. The cost to retrofit an existing floating roof with a cable suspension system was estimated at $70,000. The cost to install a cable suspension system with a new floating roof was estimated at $200,000. Another supplier provided a quote that included costs for equipment, shipping, demolition, roof modification and labor for installation. Total costs ranged from $120,000 to $670,000 depending on the size of the tank, up to 150 feet in diameter. The cost-effectiveness to require cable suspension systems is $153,000 per ton of VOC reduced. Staff is not proposing to require cable suspension systems for internal floating roof tanks.

Discussion

Cable suspension systems may result in less emissions from an internal floating roof tank compared to a typical floating roof containing roof leg penetrations. The cost-effectiveness to retrofit cable suspension systems on internal floating roof tanks is estimated at $153,000 per ton of VOC reduced and staff does not propose to require cable suspension systems.

<u>Emission Control Systems (Vapor Recovery)</u>

Vapor recovery systems collect VOC vapors and either destroy the VOC by combustion or remove VOC from gas streams with adsorption prior to reaching the atmosphere. Vapor recovery systems are currently used for emission control on sources at petroleum facilities such as fixed roof tanks and truck loading racks. The most common type of vapor recovery system used on fixed roof tanks are combustion systems that have associated NOx emissions. Adsorption with carbon canisters do not emit NOx

[3] Based on results from TankESP PRO for eliminating roof legs on internal floating roof tanks 70', 90' and 117' in diameter storing various organic liquids including gasoline with RVP 10 at 80F in Los Angeles, with standard deck fittings and current required emission controls for roof legs.

emissions, however, have higher capital costs and are less desirable for tanks.

Staff obtained information on vapor recovery units from two suppliers. One supplier stated that the company can guarantee control efficiency of 98% for their combustion systems and 95% for their non-combustion systems. A review of compliance reports and initial performance tests for vapor recovery systems used at facilities subject to Rule 1178 was conducted to understand the control efficiency currently achieved by vapor recovery systems in use. Most annual performance tests confirm compliance with current rule requirements of 95% control efficiency but do not specify the percent efficiency that was measured. One compliance report specified a measured control efficiency of greater than 99%. Four initial performance tests for combustion vapor recovery systems were reviewed and showed greater than 99% control efficiency. Staff was not provided annual performance test results that suggest 98% control efficiency is not achievable by a unit currently in use.

Costs and Cost-effectiveness

Based on the source test information obtained stating the control efficiencies achieved by units currently in use, staff concludes that units currently operating are achieving at least 98% control efficiency. No costs are assumed to meet a proposed control efficiency of 98%. Since units are currently achieving a 98% control efficiency, no reductions are assumed in the cost-effectiveness analysis (however, emissions reductions are assumed for the purpose of submission to the state implementation plan. Details on the calculated emission reductions are contained in Chapter 4). Since no emissions reductions or costs are assumed to meet 98% control efficiency, the cost-effectiveness is $0 per ton of VOC reduced.

Discussion

Based on information obtained from vapor recovery suppliers and source tests, staff concludes that vapor recovery units currently installed are achieving at least 98% control efficiency and proposes to require 98% by weight control efficiency for all emission control systems connected to fixed roof tanks. Since units are achieving the proposed requirement, no costs or reductions were assumed, and the cost-effectiveness is $0 per ton of VOC reduced.

<u>Seals</u>

Primary and secondary seals are used on floating roof tanks to seal the annular space between the floating roof and the tank shell to prevent VOC vapors from migrating out of the tank. Gaps between the floating roof seals and the tank shell are allowed by Rule 1178 and other ~~tank~~ agency tank rules, however, more stringent gap requirements were contained in SJVAPCD and U.S. EPA rules. Additionally, Rule 1178 does not require both a primary seal and secondary seal on all tanks. An assessment was conducted to determine the feasibility to require more stringent gap requirements and secondary seals on all tanks.

Staff analyzed the feasibility of meeting more stringent gap requirements established at the other agencies. A review of a statistically significant sample of leak reports for floating roof tanks (10%) was conducted. Leak reports for 84 floating roof tanks were reviewed to determine the feasibility of meeting more stringent gap requirements. Leak reports for 48 out of 84 tanks showed no reported gaps for the secondary seal. Gaps reported on the remaining 36 tanks showed gaps that met the stringent gap requirements established at other agencies. Based on the information reviewed, staff concludes that tanks are currently meeting meet more stringent gap requirements. Moreover, those tanks subject to the EPA New Source Performance Standard, 40 CFR Part 60, Subpart Kb, requirements including more stringent gap requirements already apply and must be met.

Staff identified tanks that are not equipped with secondary seals. Initially, ~~E~~eight internal floating roof tanks used to store organic liquid with true vapor pressure of greater than 0.1 psia were not equipped with secondary seals. A cost-effectiveness analysis was conducted to determine if requiring secondary seals for all tanks is cost-effective. Subsequently, another 16 tanks were identified that would be required to install secondary seals.

Costs and Cost-effectiveness

No costs were assumed to meet more stringent gap requirements. Like the cost-effectiveness analysis for vapor recovery systems, the cost-effectiveness to meet more stringent gap requirements assumes no associated costs and no emission reductions and results in a cost-effectiveness of $0 per ton of VOC reduced.

Secondary seal costs were obtained from two secondary seal providers and one facility. The total number of feet of secondary seal required for the initially identified eight tanks is 1,363. The approximate cost for equipment, installation and permitting is $430,000. The total emission reductions estimated using TankESP PRO is 18.8 tons over 20 years and the cost-effectiveness is $22,800 per ton of VOC reduced. Additional details on costs and cost-effectiveness are contained in Chapter 4.

Discussion

Staff is proposing gap requirements as stringent as those contained in other agency rules. The proposed requirement would revise the gap allowances and require gaps between the secondary seal and tank shell greater than 1/8 inch not to exceed 30% (currently 60%) of the length of the tank circumference and gaps greater than 1/2 inch not to exceed 10% (currently 30%) of the circumference.

Staff is also proposing secondary seals on all tanks. Installation of a secondary seal would be required the next time the tank is emptied or degassed but no later than 10 years after date of adoption.

LEAK DETECTION TECHNOLOGIES

Staff reviewed leak detection technologies, including continuous monitoring systems. Technologies reviewed included optical gas imaging devices, gas sensors and open path detection

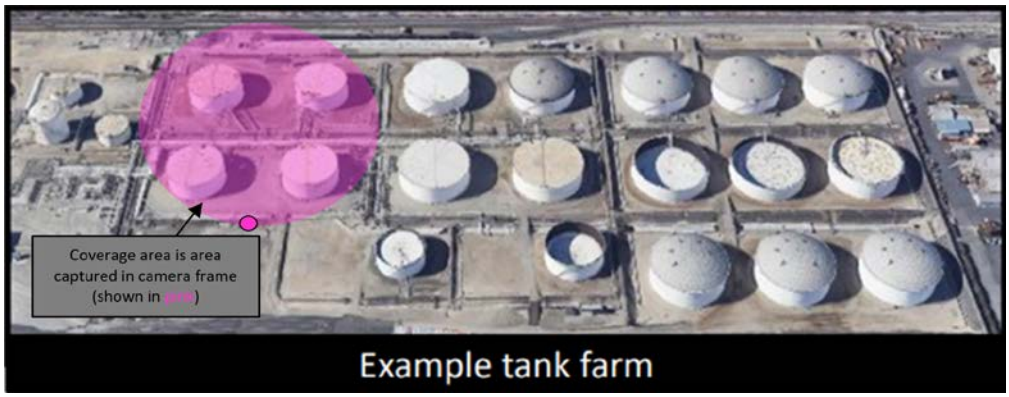
devices. Several suppliers were contacted to obtain information about the viability of the technologies for VOC leak detection. Staff also contacted leak detection service providers to understand their experience with using leak detection technologies.

Optical Gas Imaging (OGI)

An optical gas imaging camera uses infrared technology capable of visualizing vapors. Optical gas imaging cameras have different detectors capable of visualizing a variety of gas wavelengths. VOC wavelengths are in the 3.2-3.4 micrometer waveband. OGI cameras with the ability to detect or visualize in this waveband range contain a cryocooler that is integrated into the sensor and increases the sensitivity of the camera and the ability to detect smaller leaks.

OGI cameras are widely used as a screening tool for leak detection purposes and have continuous monitoring capability. Fixed OGI systems have been implemented at well sites and compression stations for continuous emissions monitoring. Handheld OGI cameras are used widely by leak detection service providers as well as facilities for periodic monitoring. Figure 2.2 provides an example of the coverage a network of fixed OGI camera can provide.

Figure 2.2 – Example of Area Monitored with Fixed OGI Device



Fixed OGI cameras may not catch all leaks that can be identified during an inspection where a portable OGI device is manually operated. Fixed OGI cameras are limited in the number of angles from which a tank can be viewed and would likely be stationed further away from an emissions source compared to a person conducting an inspection with a portable OGI device. Stationary and portable devices both have the capability to detect large leaks, however, there is greater chance that smaller leaks would be identified with a manual field inspection than with a stationary camera because tanks can be monitored in close proximity using portable devices such as handheld OGI cameras and toxic vapor analyzers (TVA). Figures 2.3 and 2.4 show images captured with an OGI device by South Coast AQMD compliance and enforcement staff.

Figure 2.3 – Fixed Roof Tank Viewing with an OGI Device

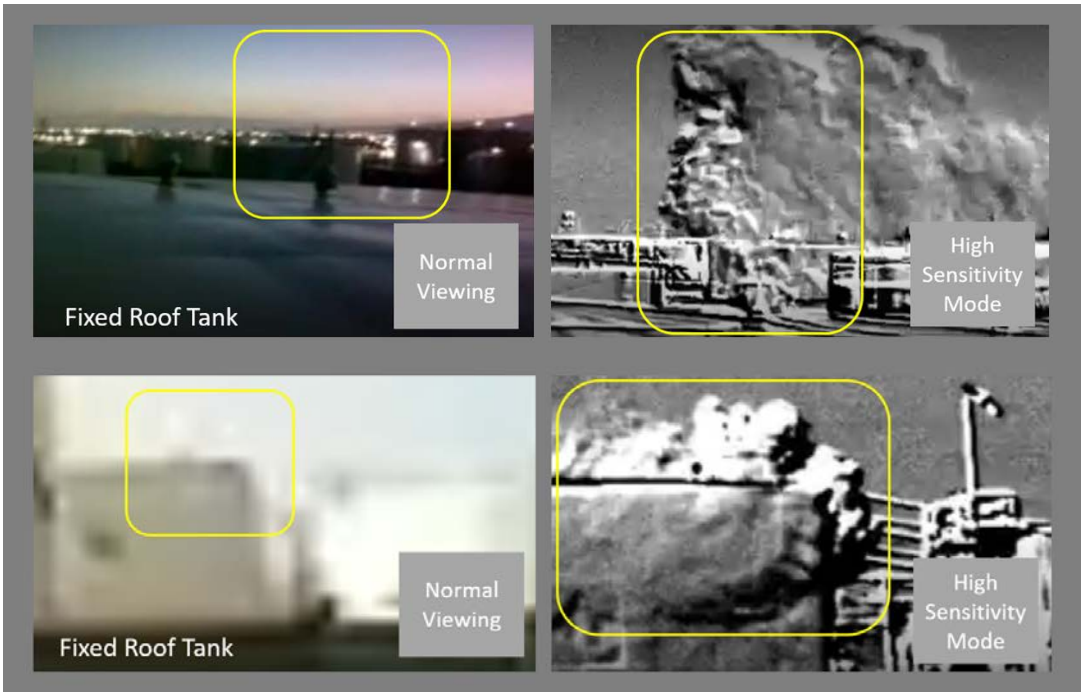
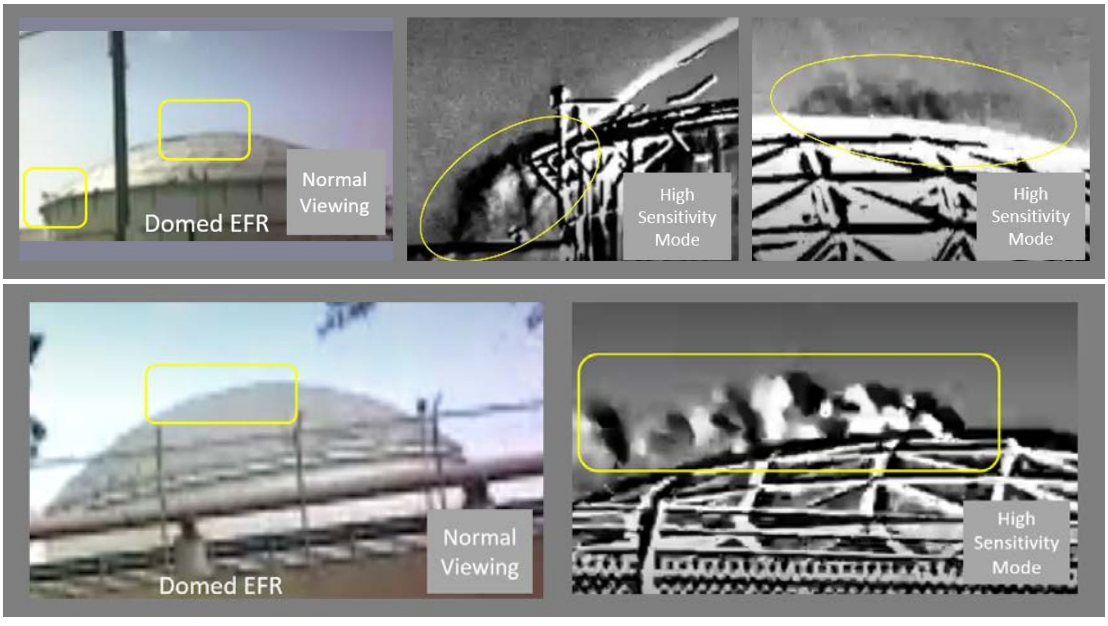


Figure 2.4 – Domed External Floating Roof Tank Viewing with an OGI Device



Costs and Cost-effectiveness

Costs were obtained from OGI providers for handheld OGI cameras and fixed continuous monitoring cameras. A portable cooled OGI camera costs approximately $106,000 and requires replacement of the cryocooler every 3-4 years or every 10,000-13,000 hours of operation. The replacement cost is approximately $15,000. Cameras for fixed applications cost approximately $97,000. Explosion proof enclosures and pan and tilt fixtures would increase costs by $12,500 per camera. Options provided for fixed applications include cellular connection and power for use in remote areas. These options are more costly and increase the cost per camera to approximately $120,000. The cost-effectiveness for continuous monitoring with fixed OGI cameras is $23,900 per ton of VOC reduced.

Hardware as a service is a business model that allows facilities to have technology installed, maintained and operated by the technology provider. This option removes the responsibility from the facility for installation, maintenance, repair and operation and well as associated costs. Hardware as a service also ensures operation and maintenance by experienced personnel that specialize in the equipment. Fixed OGI systems are offered as hardware as a service and costs range from approximately $11,000 per month per camera, for a basic fixed system which includes the camera mounted in explosion proof housing, to approximately $20,000 per month per camera for a basic fixed system with its own power source. Cost-effectiveness for continuous monitoring with fixed OGI cameras as a service is $188,500 per ton of VOC reduced.

Costs were also obtained from leak detection service providers. An inspection is approximately $3,000 per day and would include closely monitoring about four individual tanks and performing an overview inspection of the entire tank farm for large leaks. The cost-effectiveness to require weekly inspections is $25,400. Refer to Chapter 4 for details on costs and cost-effectiveness.

<u>Open Path Detection</u>

Open path detection devices emit beams that detect VOCs. For VOC to be detected with an open path device, the VOCs must contact the beam. Open path detection devices can detect gas concentrations in the parts per billion range and from distances as far as 300 meters away from a source, with some models advertised as having a range of 1,000 meters. One open path device can cover multiple paths. Staff is aware of open path devices currently operating that cover two paths per unit. Once VOC has been detected by an open path device, it is likely a follow up investigation is required to pinpoint the source of the leak. To locate the source of emissions, OGI cameras or TVAs are commonly used.

Open path devices can detect small concentrations of VOC in the ppb range and can also speciate VOC. A significant limitation to leak detection of these devices is the requirement for VOCs to contact the emitted beam. This provides a chance for VOCs to go undetected if travelling on a path that does not intercept the beam. Another drawback to open path detection is the dilution factor. VOCs originating from a tank may need to travel hundreds of feet before contacting the emitted beam. The concentration of VOC may dilute so significantly that VOCs are undetectable by the

time the VOCs reach the emitted beam. Figure 2.5 demonstrates the general leak detection coverage area with an open path device.

Figure 2.5 – Example of Area Monitored with Open Path Technology

Costs and Cost-effectiveness

Costs are estimated at approximately $200,000 per unit and do not include installation and any additional structures required to be built to support the fixed monitors. Annual maintenance of $5,000 per unit was estimated. The cost-effectiveness for open path detection is $30,700 per ton of VOC reduced. Refer to Chapter 4 for details on costs and cost-effectiveness.

Fixed Gas Sensors

A toxic vapor analyzer (TVA) is a gas sensor that is handheld and used currently for inspections. The gas sensors referred to in this section have the capability to continuously monitor for VOC emissions and are installed as fixed applications. Concentrations of VOC detected with fixed gas sensors are in the ppb/ppm range depending on the sensor and have a maximum detection range of about 50-100 ppm. Like open path devices, gas sensors can only detect emissions when VOCs contact the fixed sensor. Leaks from storage tanks must be significant at the source to be detected by a fixed gas sensor due to the dilution factor. According to one supplier, it is estimated that a leak with a concentration of 72,000 ppm is detectable by a gas sensor 100 feet away. A leak with a concentration of 18,000 ppm is detectable by a gas sensor 50 feet away. Figure 2.6 demonstrates the general leak detection coverage area with gas sensors.

Figure 2.6 – Example of Area Monitored with Gas Sensor

Costs and Cost-effectiveness

Equipment costs for gas sensors are much lower compared to open path and OGI devices, however, operating and maintenance costs are higher due to sensor replacements and service/operation costs. Staff obtained costs from two suppliers. One supplier quoted equipment at approximately $2,000 per unit and monthly operating cost of $400 per unit. The cost-effectiveness to require continuous monitoring with gas sensors is $44,800 per ton of VOC reduced. The other supplier offers fixed gas sensor networks as a service. The cost for the service is approximately $6,500 per year per sensor. Refer to Chapter 4 for details on costs and cost-effectiveness.

Discussion

Each leak detection technology has advantages and disadvantages. Staff determined that the best leak detection method for storage tanks is to have an operator conduct inspections using a handheld OGI device. There are several advantages to conducting inspections manually with an OGI device compared to continuous monitoring systems. The most significant advantage is the high likelihood a large leak will not go undetected. Additionally, operators can view the tank from multiple areas or distances including from the tank platform focusing on individual components to capture smaller leaks that may go undetected by stationary continuous monitoring systems. Continuous monitoring systems such as open path and gas sensor networks require an operator to manually locate a leak usually requiring an OGI camera or TVA. Manual inspections with an OGI device also allow for the inspector to make a distinction between normal operation and a leak. Another advantage includes quicker support if the monitoring technology malfunctions. A leak detection service can provide an OGI device when required. Continuous monitoring systems are complex and specialized and may require the service provider to provide support onsite. This may result in downtime of the continuous monitoring system.

Manual inspections with a portable OGI device can be more or less time intensive depending on how the inspection is carried out. If inspections are conducted for all components on each tank, approximately 4 tanks per day can be monitored individually from the tank platform. It is not cost-effective to require individual monitoring of each tank weekly. Monitoring the entire tank farm from a distance would allow multiple tanks to be viewed in one frame, is less time intensive, and cost-effective to carry out more frequently compared to individual tank monitoring. With this type of inspection, large leaks can be identified quicker since the inspections are carried out on a more frequent basis.

Staff proposes weekly OGI inspections for all tanks and additional semi-annual inspections for floating roof tanks. Weekly inspections will require monitoring of all tanks subject to Rule 1178. This inspection will not require an inspector to climb or access a tank unless vapors are observed that indicate malfunctioning equipment. Semi-annual OGI inspections for floating roof tanks will require the inspector to conduct the inspection from the tank platform. These inspections will only be required for floating roof tanks since fixed roof tanks are already subject to quarterly Method 21 inspections. Semi-annual OGI inspections for floating roof tanks will supplement other existing semi-annual inspections such as gap measurements and LEL readings. Semi-annual inspections are proposed to identify smaller leaks that may go undetected during existing inspections and proposed weekly OGI inspections.

SUMMARY

Several technologies were assessed for their potential to reduce emissions from storage tanks. Cost-effectiveness was determined for each technology with potential to reduce emissions. Based on the BARCT assessment for technologies with potential to reduce emissions, staff proposes to require doming for all tanks storing organic liquid with true vapor pressure of 3 psia and greater, including crude oil tanks currently exempt from doming, more stringent gap requirements, 98% emission control for fixed roof tanks, secondary seals on all floating roof tanks, and weekly and semi-annual OGI inspections. Table 2.1 shows the cost-effectiveness for proposed requirements.

Table 2.1 – Cost-Effectiveness for Proposed Requirements

Proposed Requirement	Cost-Effectiveness ($/ton)
Domes for external floating roof tanks storing organic liquid with TVP of 3 psia or greater, including crude oil tanks	$36,800
98% emission control for fixed roof tanks	$0
More stringent gap requirements	$0
Secondary seals for floating roof tanks	$22,800
OGI monitoring (weekly/semi-annual)	$25,400
Overall	$27,800

CHAPTER 3: PROPOSED AMENDED RULE 1178

INTRODUCTION

PAR 1178 establishes requirements for storage tanks located at petroleum facilities storing organic liquid. PAR 1178 includes requirements for tank seals, emission control systems, doming, inspections and monitoring, reporting and recordkeeping.

The following information describes the structure of PAR 1178 and explains the provisions incorporated from other source-specific rules. New provisions and any modifications to provisions that have been incorporated are also explained. PAR 1178 also includes grammatical and editorial changes for clarity. Several requirements were moved to consolidate.

PAR 1178 STRUCTURE

PAR 1178 will contain the following subdivisions:

a) Purpose
b) Applicability
c) Definitions
d) Requirements
e) Identification Requirements
f) Inspection and Monitoring Requirements
g) Maintenance Requirements
h) Record Keeping and Reporting Requirements
i) Test Methods and Procedures
j) Exemptions

PROPOSED AMENDED RULE 1178

Subdivision (a) – Purpose

The purpose of this rule is to reduce VOC emissions from storage tanks containing organic liquid located at large, high emitting petroleum facilities.

Subdivision (b) – Applicability

Applicability will be revised to clarify that determination of the 20 ton per year threshold of VOC emissions is based on Annual Emission Reports.

<u>Removal of True Vapor Pressure threshold – Paragraph (b)(1)</u>
The applicability threshold that subjects tanks storing material with a TVP greater than 0.1 psia to Rule 1178 was removed. PAR 1178 will not apply to tanks based on the TVP of the organic liquid stored; however, tanks storing organic liquid with TVP of 0.1 psia or less may still be exempt from all rule requirements provided a TVP demonstration of the organic liquid stored is made (see *Subdivision (j) – Exemptions*).

Subdivision (c) – Definitions

Definitions were added for clarity for new requirements, key definition changes are referenced and discussed below.

- *COMPONENT INSPECTION is monitoring for Visible Vapors with a handheld Optical Gas Imaging Device of a Storage Tank roof and individual components, including but not limited to Roof Openings and Rim Seal Systems, viewable from the tank platform, and ground for components not viewable from the tank platform but viewable at ground level.*

  This is a new definition added to specify the requirements for this type of inspection.

- *EMISSION INVENTORY YEAR is the annual emission-reporting period specified by the Annual Emission Reporting Program requirements for a given year.*

  This definition was modified to reflect the change in required reporting periods specified by the Annual Emission Reporting Program for different years.

- *OPTICAL GAS IMAGING DEVICE is an infrared camera with a detector capable of visualizing gases in the 3.2-3.4 micrometer waveband.*

  This is a new definition to specify the capability of the OGI camera allowed to be used for required OGI inspections.

- *TANK FARM INSPECTION is monitoring for Visible Vapors with a handheld Optical Gas Imaging Device of all applicable Storage Tanks at a Facility where the person conducting the inspection views the top of the tank shell, and fixed roof or dome if applicable. Tank Farm Inspections may be conducted from an elevated position and/or from ground level.*

  This is a new definition added to specify the requirements for this type of inspection.

- *VISIBLE VAPORS are any vapors detected with an Optical Gas Imaging Device during a Component or Tank Farm Inspection, when operated and maintained in accordance with manufacturer training, certification, user manuals, specifications, and recommendations.*

  This is a new definition to clarify rule requirements for storage tanks that must be maintained in a condition that is free of Visible Vapors.

Subdivision (d) – Requirements

PAR 1178 includes revisions to existing requirements and new requirements. PAR 1178 establishes requirements for rim seal gaps, secondary seals, emission control systems, doming, testing, implementation and monitoring. Implementation requirements that have already been achieved have been removed for clarity and simplicity.

Secondary Seal Gap Requirements – Clause (d)(1)(C)(iii)
Gap requirements for secondary seals have been revised to reflect the stringency of gap requirements at other air districts as well as the stringency of gap requirements contained in U.S. EPA's 40 CFR 60 Subpart Kb. The lengths of gaps greater than 1/2 inch wide cannot, when totaled together, exceed 10% of the length of the circumference. The length of gaps greater than 1/8 inch wide cannot, when totaled together, exceed 30% of the length of the circumference.

External Floating Roof Tank Condition – Subparagraph (d)(1)(D)
External floating roofs tanks must be kept in a condition free of visible vapors resulting from a defect or malfunction of equipment and is determined by an optical gas imaging inspection conducted pursuant to the requirements of paragraph (f)(4).

Doming External Floating Roof Tanks – Subparagraph (d)(1)(E)
Facilities are required to install a dome on any external floating roof tank storing organic liquid with a true vapor pressure of 3 psia or greater unless permitted to contain 97% by volume crude oil. All external floating roof tanks permitted to contain 97% by volume crude oil are required to install a dome unless a permit application is submitted to limit the true vapor pressure of the crude oil to less than 3 psia within one year from date of adoption. Any external floating roof tank permitted to contain 97% by volume crude oil for which a permit application has not been submitted to limit the true vapor pressure to less than 3 psia within one year from date of adoption is subject to the doming schedule of paragraph (d)(5).

True Vapor Pressure Measurements – Subparagraph (d)(1)(F)
Facilities are required to measure and record the true vapor pressure of the organic liquid inside any external floating roof tank not equipped with a dome on a semi-annual basis (once every six months) to verify the true vapor pressure is less than 3 psia. This requirement is effective on January 1, 2024 and the first test must be conducted by July 1, 2024.

Internal/Domed External Floating/Fixed Roof Tank Condition Requirements – Subparagraphs (d)(2)(C), (d)(3)(F), and (d)(4)(C)
Internal floating roof, domed external floating roof, and fixed roof tanks are required to comply with the requirements of subparagraph (d)(1)(D) that specify the condition in which tanks must be maintained.

Condition Requirements for Domed Roof – Subparagraph (d)(2)(D)
Domes must be maintained in a condition that is free from openings that are not part of the dome design such as gaps, cracks, separations and other openings. This requirement excludes openings that are part of the dome design such as vents and access points or doors.

Secondary Seals for Internal Floating Roof Tanks – Subparagraph (d)(3)(D)
Internal floating roof tanks must be equipped with both a primary and secondary seal.

Emission Control Systems for Fixed Roof Tanks – Clause (d)(4)(A)(i)
Emission control systems required on fixed roof tanks must achieve 98% control efficiency by weight. Based on a review of the available source test reports for emission control systems currently installed on fixed roof tanks, staff found that all met the 98% control efficiency that is

proposed. Therefore, staff expects no physical modification to the equipment would be required. However, the permits should be updated to reflect the proposed 98% control efficiency.

Compliance Schedules – Paragraph (d)(5)
This paragraph contains compliance schedules for requirements of the rule for facilities currently subject to the rule, facilities that may later become subject to the rule, equipment that becomes subject to specific rule requirements on date of adoption and equipment that may later become subject to specific requirements.

Tank Requirements – Subparagraph (d)(5)(A)
This subparagraph contains existing compliance timelines for tanks to meet the requirements of Rule 1178 if the facility becomes subject to Rule 1178 after date of adoption.

Doming Compliance Schedule – Subparagraph (d)(5)(B)
Any facility or facilities under common ownership with external floating roof tanks permitted to contain 97% crude oil by volume that become subject to doming upon date of adoption are required to dome one-third of their applicable tanks by December 31, 2031, half of their applicable tanks by December 31, 2033 and all their applicable tanks by December 31, 2038. Tanks for which a permit application has been submitted to limit the TVP of the crude oil to less than 3 psia are considered an applicable tank.

Alternative Doming Compliance Schedule for Certain Facilities– Subparagraph (d)(5)(C)
Any facility that has 12 or more tanks subject to doming at a single location where at least five or more subject tanks are 260 feet in diameter or larger may opt to use the compliance schedule in this subparagraph. These facilities must dome one-fourth of their applicable tanks by the end of 2030, half of their applicable tanks by the end of 2036, three-fourths of their applicable tanks by the end of 2040, and all their applicable tanks by the end of 2041.

Crude Oil External Floating Roof Tanks Later Subject to Doming – Subparagraph (d)(5)(D)
Any crude oil external floating roof tanks that become subject to doming requirements after the date of adoption due to exceeding the permit limitation for true vapor pressure of less than 3 psia must install a dome within three years of exceeding the true vapor pressure limit and becoming subject to the doming requirement.

Internal Floating Roof Tank Requirements – Subparagraph (d)(5)(E)
Any internal floating roof tanks not equipped with a secondary seal are required to have a secondary seal installed the next time the tank is emptied and degassed starting two years after date of adoption. All internal floating roof tanks must have a secondary seal installed no later than 10 years after date of adoption.

Subdivision (f) – Inspection and Monitoring Requirements

Emission Control Systems for Fixed Roof Tanks – Paragraph (f)(3)
Existing requirement for annual performance tests and operating parameter monitoring for emission control systems. Performance tests and operating parameters must now demonstrate an overall control efficiency of 98%.

Optical Gas Imaging (OGI) Inspections – Paragraph (f)(4)
Optical gas imaging inspections are required to determine compliance with the requirement for tanks to be maintained in a condition that is free of visible vapors resulting from a defect or malfunction of equipment. This paragraph contains the requirements for OGI inspections.

Certification/Training of Person Conducting OGI Inspection – Subparagraph (f)(4)(A)
Contains requirements for qualification for the persons conducting an OGI inspection. Persons conducting the OGI inspection must be certified or have undergone training for the camera used provided by the manufacturer of the OGI camera. The persons conducting the inspections must also complete all subsequent training or certification recommended by the OGI manufacturer. This paragraph also contains requirements for proper operation and maintenance of the OGI device. The OGI camera must be operated and maintained in accordance with all manufacturer guidance including but not limited to that stated in any training or certification course, user manuals, specifications, recommendations.

Tank Farm Inspection Requirements – Subparagraph (f)(4)(B)
Contains requirements for tank farm inspections.

Frequency (Tank Farm Inspection) – Clause (f)(4)(B)(i)
Inspections must be conducted at least once every calendar week.

Procedure (Tank Farm Inspection) – Clause (f)(4)(B)(ii)
An inspector is required to monitor for visible vapors with a tank farm inspection as defined. If visible vapors are detected during a tank farm inspection, an inspector must conduct an additional inspection from the tank's platform to make an effort to determine the source of emissions. From the platform, an inspector will use an OGI device to inspect components required to be maintained vapor tight or with no visible gaps, viewable from the tank platform. If visible vapors are detected from any components that are required to be maintained in a vapor tight condition or in a condition with no visible gaps, the facility must demonstrate compliance with applicable rule requirements for any component from which visible vapors are emitted or make a repair, within three days of identifying the visible vapors. If visible vapors are detected from the roof or other components not required to be vapor tight or with no visible gaps, the inspector must conduct a visual inspection to identify any defects in equipment from which visible vapors are emitted. Defects may include, but are not limited to, equipment that is not operating as intended, equipment not found in good operating condition, equipment not meeting all the requirements of the rule, or other indicators that equipment has failed (e.g., organic liquid pooled on a floating roof). The visual inspection for defects may include the use of an OGI device. If no defects are identified, no further action is required for the inspection. If a defect is identified, a repair must be made within three days.

Alternative Option (Tank Farm Inspection) – Clause (f)(4)(B)(iii)
If an inspector performs an inspection required by clause (f)(4)(B)(ii) on a tank and determines that no demonstrations or repairs are required pursuant to subclauses (f)(4)(B)(ii)(A) and (f)(4)(B)(ii)(B), the inspector has the option to record the visible vapors from that tank to use as a baseline to determine an increase in emissions during subsequent weekly tank farm inspections for that tank. If visible vapors are detected from that tank during subsequent tank farm inspections and

do not indicate an increase in emissions when compared to the baseline emissions, the inspector does not need to perform an inspection from the tank platform required by clause (f)(4)(B)(ii); however, this applies only for the weekly inspections in the same calendar month that the baseline emissions were determined.

Component Inspections – Subparagraph (f)(4)(C)
Contains requirements for component inspections. Component inspections include monitoring of individual components including, but not limited to rim seals, pressure-vacuum vents, hatches, guidepoles, roof legs, emission control system connections and vents.

Frequency (Component Inspection) – Clause (f)(4)(C)(i)
Inspections must be conducted at least once every six months for floating roof tanks ~~at facilities not complying with the doming schedule of subparagraph (d)(5)(B)~~. Component inspections may be conducted during other required semi-annual inspections.

Procedure (Component Inspection) – Clauses (f)(4)(C)(ii)-(iii)
Repairs or demonstration with applicable rule requirements must be conducted when visible vapors are detected from any component or equipment, except for rim seal systems. Repairs or demonstrations with rim seal requirements must be conducted a defect is visible from the tank platform and when visible vapors are emitted from the rim seal and are also detectable at the top of the tank shell or from roof vent.

Subdivision (g) – Maintenance Requirements

Contains maintenance requirements for tanks that do not meet the requirements of the rule.

Maintenance Requirements – Subdivision (g)
Contains maintenance and repair schedules.

Repairs Schedules – Paragraph (g)(2)
Contains repair schedule for tanks found in non-compliance during an OGI inspection. Repairs or adjustments must be made within three days of identifying visible vapors requiring a repair determined pursuant to paragraph (f)(4).

Reporting and Recordkeeping Requirements – Subdivision (h)

Reporting and Recordkeeping Requirements – Paragraph (h)(1)
Contains updated recordkeeping and reporting requirements for inspections required by paragraphs (f)(1) through (f)(3). Revised to allow electronic reports and electronic submittal. Electronic reports must contain all information required by the Compliance Report Form in Appendix A. Electronic submittals must be sent to the email address designated by the Executive Officer.

Reporting and Recordkeeping Requirements for OGI Inspections – Paragraph (h)(2)
Contains notification and recordkeeping requirements for OGI inspections.

Reporting for OGI Inspections – Subparagraph (h)(2)(A)
Contains reporting requirements for tank farm inspections. Facilities must report to 1-800-CUT-SMOG when visible vapors are detected during a tank farm inspection that require a demonstration with rule requirements or a repair pursuant to the requirements of clause (f)(4)(B)(ii) within 24 hours of identifying the visible vapors.

Records for Tank Farm Inspections – Subparagraph (h)(2)(B)
Contains recordkeeping requirements for tank farm inspections. Written and digital records must be kept for findings of visible vapors resulting from a defect in equipment or from components required to be vapor tight or with no visible gap.

Records for Component Inspections – Subparagraph (h)(2)(C)
Contains recordkeeping requirements for component inspections.

Written Reports of Non-Compliance – Paragraph (h)(3)
Revised to allow electronic submittal of written reports required by this paragraph.

Records of True Vapor Pressure – Paragraph (h)(6)
Revised paragraph to include requirement to keep records of true vapor pressure test results, and type of organic liquid stored that is required by paragraph (j)(4).

Test Methods and Procedures – Subdivision (i)

Test Method for Organic Liquids in External Floating Roof Tanks – Paragraph (i)(4)
To demonstrate compliance with the requirement to store only organic liquids with a true vapor pressure of less than 3 psia in an external floating roof tank without a domed roof, a facility may use ASTM Method D-6377 and correlate results to ASTM D-323.

Exemptions – Subdivision (j)

Contains criteria for exemption from all or some of the requirements of the rule.

Exemption from Doming – Paragraph (j)(3)
Modified to clarify that tanks with a permit condition limiting the true vapor pressure of the organic liquid stored to less than 3 psia are exempt from doming requirements only if the organic liquid stored in the tank has a true vapor pressure less than 3 psia as demonstrated by required testing.

Exemption for Tanks Storing Organic Liquid with Low True Vapor Pressure – Paragraph (j)(4)
Specifies conditions in which tanks storing organic liquid with low TVP are exempt from certain rule requirements. Tanks storing organic liquid with TVP of 0.1 psia or less are exempt from all requirements of the rule provided that the owner or operator tests the TVP of the organic liquid at least every five years for refined organic liquid or products meeting specifications for sale and at least annually for all other organic liquids, and demonstrates a TVP of 0.1 psia or less~~lower~~. Instead of testing, a facility may use a method specified in a permit condition for demonstrating the true vapor pressure of a liquid stored such as a material safety data sheet that specifies the true vapor

pressure of a material. The first test must be conducted on or before July 1, 2024, or within one month of refilling a tank that is out of service after July 1, 2024.

If an organic liquid that qualifies for exemption is not stored in the tank at the time a test is required, a facility must test when the tank is refilled with an organic liquid that qualifies for the exemption within one month from refilling. The facility is also required to keep records of the contents stored in the tanks and the duration as well as records of the tests conducted for the contents of the tank.

Exemption from Doming for Crude Oil Tanks – Paragraph (j)(5)
Crude oil tanks that become subject to doming requirements upon date of adoption may be exempt from doming if a permit application is submitted to limit the crude oil TVP to less~~lower~~ than 3 psia within one year from date of adoption. Any crude oil tank for which a permit application is not submitted to limit the TVP to less~~lower~~ than 3 psia within one year from date of adoption is subject to the doming requirements and doming schedule, including tanks storing crude oil with a TVP of less than 3 psia.

Exemption from OGI Inspections – Paragraph (j)(6)
Any tank that is empty or opened to the atmosphere and complying with the requirements of Rule 1149 is exempt from OGI inspections. OGI inspections must resume once the tank is refilled.

Exemption from OGI Inspections Due to Safety– Paragraph (j)(7)
If a facility or person responsible for conducting an OGI inspection at a facility determines that it is unsafe to climb a tank due to safety concerns such as wind or slippery surfaces from rain, the facility is not required to conduct an inspection from the tank platform. A platform inspection for tanks that were identified as having visible vapors during a tank farm inspection must be conducted the first day the facility or person responsible for conducting the OGI inspection determines it safe to do so. An owner or operator is required to document the date that a required inspection was not completed and the reason.

Exemption Removals
Former paragraph (j)(2) - Removed exemption for secondary seals for domed external floating roof tanks. All domed external floating roof tanks subject to the rule must have secondary seal installed.

Former paragraph (j)(7) – Removed exemption from doming for tanks permitted to contain more than 97% by volume crude oil. Any tank organic liquid with true vapor pressure of 3 psia of greater are required to install a dome unless otherwise stated in the rule.

CHAPTER 4: IMPACT ASSESSMENT

INTRODUCTION

Impact assessments were conducted as part of PAR 1178 rule development to assess the environmental and socioeconomic implications of PAR 1178. These impact assessments include emission reduction calculations, cost-effectiveness and incremental cost-effectiveness analyses, a socioeconomic assessment, and a California Environmental Quality Act (CEQA) analysis. Staff prepared draft findings and a comparative analysis pursuant to Health and Safety Code Sections 40727 and 40727.2, respectively.

EMISSION REDUCTIONS

PAR 1178 will establish more stringent control and monitoring requirements that result in emission reductions. The proposed amendments will increase the stringency of existing requirements for seals, emission control systems, doming, and monitoring. Emission reductions were calculated based on estimated baseline emissions and the expected efficacy for the proposed control or monitoring requirement. TankESP PRO software was used to determine baseline emissions and emission reductions for proposed control requirements. This software calculates tank emissions based on emissions estimate procedures from Chapter 7 of U.S. EPA's Compilation of Air Pollutant Emission Factors for VOC emissions from storage tanks. Calculated emissions are based on many parameters such as tank diameter, tank height, controls, location of tank, product stored, characteristics of product stored and product throughput. U.S. EPA's estimates for uncontrolled tanks contained in the 2016 CTG were used to determine baseline emissions in the cost-effectiveness analysis for implementing OGI inspections. The total estimated emission reductions from the implementation of PAR 1178 is 0.82 ton per day.

Secondary Seals

TankESP PRO software was used to calculate emission reductions from adding secondary seals to internal floating roof tanks not equipped with secondary seals and storing organic liquid with TVP greater than 0.1 psia (8 tanks total). Baseline emissions for the eight tanks are 0.012 ton per day. The total VOC emission reductions from installing secondary seals on eight internal floating roof tanks are 0.01 ton per day.

Secondary Seal Gap Requirements

TankESP PRO was used to estimate emission reductions from requiring more stringent gap requirements. The associated VOC emission reductions are expected to be 0.01 ton per day.

Vapor Recovery

TankESP PRO was used to calculate emission reductions from increasing emission control efficiency from 95% to 98%, by weight, for tanks reported to store organic liquid with TVP greater than 0.1 psia connected to emission control systems. Tanks connected to fuel gas systems (typically found at refineries) were not included in the analysis. The 2021 Annual Emission Reports were used to identify the fixed roof tanks that store organic liquid with TVP greater than 0.1 psia and determine throughput. Baseline VOC emissions for fixed roof tanks are 0.12 ton per day. The VOC emission reductions associated with increasing emission control system efficiency to 98% by weight from 95% by weight are 0.07 tons per day.

Doming

TankESP PRO was used to calculate emissions reductions from doming. Fifty-four external floating roof tanks were identified as crude oil tanks. Staff used 2019 Annual Emission Reports to identify which tanks stored crude oil and the throughput for each tank. It was determined that reported throughputs in 2019 were more representative of normal operations compared to years 2020 and 2021 since the COVID-19 pandemic may have affected operations. The total VOC emission reductions from doming over the life of the equipment (50 years) is 2,259 tons, or 0.12 ton per day.

Reid Vapor Pressure (RVP)

Vapor pressure of organic liquid stored significantly affects emissions from a tank. Currently, in Rule 1178, doming is required for tanks storing material with a TVP of 3 psia or greater, except for crude oil tanks that are currently exempt from doming requirements. The TVP of crude oils can vary greatly since it is not a material that is refined to specification. Staff reviewed the TVPs for crude oil reported by facilities on tank inspection reports. The method used by facilities to determine the vapor pressures reported is unknown and may vary between facilities. Several inspection reports did not state a vapor pressure for the crude oil stored. The reported RVPs in 2020 inspection reports ranged from 1.77 psia to 7.87 psia for crude oil stored in external floating roof tank. Since all inspection reports did not have RVP information, staff took the average reported RVP in the 2020 inspection reports within two standard deviations to determine a maximum RVP of crude oil stored in external floating roof tanks. The resulting RVP was 8.19 psia and was used as the value in TankESP PRO to determine the VOC emission reductions from doming. Upon review of 2019 inspection reports, a more complete data set was obtained for reported RVP values of crude. The highest reported value was 8.14 psia. Using 8.14 psia as the RVP value in TankESP PRO also resulted in 0.12 ton per day of VOC emission reductions.

PAR 1178 will require doming on all external floating roof tanks storing material with a TVP of 3 psia or greater, including crude oil tanks. Baseline VOC emissions used in the cost-effectiveness analysis is based on maximum actual TVP of crude oil stored. The total VOC emission reductions based on permitted TVP limits and rule limits (11 psia) is 0.28 ton per day.

OGI Monitoring

Baseline emissions were estimated using emission factors established in U.S. EPA's 2016 Control Technology Guidelines for Oil and Gas Industry. Table 4-2 of the 2016 CTG contains emission estimates for an uncontrolled tank expressed in tons of VOC per year for different brackets of throughput in barrels per day. The average throughput of fixed roof tanks storing crude oil was used to determine the bracket to consider for estimating emissions from an uncontrolled tank. The average throughput was 7,537 barrels per day which corresponded to estimated emissions of 1,464 tons per year. Staff compared the resulting emission estimate using U.S. EPA factors to measured emissions from a 2015 emissions study that South Coast AQMD conducted with monitoring technology companies. Measured VOC emissions attributed to a malfunctioning pressure vacuum vent on a crude fixed roof tank was about 4.5 tons per day whereas the estimated losses from an uncontrolled crude oil tank based on Table 4-2 of the 2016 CTG is about 4 tons per day.

To estimate baseline emissions from leaks, staff assumed that one large leak would occur from only one tank out of all tanks subject to Rule 1178, once each year. The shortest frequency between

inspections currently required is 90 days (quarterly inspections). Staff assumed that a leak would occur 45 days after an inspection (45 days before the next quarterly inspection). Total emissions using the emission factors in Table 4-2 of the 2016 CTG and the assumption that a leak would occur 45 days before the next quarterly inspections and once per year results in baseline emissions of 180 tons per year.

The amount of VOC emission reductions achievable depend on the monitoring frequency. Emission reductions resulting from conducting monitoring at different frequencies were analyzed. PAR 1178 will require weekly and semi-annual OGI inspections. The estimated VOC emission reductions from weekly and semi-annual OGI inspections are 0.45 ton per day and based on the assumption that a leak would occur 3.5 days (1/2 the inspection frequency) after the previous inspection. Figure 4.1 shows the VOC emission reductions associated with different monitoring frequencies, including weekly inspections.

Figure 4.1 Estimated Emission Reductions for Different Monitoring Methods

COSTS AND COST-EFFECTIVENESS

Health and Safety Code Section 40920.6 requires a cost-effectiveness analysis when establishing BARCT requirements. The cost-effectiveness of a control is measured in terms of the control cost in dollars per ton of air pollutant reduced. The costs for the control technology include purchasing, installation, operation, maintenance, and permitting. Emission reductions were calculated for each requirement and based on estimated baseline emissions. The 2022 AQMP established a cost-effectiveness threshold of $36,000 per ton of VOC reduced. A cost-effectiveness that is greater than $36,000 per ton of VOC reduced requires additional analysis and a hearing before the Governing Board on costs. The cost-effectiveness is estimated based on the present value of the retrofit cost, which was calculated according to the capital cost (initial one-time equipment and installation costs) plus the annual operating cost (recurring expenses over the useful life of the control equipment multiplied by a present worth factor). Capital costs are one-time costs that cover the components required to assemble a project. Annual costs are any recurring costs required to operate equipment. Costs were obtained for secondary seals, domes, and monitoring with OGI from facilities and suppliers.

Doming

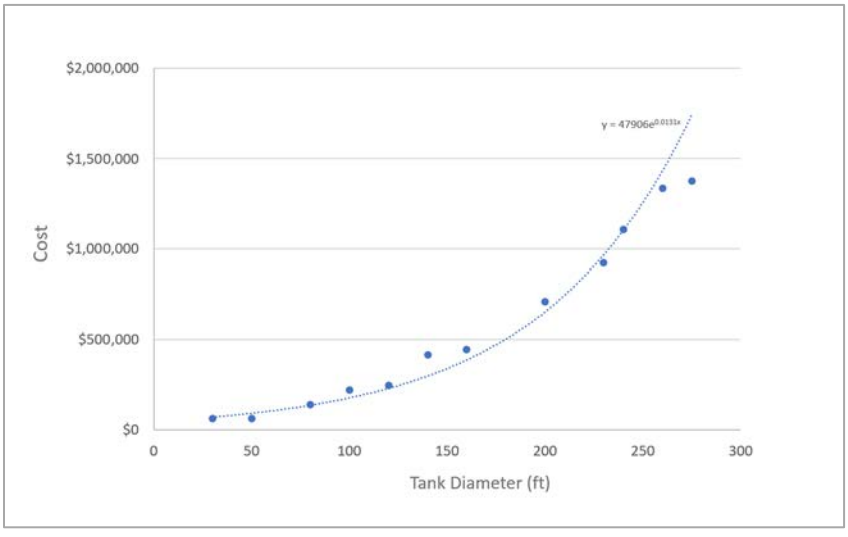
PAR 1178 will require domes on external floating roof tanks storing crude oil, currently exempt from doming requirements. According to 2019 AERs, 54 tanks were reported to have stored crude. Information about doming, including cost information, was obtained from facilities, dome suppliers, and dome maintenance service providers. Emission reductions were calculated with TankESP PRO software. Total cost-effectiveness to dome 54 crude oil tanks is $36,800 per ton of VOC reduced.

Costs

Costs were obtained from facilities, dome suppliers, and dome maintenance service providers. Four cost-effectiveness analyses were conducted and based on the information provided to staff throughout the rule development. The first analysis was based on cost information from dome suppliers for equipment and installation. After that analysis, facilities provided cost information from past projects and another cost-effectiveness analysis was conducted. After the second analysis, facilities provided additional cost information for past and projected projects and staff conducted a third analysis based solely on cost information provided by facilities. After the third analysis, stakeholders commented that operating and maintenance costs must be considered in the analysis. A fourth cost-effectiveness analysis was conducted that included operating and maintenance (O&M) costs.

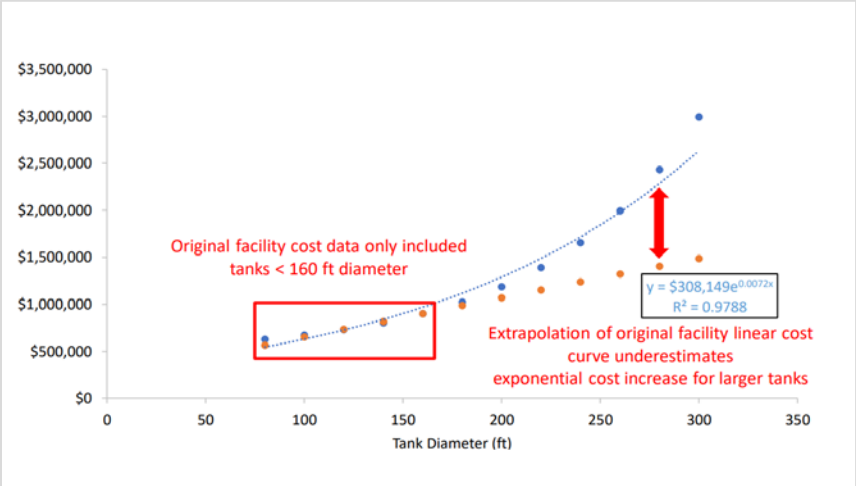
The first cost-effectiveness calculation relied on costs provided by three dome suppliers for equipment and installation. Additional costs for creating space for dome assembly, crane rental and union labor were assumed. A 25-year equipment life was assumed based on the assumption used for the cost-effectiveness for doming in Rule 1178 adoption in 2001. Costs ranged from approximately $100,000 to $1.75 million dollars for tanks ranging in size from 30 to 275 feet in diameter. Figure 4.2 shows the cost curve based on estimates from dome suppliers for equipment and installation.

Figure 4.2 - Vendor Cost Curve



Facilities informed staff of additional expenses associated with doming and provided costs for doming tanks 160 feet in diameter and smaller. Costs provided were based on vendor quotes and past projects adjusted to reflect current day dollars. A 50-year equipment life was assumed based on current information provided by dome suppliers. Two dome suppliers estimated a 50-year useful life, while one dome supplier estimated 30 years of useful life for a tank exposed to precipitation and additional load from snowfall. Staff determined that a 50-year useful life is reasonable and consistent with the condition of domes observed installed almost 20 years ago. A hybrid cost curve was created using vendor and facility cost data. To create the hybrid cost curve, staff added a calculated premium based on costs provided by facilities to the costs provided by vendors to reflect actual project costs. Costs ranged from approximately $383,000 to $2.25 million dollars for tanks ranging in size from 30 to 275 feet in diameter. Figure 4.3 shows the hybrid cost curve based on facility information for tanks less than or equal to 160 feet in diameter and vendor quotes for tanks ranging in size from 75 to 300 feet in diameter.

Figure 4.3 - Hybrid Cost Curve



After the second cost-effectiveness analysis, facilities provided additional cost information for doming 33 tanks, including tanks larger than 200 feet in diameter. Another cost-effectiveness analysis was performed and relied solely on facility data for total equipment and installation costs. Costs ranged from approximately $165,000 to $2.89 million dollars for tanks ranging in size from 30 to 275 feet in diameter. Figure 4.4 shows the cost curve for equipment and installation based on information provided by seven facilities. Figure 4.5 shows the resulting cost curves for each iteration. The total cost for equipment and installation for 54 crude oil tanks is $55,127,494.

Figure 4.4 - Facility Cost Curve

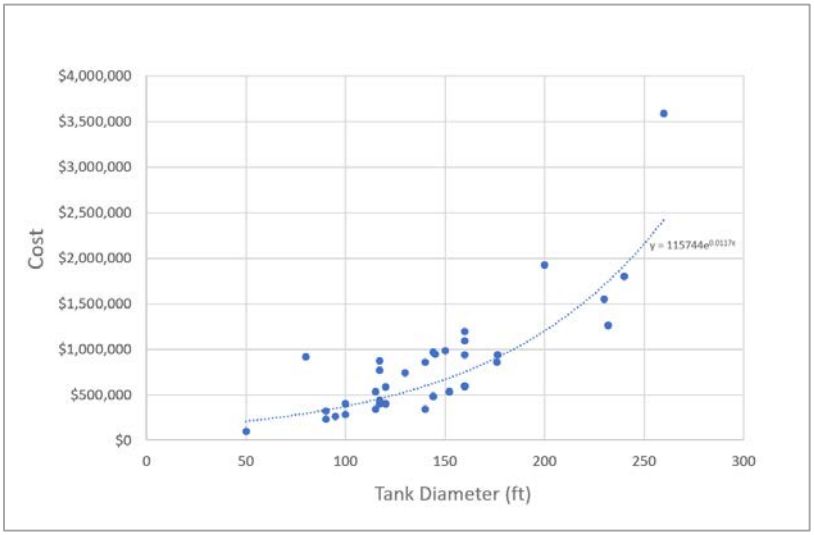
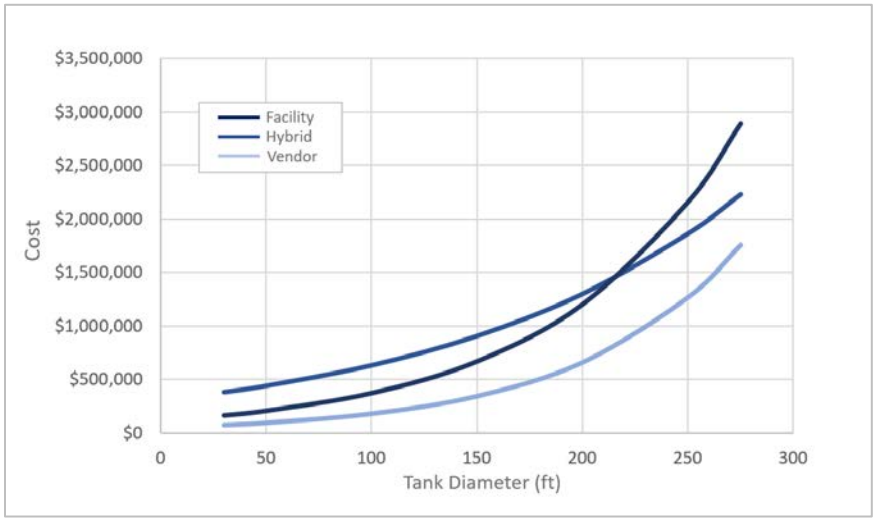


Figure 4.5 - Cost Curve Comparison

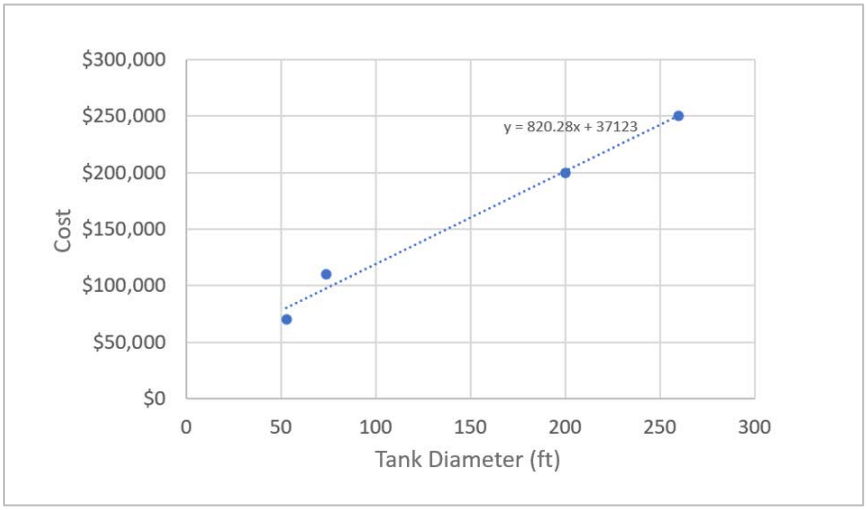


Operating and Maintenance (O&M) Costs

Dome suppliers, dome maintenance providers, and facilities provided information about maintenance required to keep a dome in good operating condition. The typical maintenance for domes involves re-sealing of seams. Common signs of degrading seals and gaskets include panels pulling away from seams or bolts beginning to uplift from seams. One dome supplier stated that, over 46 years of operation, they have only witnessed the need for minimal maintenance to gaskets and seals. This supplier estimated that a complete re-seal or re-gasket may be needed after 20 years of dome service. Two dome maintenance service providers stated that typical maintenance they perform involves preparing the aluminum surface and applying a sealant or tape to the hubcaps and seams. The dome maintenance service providers estimated that re-sealing would be required

every 10 to 25 or more years. One facility stated that they apply caulking to seal gaps on the dome and estimated that they would need to seal the dome about every 20 years.
Costs were obtained from the dome maintenance service providers for tanks of different diameters. The cost-analysis assumes that maintenance would be required every 20 years (1.5 times throughout the 50-year life of the dome). The maintenance cost was estimated at $70,000 for a 53-foot diameter tank, $100,000 for a 74-foot diameter tank, $200,000 for a 200-foot diameter tank, and $250,000 for a 260-foot diameter tank. The cost curve used to estimate O&M costs for tanks of different diameters is shown in Figure 4.6. The discounted cash flow method at 4% was applied to determine total O&M cost. The total cost for O&M for 54 tanks is $6,193,440 over 50 years.

Figure 4.6 – O&M Cost Curve



Loss of Capacity and Productivity Costs

In addition to equipment and installation costs, costs were considered for loss of storage capacity. Some facilities stated that tanks would be required to be taken out of service for dome installation. Although not all facilities stated they would take tanks out of service for dome installation, staff considered costs for storage leasing. Two facilities estimated storage leasing costs at approximately $0.50 per barrel. Staff is aware of two facilities that would potentially rent storage offsite if a tank was out of service for doming. One facility can accommodate facility demand without renting additional storage but would potentially incur a loss of production if additional crude was available to purchase while a tank was out of service. The other facility would need to lease storage offsite to maintain operations. Staff considered storage leasing costs for the facility that would be required to lease off-site storage during doming construction to maintain operation. Based on facility and dome supplier information, it is assumed that a tank would be removed from service for 12 weeks to install a large dome approximately 200 feet in diameter and removed from service for approximately six weeks for an API 653 internal inspection. Since facilities can install a dome while a tank is out of service for an API 653 internal inspection, costs for storage leasing were only considered for six weeks which is the number of weeks a tank would be out of service due only to doming. The total cost included for storage leasing was based on average daily throughput obtained from 2019 AERs, the number of days beyond an API inspection that the tank is out of service for doming, and the cost of $0.50 per barrel. The total cost included for storage leasing is $2,240,422. Costs for loss of productivity were not considered.

Implementation and Costs

The proposed implementation schedule for doming has a significant effect on cost-effectiveness. Facilities periodically empty and degas tanks for API 653 internal inspections. These inspections are conducted every 10 to 30 years, depending on certain specifications of a tank. To reduce costs associated with doming, staff considered the facilities' API 653 inspection schedules that indicate when a tank would already be emptied or degassed for the internal inspection. Cleaning and degassing costs are potentially significant costs and can, in some cases, be more costly than the cost of equipment and installation for doming. Facilities and dome suppliers have informed staff that a tank is not required to be out of service (emptied and degassed) while a dome is constructed and installed, however, some facilities would be required to remove a tank from service for safety reasons. Although not all tanks will be taken out of service for doming, the cost-effectiveness analysis assumes all tanks would require cleaning and degassing prior to dome installation.

Facilities provided staff with API 653 internal inspection schedules for crude oil external floating roof tanks. The impact on cost-effectiveness from requiring full implementation of doming by certain dates was analyzed. Prior to including O&M costs, the soonest implementation date that resulted in cost-effectiveness below $36,000 per ton VOC reduced threshold, was 2038. Adding O&M costs increased cost-effectiveness to $36,800 per ton of VOC reduced. Staff proposes to retain full implementation in 2038.

Cost estimates for cleaning and degassing were obtained for five facilities and one cleaning and degassing service provider. A cost curve based on the cost estimates received was used to estimate cleaning and degassing costs and is shown in Figure 4.7. The total costs for cleaning and degassing tanks with API schedules beyond 2038 is $13,795,837. Table 4.1 shows equipment, install, and O&M costs, and emission reductions for each tank proposed to be domed.

Figure 4.7 – Cleaning and Degassing Cost Curve

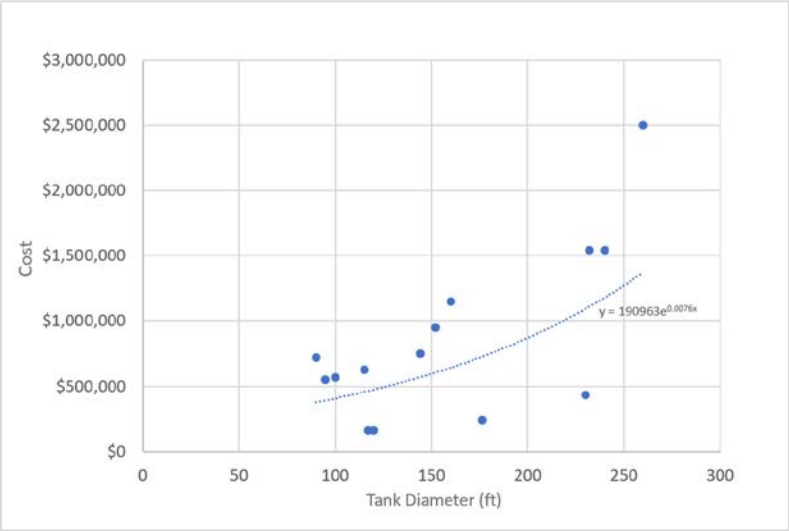


Table 4.1 – Summary of Costs and Reductions

Tank No.	Diameter (ft)	Equip+Install	O&M (50 years)	Reductions (tons/50 yrs)
1	117	$454,992	$85,775	36.45
2	117	$454,992	$85,775	35.72
3	218	$1,483,235	$139,167	40.08
4	218	$1,483,235	$139,167	40.08
5	160	$752,485	$108,506	29.78
6	195	$1,133,291	$127,009	36.58
7	160	$752,485	$108,506	29.78
8	90	$331,750	$71,502	17.63
9	138	$581,715	$96,876	42.00
10	134	$555,118	$94,762	40.80
11	120	$471,246	$87,361	22.65
12	120	$471,246	$87,361	23.00
13	117	$454,992	$85,775	36.45
14	230	$1,706,809	$145,511	42.47
15	176	$907,398	$116,965	32.98
16	176	$907,398	$116,965	32.98
17	144	$624,019	$100,048	43.65
18	95	$351,736	$74,145	30.09
19	115	$444,469	$84,718	35.89
20	144	$624,019	$100,048	43.65
21	152	$685,248	$104,277	47.02
22	152	$685,248	$104,277	47.02
23	144	$624,019	$100,048	43.65
24	160	$752,485	$108,506	29.78
25	160	$752,485	$108,506	30.30
26	160	$752,485	$108,506	30.30
27	160	$752,485	$108,506	30.30
28	100	$372,926	$76,788	19.60
29	160	$752,485	$108,506	30.30
30	160	$752,485	$108,506	30.30
31	144	$624,019	$100,048	41.63
32	144	$624,019	$100,048	42.57
33	144	$624,019	$100,048	42.57
34	144	$624,019	$100,048	41.63
35	144	$624,019	$100,048	41.63
36	144	$624,019	$100,048	41.63
37	144	$624,019	$100,048	41.63
38	144	$624,019	$100,048	27.50
39	221	$1,536,221	$140,753	40.56

40	221	$1,536,221	$140,753	40.56
41	201	$1,215,707	$130,180	37.12
42	210	$1,350,704	$134,938	38.70
43	227	$1,647,939	$143,925	35.18
44	220	$1,518,352	$140,225	31.09
45	230	$1,706,809	$145,511	100.28
46	260	$2,424,501	$161,370	49.08
47	260	$2,424,501	$161,370	22.84
48	229	$1,686,956	$144,982	49.14
49	260	$2,424,501	$161,370	82.34
50	260	$2,424,501	$161,370	130.76
51	227	$1,647,939	$143,925	66.01
52	242	$1,964,083	$151,855	51.10
53	260	$2,424,501	$161,370	105.66
54	100	$372,926	$76,788	26.08
Total		$55,127,494	$6,193,440	2258.58

Additional capital costs were added for fire suppression systems and permitting. Fire suppression systems are not required for tanks located at non-refineries; however, costs for fire suppression systems were applied for all tanks. A total of $5,670,000 ($105,000 each system) was added for fire suppression systems. A total of $515,106 was added for permitting 54 tanks ($9,539 each tank based on the current fee schedule in South Coast AQMD Rule 301 – Permitting and Associated Fees).

Cost-Effectiveness

The total cost to dome 54 tanks includes equipment, installation, permitting, cleaning and degassing (18 tanks only), storage leasing, and O&M is $82,978,046. The total reductions over 50 years are 2,258.6 tons. The cost-effectiveness to dome 54 external floating roof tanks is $36,738 per ton of VOC reduced. A summary of costs is shown below in Table 4.2.

Table 4.2 – Total Costs for Doming

Type of Cost	Dollar Amount
Equipment and installation	$55,127,494
Cleaning/degassing	$13,795,837
O&M	$6,193,440
Fire suppression	$5,670,000
Permitting	$515,106
Storage leasing	$2,240,422
Total Cost	$82,978,046

Secondary Seals

PAR 1178 would require secondary seals on all floating roof tanks. Eight internal floating roof tanks were initially identified that are not equipped with secondary seals and store material with TVP greater than 0.1 psia. Cost information was obtained from facilities and secondary seal suppliers. Methods for estimating costs and reductions are discussed below.

Costs

Cost estimates were obtained from suppliers, one facility, and reported costs in the Rule 1178 adoption staff report that were adjusted to current dollars. Total costs ranged from $163 per foot installed and $297 per foot installed. Suppliers estimated that the equipment life of stainless-steel components were 20 years and that rubber components are expected to last 10 years. The average cost of $220 per liner foot was used. Permitting costs were calculated and included based on South Coast AQDM Rule 301. O&M costs were considered to replace rubber components every 10 years after installation of a complete seal with a 20-year equipment life. Costs were estimated at $42 per linear foot from one supplier to replace rubber components.

Implementation and Costs

Staff is proposing to require the installation of secondary seals when the tank is next emptied and degassed and no later than 10 years from date of adoption. Suppliers stated that tanks would not be required to be emptied and degassed for installation of a secondary seal, however, one facility stated that it is facility practice for a tank to be emptied and degassed prior to installing a secondary seal to ensure the safety of personnel. No costs were considered for emptying and degassing the tank since installation of the secondary seal is required when the tank is already emptied or degassed.

Cost-Effectiveness

The total cost to install secondary seals on eight internal floating roof tanks is $429,106. Total VOC emission reductions over 20 years are 18.8 tons. The cost-effectiveness to install secondary seals is $22,800 per ton of VOC reduced. Table 4.3 provides a summary of the costs and reductions for requiring secondary seals on ~~all~~eight floating roof tanks.

Table 4.3 – Summary of Costs and Reductions

Diameter (ft)	Secondary Seal Needed (ft)	Seal Cost equip+install ($220/ft)	Rubber Replacement equip+install ($42/foot)	Permitting Cost	Total Cost (20 years)	Tons Reductions (20 years)
60	189	$41,580	$7,938	$9,000	$58,518	6.6
50	157	$34,540	$6,594	$9,000	$50,134	2.9
30	94	$20,680	$3,948	$9,000	$33,628	1.34
33.5	105	$23,100	$4,410	$9,000	$36,510	3.68
66	208	$45,760	$8,736	$9,000	$63,496	1.09
66	208	$45,760	$8,736	$9,000	$63,496	1.09
64	201	$44,220	$8,442	$9,000	$61,662	1.05
64	201	$44,220	$8,442	$9,000	$61,662	1.05
TOTAL	**1,363**	**299,860**	**$57,246**	**$72,000**	**$429,106**	**18.8**

Subsequent to the release of the Draft Staff Report and cost-effectiveness determination for secondary seals, staff identified two additional facilities subject to PAR 1178 that will be required to install secondary seals on their internal floating roof tanks pursuant to the proposed requirement. It is expected that 16 additional internal floating roof tanks will be required to install secondary seals. The cost-effectiveness remains $22,800 per ton of VOC reduced for installation of secondary seals.

Enhanced Leak Detection

A cost-effectiveness analysis was conducted for the implementation of continuous monitoring using fixed gas sensors, open path detection devices, and fixed OGI devices. A cost-effectiveness analysis was also conducted for implementing periodic OGI inspections with a handheld OGI device. An example facility with 22 tanks was used to estimate and compare costs for continuous monitoring systems if implemented for 1,038 tanks (number of tanks identified subject to Rule 1178 at the time the cost-effectiveness was calculated). Figure 4.8 shows the example facility used for cost comparisons.

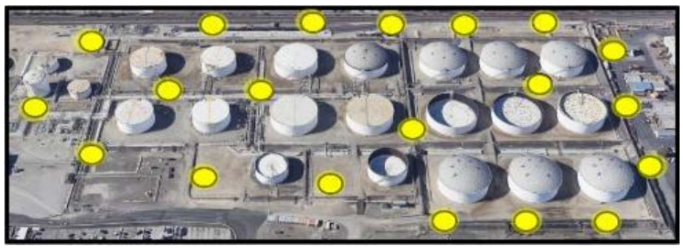
Figure 4.8 – Example Facility for Cost Comparison

Costs

Continuous Monitoring - Fixed Gas Sensors

Costs were obtained from two suppliers of fixed gas sensors. One supplier quoted equipment costs at $1,800 per unit, including installation. Annual costs are $400 per month per unit and include access to high level emissions data, calibration, bump tests, and produced reports. Sensors would require replacement every six months and cost $1,800 per unit. Installation does not include any structures that may be built to position the sensor at an optimal height or position. It is estimated that 20 sensors are required to detect very large leaks at the example tank farm. Figure 4.9 shows how a gas sensor network would be implemented at the example tank farm.

Figure 4.9 – Implementation of Gas Sensor Network (Example)



Total annual cost to implement a network of 20 gas sensors is $168,000. Gas sensor networks provided as a service are also available. The sensor network is installed, owned, and operated by the supplier. The cost is approximately $10,000 per year per sensor. The total estimated cost for a sensor network provided as a service at the example tank farm is $200,000 per year.

Continuous Monitoring - Open Path

Two open path providers were contacted to obtain information about open path detection. Limited information was provided about the technology and no cost information obtained. Equipment costs were obtained from one facility currently using open path devices for fenceline monitoring. Installation and maintenance were not included in the facility cost estimate. A percentage of equipment costs was used to estimate installation and maintenance. The open path devices were estimated at $190,000 per device. Installation costs were assumed equal to equipment costs. Annual maintenance costs were assumed equal to OGI maintenance costs, approximately $5,000 per unit. Staff estimated five open path devices are required to detect large leaks at the example tank farm. Figure 4.10 shows how open path detection would be implemented at the example tank farm.

Figure 4.10 – Implementation of Open Path Detection (Example)

Total annual costs to implement a network of five open path devices is $115,000 and is based on 20-year useful life of the equipment.

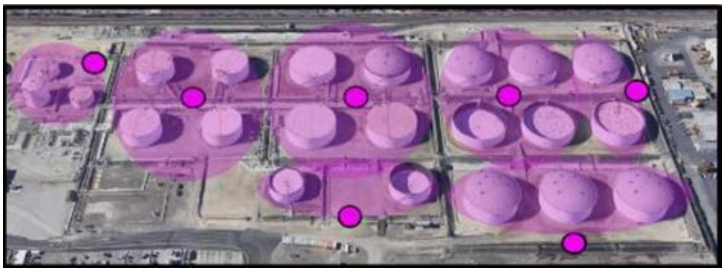
Continuous Monitoring – Optical Gas Imaging

Costs were obtained from OGI providers. One provider quoted costs to implement an OGI network to continuously monitor tanks. Like gas sensor networks, optical gas imaging networks are offered for purchase and as a service.

Costs for a basic fixed continuous monitoring system for purchase include one-time costs and periodic maintenance costs. The one-time cost for a basic fixed system with a cooled OGI camera is $108,000 per camera and includes the camera, camera mounting in an ATEX rated enclosure and service costs. Additional options are available such as pan and tilt systems, explosion proof enclosures, and power and cellular connection for remote areas. A basic fixed system with cellular connection increases costs from $108,000 to approximately $118,000 per camera and a basic fixed system with trailer power system increases costs from $108,000 to $132,000 per camera. The cooling component is expected to need replacement every three to four years and costs $15,000 to replace.

Hardware as a service requires a one-time down payment and monthly costs. The one-time cost is approximately $11,000 per camera for a basic fixed system, $12,000 for a fixed system with cellular connected, and $20,000 for a basic fixed system with a trailer power system. The monthly fee is $6,000 per camera for a basic fixed system, $6,500 per camera for a basic fixed system with cellular connection, and $7,500 per camera for a basic fixed system with a trailer power system. Seven fixed OGI devices on a pan and tilt system were assumed to be required to detect large leaks at the example tank farm. Figure 4.11 shows how an OGI network would be implemented at the example tank farm.

Figure 4.11 – Implementation of Fixed OGI Devices (Example)



Total annual costs to implement a network of seven fixed OGI cameras is estimated at $85,700 if purchased, installed and operated by the facility, and $706,900 if purchased as hardware as a service.

Weekly and Semi-Annual Monitoring – Optical Gas Imaging

PAR 1178 will require facilities to monitor storage tanks for leaks by conducting tank farm inspections with an OGI device on a weekly basis for all tanks as well as semi-annual component inspections for floating roof tanks. A total of ~~1,059~~1,093 tanks were identified as~~will be~~ subject to PAR 1178, however, only tanks storing organic liquid with TVP greater than 0.1 psia will be subject to OGI inspections. Tanks identified as subject to OGI inspections are located at 30~~29~~ facilities. Costs for OGI inspections were obtained from two leak detection service providers that use OGI.

One service provider estimated service costs at approximately $1,000 per day and that it may take one week to inspect a large tank farm with 100 tanks. Another service provider estimated costs to inspect three to four tanks from the platform as well as conduct an overview inspection of the entire tank farm to identify large leaks at approximately $1,500 per technician per day. The provider explained that it is typical to use a two-person crew to perform an inspection for safety reasons. The total cost for an OGI inspection that includes monitoring from the tank platform for three to four tanks and monitoring of the entire tank farm for large leaks using a two-person crew is $3,000.

Twenty-seven facilities were identified during the rule development when costs were being determined and were evaluated to determine costs for ~~are subject to~~ OGI inspections. The cost for each inspection is estimated at $3,000 and would be conducted weekly. The total annual cost for weekly OGI inspections for 27 facilities is $4,212,000.

Cost-Effectiveness
Cost-effectiveness was calculated for different monitoring methods. Table 4.4 shows the cost-effectiveness for each method.

Table 4.4 – Cost-Effectiveness for Monitoring Methods

Monitoring Method	Cost-Effectiveness ($/ton of VOC reduced)
Continuous monitoring - Gas sensors	$44,800/$54,400 (as a service)
Continuous monitoring - Open path	$30,700
Continuous monitoring - OGI	$23,900/$188,500 (as a service)
Weekly and semi-annual monitoring - OGI	$25,400

SOCIOECONOMIC ANALYSIS

A socioeconomic impact assessment has been prepared and has beenwill be released for public review and comment at least 30 days prior to the South Coast AQMD Governing Board public hearing, which is scheduled to be held on September 1, 2023.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) ANALYSIS

PAR 1178 is considered a "project" as defined by the California Environmental Quality Act (CEQA) and the South Coast AQMD is the designated lead agency. Pursuant to South Coast AQMD's Certified Regulatory Program (Public Resources Code Section 21080.5 and CEQA Guidelines Section 15251(l); codified in South Coast AQMD Rule 110) and CEQA Guidelines Section 15070, the South Coast AQMD has prepared an Environmental Assessment (EA) with less than significant impacts for PAR 1178, which is a substitute CEQA document, prepared in lieu of a Negative Declaration pursuant to CEQA Guidelines Section 15252. The Draft EA did not identify any environmental topic areas that would be significantly adversely affected by physical modifications resulting from the proposed project. AThe Draft EA washas been released for a 30-day public comment and review period from July 19, 2023 to August 18, 2023 to provide public agencies and the public an opportunity to obtain, review, and comment on the environmental analysis. Comments were made relative to the analysis in the Draft EA and responses to the comments arewill be included in the Final EA.

DRAFT FINDINGS UNDER HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings
Health and Safety Code Section 40727 requires that prior to adopting, amending, or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report. In order to determine compliance with Health and Safety Code Section 40727, Health and Safety Code Section 40727.2 requires a written analysis comparing the proposed amended rule with existing regulations, if the rule meets certain requirements. The following provides the draft findings.

Necessity
A need exists to amend PAR 1178 to implement best available retrofit control technology and emission reduction strategies recommended in the WCWLB CERP as part of the AB 617 commitment.

Authority
The South Coast AQMD obtains its authority to adopt, amend, or repeal rules and regulations from Health and Safety Code Sections 39002, 40000, 40001, 40440, 40506, 40510, 40702, 40725 through 40728, 41508, 41700, and 42300 et seq.

Clarity
PAR 1178 is written or displayed so that its meaning can be easily understood by the persons directly affected by them.

Consistency
PAR 1178 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions or state or federal regulations.

Non-Duplication
PAR 1178 will not impose the same requirements as any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference
In amending these rules, the following statutes which the South Coast AQMD hereby implements, interprets or makes specific are referenced: AB 617, Health and Safety Code Sections 39002, 40001, 40406, 40506, 40702, 40440(a), 40725 through 40728.5, 40920.6, and 42300 et seq.

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2 requires a comparative analysis of each proposed amended rule with any federal, or South Coast AQMD or other air district rules and regulations applicable to the same source. A comparative analysis is presented below in Table 4.5.

Table 4.5 – Comparative Analysis

Rule Element	PAR 1178	PAR 463	40 CFR 60	SJVAPCD
Applicability	• Storage tanks at facilities emitting 20 tons per year (tpy) or more in any year since 2000 that: • have capacity of 19,815 gallons or more and stores organic liquid with TVP >0.1 psia; or • have PTE of 6 tpy or more used in crude oil or natural gas production	• Storage tanks from 19,815-39,630 gallons storing material with TVP of 1.5 psia or greater • Storage tanks with capacity 39,630 gallons or more storing liquids with TVP of 0.5 psia or greater • Storage tanks from 251 gal to 19,815 gal storing gasoline	• Storage constructed, reconstructed or modified after July 23, 1984 with capacity of 75 m^3 or greater • Tanks with capacity of 19,185-39,889 gallons with a vapor pressure between 4 psia and 11.1 psia and tanks with capacity greater than 39,889 gal with vapor pressure between 0.75 psia and 11.1 psia.	• Storage tanks with capacity 1,100 gallons and greater

		• Storage tank with PTE of 6 tpy or more located at petroleum facilities		
Requirements	• Floating roofs or fixed roofs with 98% control • Seals and covers on all roof openings • Rim seal systems consisting of primary and secondary seals on all floating roof tanks • Gap requirements for primary and secondary seals • Doming for crude oil tanks	• Floating roofs or fixed roofs with 95% control	• Seals and covers on all roof openings • Rim seal systems consisting of primary and secondary seals on all floating roof tanks • Vapor recovery with minimum efficiency of 95% by volume on all fixed roof tanks with • Gap requirements for primary and secondary seals	• Seals and covers on all roof openings • Rim seal systems consisting of primary and secondary seals on all floating roof tanks • Vapor recovery with minimum efficiency of 95% by volume on all fixed roof tanks • Gap requirements for primary and secondary seals
Reporting	• Submit reports for all semi-annual and quarterly inspections (non-OGI inspections) • Submit report for all leaks identified during any inspection	• Submit reports for all semi-annual and quarterly inspections • Submit report for all leaks identified during any inspection	• Inspection reports of floating roof tanks submitted within 30 days. • For fixed roofs vented to a flare or incinerator a report shall be submitted indicating any period of pilot flame out within 6 months of initial start-up and on a semi-annual basis thereafter • Records to be kept for a minimum of 2 years.	• Submit inspection reports within 5 days of completion • Report prior to conducting voluntary tank inspection
Monitoring	• Periodic gap measurements for floating roof tanks • Periodic Method 21 measurements for fixed roof tanks • Weekly OGI monitoring for all tanks and additional semi-annual OGI inspections for floating roof tanks	• Periodic gap measurements for floating roof tanks • Periodic Method 21 measurements for fixed roof tanks	• Measurements of gaps between the tank wall and the primary seal (seal gaps) shall be performed during the hydrostatic testing of the vessel or within 60 days of the initial fill with VOL and at least once every 5 years thereafter. • Measurements of gaps between the tank wall and the secondary seal shall be performed within 60 days of the initial fill with VOL and at least once per year thereafter.	• Annual gap measurements for external floating roof tanks • Gap measurements for internal floating roof tanks at least once every 60 months • Voluntary annual visual and U.S. EPA Method 21 inspections for all tanks
Recordkeeping	• Written records of inspections and findings • Digital recordings of all leaks identified during OGI inspections • All data required by this rule shall be maintained for at least five years and made	• All data required by this rule shall be maintained for at least five years and made available for inspection by the Executive Officer	• For fixed roof tanks vented to vapor recovery an operating plan shall be kept, indicating the parameter monitored. • Records to be kept for a minimum of 2 years.	• Records of tank cleaning kept for 5 years

	available for inspection by the Executive Officer	• Written records of inspections and findings		

INCREMENTAL COST-EFFECTIVENESS

Health and Safety Code section 40920.6 requires an incremental cost-effectiveness analysis for BARCT rules or emission reduction strategies when there is more than one control option which would achieve the emission reduction objective of the proposed amendments relative to ozone, carbon monoxide, sulfur oxides, oxides of nitrogen, and their precursors. Since volatile organic compounds are precursors to ozone, an incremental cost-effectiveness analysis is required for controls proposed to limit VOC emissions. Incremental cost-effectiveness is the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control options as compared to the next less expensive control option.

Incremental cost-effectiveness is calculated as follows:

Incremental cost-effectiveness = $(C_{alt} – C_{proposed}) / (E_{alt} – E_{proposed})$

Where:

$C_{proposed}$ is the present worth value of the proposed control option;
$E_{proposed}$ are the emission reductions of the proposed control option;
C_{alt} is the present worth value of the alternative control option; and
E_{alt} are the emission reductions of the alternative control option

PAR 1178 would require facilities to meet more stringent control or monitoring requirements. The next progressively more stringent potential control option is different for each proposed requirement.

PAR 1178 will require facilities to dome any external floating roof tank storing organic liquid with a true vapor pressure of 3 psia or greater. The next progressively more stringent requirement would be to require all external floating roof tanks to be domed, regardless of the TVP of the organic liquid stored. A cost-effectiveness analysis for doming all external floating roof tanks including those storing material with TVP of 0.1 psia or less was conducted. The same assumptions were made as in the cost-effectiveness analysis for doming tanks with TVP of 3 psia and greater and TankESP PRO software was used to calculate emission reductions. Approximately 85% of EFRs storing material with TVP less than 3 psia are used to store heavy petroleum products such as diesel, jet fuel and kerosene. These products have a TVP of less than 0.1 psia. Because of the low TVP, far less emission reductions result from~~in~~ doming tanks storing such material. Staff analyzed EFRs for which emissions were reported in the 2019 Annual Emission Reports. The incremental cost-effectiveness to dome all tanks is:

Incremental cost-effectiveness = ($127,200,000 - $71,600,000) / (2,346 - 2,205) = $394,000 per ton of VOC reduced

The incremental cost analysis presented above demonstrates that the alternative control option is not viable when compared to the control strategy of the proposed amendments.

PAR 1178 will require secondary seals on all internal floating roof tanks storing material with TVP of greater than 0.1 psia. The next progressively more stringent requirement would be to require secondary seals on all internal floating roof tanks regardless of the TVP of material stored. A cost-effectiveness analysis for requiring secondary seals on all internal floating roof tanks including those used to store material with TVP of 0.1 psia and lesslower was conducted. Thirty-one additional internal floating roof tanks do not have secondary seals installed. The total cost to install secondary seals on 31 tanks is $1,521,696. Costs to empty and degas a tank are not included in the estimate. The total VOC emission reduction is one ton per year. The cost-effectiveness is $76,000 per ton of VOC reduced.

Incremental cost-effectiveness = ($1,522,000 - $428,800) / (20 -19.4) = $1,822,000 per ton of VOC reduced

The incremental cost analysis presented above demonstrates that the alternative control option is not viable when compared to the control strategy of the proposed amendments.

PAR 1178 will require emission control systems to meet 98% by weight control efficiency. Emission control systems are required on fixed roof tanks storing organic liquid with TVP greater than 0.1 psia. The next progressively more stringent requirement is to require emission control systems with 98% by weight control efficiency on all fixed roof tanks regardless of the TVP of the material stored. A cost-effectiveness analysis for requiring emission controls systems with 98% by weight control efficiency on all fixed roof tanks, including those used to store material with TVP of 0.1 psia and lesslower was conducted. Staff analyzed the cost to require emission controls systems on tanks used to store material with TVP of 0.1 psia and lowerless at a refinery. Costs were obtained from a vapor recovery provider however, this provider explained that vapor recovery is not typically the best option for low flow systems. Capital costs range from approximately $700,000 to $2 million depending on the size of the system and install costs are approximately 70% of the capital costs. Costs for maintenance were not provided. Costs to modify existing tanks to be routed to a vapor recovery system were not considered. It is expected that costs to modify existing tanks is significant. Assuming only capital and install costs, the cost-effectiveness to require emission control systems with at least 98% by weight control efficiency is $69,000 per ton of VOC reduced. It should be noted that actual feasibility of this technology on low flowrate systems may not be efficient and the actual costs to connect tanks to a vapor recovery system is expected to be significantly higher than the capital and install costs. Total costs to install vapor recovery on tanks storing material with TVP of 0.1 psia and less at the refinery is $19,040,000. The total emission reductions are 276.4 tons over 25 years (assumed equipment life).

Incremental cost-effectiveness = ($19,040,000 - $0) / (276.4 - 0) = $69,000 per ton of VOC reduced or higher

The incremental cost analysis presented above demonstrates that the alternative control option is not viable when compared to the control strategy of the proposed amendments.

PAR 1178 will require OGI inspections on a weekly basis. The next progressively more stringent requirement is to require OGI inspections daily. Cost-effectiveness for daily OGI inspections was

calculated. Based on the total annual cost for weekly OGI inspections for all facilities of $3,016,000, the total annual cost for all facilities is $6,032,000. Estimated reductions are 172 tons per year.

Incremental cost-effectiveness = ($8,424,000 - $4,212,000) / (172 -166) = $702,000 per ton of VOC reduced

The incremental cost analysis presented above demonstrates that the alternative control option is not viable when compared to the control strategy of the proposed amendments.

Table 4.6 summarizes the proposed requirement, the next progressively more stringent requirements, and the incremental cost-effectiveness.

Table 4.6 – Summary of Incremental of Cost-Effectiveness Results

Proposed Requirement	More stringent potential requirement	Incremental cost-effectiveness ($/ton)
Doming for TVP of ≥ 3 psia	Doming for all EFR tanks	$394,000
Secondary seals for IFR tanks, TVP > 0.1 psia	Secondary seals for all IFR tanks	$1,822,000
98% control efficiency for fixed roof tanks, TVP > 0.1 psia	98% control efficiency for all fixed roof tanks	~~Greater than~~ $69,000 or higher
Weekly OGI inspections	OGI inspections twice per week	$702,000

APPENDIX A: RESPONSE TO PUBLIC COMMENTS

1. Western States Petroleum Association, Received March 1, 2023

WSPA

Patty Senecal
Senior Director, Southern California Region

March 1, 2023

Via e-mail at: mmorris@aqmd.gov

Mike Morris
Manager, Planning and Rules
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: SCAQMD Proposed Amended Rule 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities – WSPA Comments on Cost-Effectiveness Analysis and Lack of Consideration of O&M Costs

Dear Mr. Morris,

Western States Petroleum Association (WSPA) appreciates the opportunity to participate in the Working Group Meetings (WGMs) for South Coast Air Quality Management District (SCAQMD or District) Proposed Amended Rule 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (PAR 1178). WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport, and market petroleum, petroleum products, natural gas, renewable fuels, and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that will be impacted by PAR 1178.

The California Health & Safety Code requires the District, in adopting any Best Available Retrofit Control Technology (BARCT) standard, to ensure the standard is technologically feasible, and take into account "environmental, energy, and economic impacts" and to assess the cost-effectiveness of the proposed control options.[1] Cost-effectiveness is defined as the cost, in dollars, of the control alternative, divided by the emission reduction benefits, in tons, of the control alternative.[2] If the cost per ton of emissions reduced is less than the established cost-effectiveness threshold, then the control method is considered to be cost-effective. Cost-effectiveness evaluations need to consider both capital costs (e.g., equipment procurement, shipping, engineering, construction, and installation) and operating (including expenditures associated with utilities, labor, and replacement) costs. Currently, the District is applying a cost-effectiveness threshold of $36,000 per ton of VOC emissions reduced, consistent with the 2022 Air Quality Management Plan (2022 AQMP).[3]

[1] California Health & Safety Code §40406, 40440, 40920.6.
[2] California Health & Safety Code §40920.6.
[3] SCAQMD Draft Final 2022 Air Quality Management Plan. Available at: http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan.

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SCAQMD released PAR 1178 Preliminary Draft Rule Language and Preliminary Draft Staff Report on February 17, 2023.[4,5] WSPA offers the following comments on the information presented therein.

1. **In estimating costs for doming of external floating roof crude oil tanks, the District has not included potential operation and maintenance (O&M) costs. This is not a complete view of costs and fails to align with the Discounted Cash Flow (DCF) method. O&M costs must be considered (along with capital costs) in the calculation of the present value of the proposed controls, and the cost-effectiveness of the proposed control must be reevaluated.**

SCAQMD's cost-effectiveness thresholds presented in the 2022 AQMP are based on the DCF method, in which the present value of control costs over the life of the equipment is calculated by incorporating capital costs, annual operation and maintenance (O&M) costs, and other periodic costs over the life of the equipment.[6] For this rule, SCAQMD has stated that they are using the DCF method but have assumed that O&M costs would be $0.[7] Therefore, costs related to annual O&M and other periodic costs over the life of the equipment have not been included in SCAQMD's estimate of lifetime costs. Staff have provided no evidence to support this zero O&M cost assumption.

In its comment letter dated January 19, 2023, WSPA commented that SCAQMD needed to reevaluate exclusion of O&M costs. SCAQMD responded to this comment in the Preliminary Draft Staff Report, stating[8]: 1-1

> *"No costs have been provided by facilities for maintenance of a dome, nor have facilities made mention of maintenance requirements for a dome"*

WSPA is hereby providing additional information on costs for O&M of tank domes over the 50-year proposed lifetime which show that the zero O&M cost assumption is unsupportable.

The type of fixed roof most commonly used in domed external floating roof tanks is a self-supporting aluminum dome roof.[9] These domes are crafted with triangular high strength aluminum alloy panels that are 0.050 inches thick to reduce the additional weight placed on the external floating roof storage tanks. This is generally necessary to minimize the need for additional structural retrofits of the tank.[10] Although these aluminum alloys are found to be more corrosion resistant than other metals used in storage tank applications (e.g., steel), aluminum does

[4]Proposed Amended Rule 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities: Preliminary Draft Rule Language. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-1178-preliminary-draft-rule-language.pdf?sfvrsn=6.
[5] SCAQMD Proposed Amended Rule 1178 Preliminary Draft Staff Report. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-1178-preliminary-draft-staff-report.pdf?sfvrsn=6.
[6] SCAQMD Draft Final 2022 Air Quality Management Plan. Available at: http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan.
[7] Personal communication between Yasmine Stutz, Ramboll, and Melissa Gamoning, SCAQMD on 11/9/22
[8] SCAQMD PAR 1178 Preliminary Draft Staff Report. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-1178-preliminary-draft-staff-report.pdf?sfvrsn=6.
[9] Kolmetz Handbook of Process Equipment Design. Storage Tank Selection, Sizing, and Troubleshooting. 2012. Available at: https://www.klmtechgroup.com/PDF/EDG-SYS/ENGINEERING-DESIGN-GUIDELINES-storage-tank-Rev2.1web.pdf
[10] Geodesic Aluminum Dome & Cover Roof Specification. Available at: https://www.tankconnection.com/assets/pdf/Aluminum_Dome_Specification_API_650_G.pdf

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experience pitting corrosion in marine environments, with aluminum plating near seashores showing pitting of up to 600 microns (0.0236 inches) after 20 years, nearly half the original thickness of the panels.[11] Further, thermal contractions and expansions can also generate gaps in the aluminum panels of domes. These gaps can be sealed with tape, covered by applying a dome coating system, or the panels can be replaced.[12] Pitting corrosion can be prevented or treated by applying a dome coating system, or the panels can be replaced. [13] Most of the crude storage tanks subject to this regulation are located at facilities which are in the coastal environment. As such, preventative maintenance actions would be necessary to prevent corrosion and ensure the long-term functionality of these self-supporting aluminum domes over an extended period such as the 50-year useful life assumed in the Staff analysis.

The National Association of Corrosion Engineers (NACE) provides a methodology to estimate the costs of a dome coating system in their paper titled "Expected Service Life and Cost Considerations for Maintenance and New Construction Protective Coating Work".[14] These costs are intended to represent total costs that include "hourly wages, supervision, equipment rates, overhead, profit, and other cost elements.". Project specific costs will vary depending on job size, geographic location, and other factors.

WSPA's technical consultant, Ramboll US Consulting (Ramboll), estimated the cost of corrosion coating based on the following assumptions and methodology:

- The aluminum geodesic dome has a ratio of dome height to tank diameter of 1:6.[15]
- A common coating system for this application consists of an inorganic zinc primer with an epoxy intermediate coat and a polyurethane topcoat, per a case study on crude oil tank coating selection.[16] The cost of such a coating system is approximated as $1.18 per square foot (2014 $US) if applied via spraying or $0.92 per square foot if applied via brush and rolls by combining the costs of an Inorganic Zinc Rich coat, Epoxy Intermediate/Topcoat, and Polyurethane Aliphatic Acrylic Intermediate/Topcoat.[17]
- The service life, or "practical life", of the system is estimated to be 15 years in coastal and offshore areas with high salinity.[18]
- Total lifecycle costs were approximated by considering the original painting and the spot touch-ups and repairs, maintenance repaints, and full repaints necessary to maintain the coating system. Spot touch-ups and repairs occur at the practical life of the system and are reported to cost 40% of the original paint.[19]
- The time until a maintenance repaint is estimated to be the practical life plus 33% and assumed to cost 70% of the original paint. A full repaint, which involves total coating

1-1

[11] Alcan Marine. Corrosion Behavior of Aluminum in Marine Environments. Available at: https://almet-marine.com/wp-content/uploads/2021/07/Ch10-corrosion-behaviour-of-aluminium-in-marine-environments.pdf.
[12] Basic Concepts Inc Justrite Safety Group. Geodesic Dome Repair. Available at: https://www.basicconcepts.com/spray-coatings/above-ground-tank-geodesic-dome-roof-repair/
[13] Ibid.
[14] NACE, Expected Service Life and Cost Considerations for Maintenance and New Construction Protective Coating Work. 2014. Available at: https://studylib.net/doc/25402068/expected-service-life-and-cost
[15] Maxwell Continental Tankserv. Alu Geodesic Dome Roofs. Available at: https://maxwelltanks.com/domed-floating-roof-tank/alu-geodesic-dome-roofs/.
[16] T.H.I Revetement. Protective Coating of Crude Oil Storage Tanks. Available at: https://thi-revetement.com/en/protective-coating-of-crude-oil-storage-tanks/.
[17] NACE, Expected Service Life and Cost Considerations for Maintenance and New Construction Protective Coating Work. 2014. Available at: https://studylib.net/doc/25402068/expected-service-life-and-cost
[18] Ibid.
[19] Ibid

removal and replacement, is expected to occur at the year of the maintenance repaint plus 50% of the practical life, or 183% of the practical life, and cost 135% of the original paint.[20]

Assuming a constant inflation rate over the 50-year lifetime of the coating system (+28% from 2014 to 2023),[21] the costs associated with maintenance on one 180-ft diameter tank in 2023 dollars are estimated to be approximately $345,500 if using brush/roll applications or $444,000 if using spray applications.

SCAQMD provided data on tank diameters for 51 crude oil tanks subject to Rule 1178.[22] Using the methodology defined above, Ramboll calculated the estimated cost to maintain the domes for these tanks over a 50-year period. This maintenance cost was estimated to be $23 million using spray applications or $18 million using brush and roll applications (2023 $US). SCAQMD reported a total estimated capital cost to dome 54 tanks as $79,891,000, and the total emission reductions over 50 years as 2,233 tons.[23]

Adding the calculated maintenance costs to the capital costs presented by SCAQMD, the total capital plus O&M costs for doming of the 51 tanks would range from $97.8 million to $103 million. Inclusion of this reasonable estimate for O&M costs would yield a calculated cost-effectiveness of between $43,808 and $46,093 per ton of VOC reduced. This value exceeds the cost-effectiveness threshold of $36,000 per ton of VOC reduced. We note that this estimate for O&M costs does not include additional labor costs caused by Senate Bill (SB) 54 requirements. California refineries are required to hire unionized labor which SCAQMD has previously estimated to add 20% to labor costs.[24] So adding SB54 consideration would further raise the estimated costs.

1-1

The above analysis clearly demonstrates that SCAQMD's zero O&M cost assumption is unreasonable. WSPA reiterates is comment that SCAQMD must reevaluate the cost assumptions presented for PAR1178 to include O&M costs and other periodic costs over the lifetime of the equipment. With that, the cost-effectiveness must be re-assessed for the proposed BARCT measure to require doming of external floating roof tanks storing crude oil.

[20] Ibid.
[21] U.S. Bureau of Labor and Statistics. CPI Inflation Calculator. Available at: https://www.bls.gov/data/inflation_calculator.htm
[22] Email transmittal from James McCreary, SCAQMD to Yasmine Stutz, Ramboll on November 9, 2022.
[23] SCAQMD Proposed Amended Rule 1178 Preliminary Draft Staff Report. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-1178-preliminary-draft-staff-report.pdf?sfvrsn=6.
[24] SCAQMD Proposed Rule 1109.1 – Emissions of Oxides of Nitrogen from Petroleum Refineries and Related Operations, Draft Staff Report, October 2021. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/dsr_pr_1109-1_30_day_package.pdf?sfvrsn=4.

Western States Petroleum Association 970 West 190th Street, Suite 304, Torrance, CA 90502 310.808.2146 wspa.org

WSPA appreciates the opportunity to provide these comments related to PAR 1178. We look forward to continued discussion of this important rulemaking. If you have any questions, please contact me at (310) 808-2144 or via e-mail at psenecal@wspa.org.

Sincerely,

Patty Senecal

Cc: Wayne Nastri, SCAQMD
Sarah Rees, SCAQMD
Michael Krause, SCAQMD
Rodolfo Chacon, SCAQMD
Melissa Gamoning, SCAQMD
James McCreary, SCAQMD

Western States Petroleum Association 970 West 190th Street, Suite 304, Torrance, CA 90502 310.808.2146 wspa.org

Comment 1-1

Staff has revised the cost-effectiveness based on information provided by dome suppliers, dome maintenance service providers, and facilities to include O&M costs as requested. Staff met with three dome maintenance service providers, including the service provider referred to in the comment letter, that provided information about maintaining an aluminum dome and the associated costs. Dome maintenance service providers stated that typical maintenance they perform involves the preparing of the aluminum service followed by applying a sealant or tape to the hubcaps and seams or applying caulking to seal gaps on the dome. Costs were obtained from the dome maintenance service providers for tanks of different diameters. The cost-analysis assumes that maintenance would be required every 20 years (1.5 times throughout the 50-year life of the dome) as indicated by facilities dome maintenance service providers. The cost curve used to estimate O&M costs for tanks of different diameters is shown in Figure 4.6. The discounted cash flow method at 4% was applied to determine total O&M cost. The total cost for O&M for 54 tanks is $6,193,440 over 50 years. Refer to the dome O&M discussion in Chapter 4.

2. Torrance Refining Company, Received March 14, 2023

Torrance Refining Company

Torrance Refining Company LLC
3700 W. 190th Street
Torrance, CA 90504
www.pbfenergy.com

March 14, 2023

VIA E-MAIL: srees@aqmd.gov

Sarah Rees, Ph.D.
Deputy Executive Officer
Planning, Rule Development & Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on South Coast Air Quality Management District Staff's 1178 Proposed Amended Rule Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities Rule Language Presented to the Public on Wednesday, March 1, 2023

Dear Dr. Rees;

Torrance Refining Company LLC ("TORC") appreciates the opportunity to participate in the South Coast Air Quality Management District's ("District") rulemaking related to Proposed Amended Rule 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities ("PAR 1178"). TORC supports bifurcating the rule to address the U.S. EPA's 2016 Control Techniques Guidelines ("2016 CTG") for the Oil and Natural Gas Industry first and then continuing to work on the remainder of the proposed amendments. However, as discussed below, TORC has significant concerns with the PAR 1178 revised rule language ("Revised March 2023 Language"). and the Public Workshop presentation presented by District staff on March 1, 2023.

As we understand, separate comments are being submitted by the Western States Petroleum Association ("WSPA"), which TORC supports and incorporates by reference as well as any prior comments submitted by WSPA.

Applicability

In the Revised March 2023 Language, the District staff has proposed removing the minimum true vapor pressure ("TVP") applicability of storage tanks without providing adequate justification other than wanting to include these low emitting tanks into the Optical Gas Imaging ("OGI") camera inspections. Storage tanks with a TVP of less than 0.1 psia are not subject to the emission control requirements of Rule 1178 since there are minimal emissions due to the low TVP. The District staff has yet to perform a Best Available Retrofit Control Technology ("BARCT") cost-effectiveness assessment for including these additional tanks into the OGI inspection program. As such, the District should not remove this 0.1 psia TVP applicability from PAR 1178 as it will not result in any beneficial emission reductions and be cost-prohibitive.

2-1

Definitions

In the Revised March 2023 Language, District staff has defined "Component Inspection" of Storage Tank roofs and individual components to include Roof Openings and Rim Seal Systems. However, in section (d)(1)(D) of the Revised March 2023 Language, Rim Seal Systems are not required to be free of visible vapors during a Component Inspection. Since they are not required to be inspected with an OGI camera, the District should remove Rim Seal Systems from the definition and state that it is not included in the definition. 2-2

Inspection and Monitoring Requirements

In the Revised March 2023 Language, Section (f)(4)(C) requires Tank Farm Inspections at least every seven (7) calendar days. In PAR 1178, District Staff proposes to include storage tanks formerly excluded from Rule 1178 (i.e., tanks storing organic liquids with TVPs less than 0.1 psia as previously noted). As previously mentioned, since these tanks have minimal emissions, they are not subject to any emission control requirements. Including these previously exempted tanks, would approximately double the number of tanks to be inspected weekly thereby substantially increasing the cost to the facility without any correlating benefit to reducing emissions. 2-3

In addition, Revised March 2023 Language Section (f)(4)(C) requires demonstration of compliance to be made within twenty-four (24) hours of identifying Visible Vapors. However, depending on the tank service, the operation, and certain safety considerations (i.e., stilling a tank and/or confined space entry), it may not be possible to get onto the tank roof to confirm an unplanned compliance determination within 24 hours. As a result, TORC recommends that PAR 1178 be revised to allow a facility at least three (3) calendar days to determine compliance. 2-4

Reporting and Recordkeeping Requirements

In the Revised March 2023 Language Section (h)(1)(A), District staff proposes that the facility contact the District via 1-800-CUT-SMOG within eight (8) hours of identifying a Storage Tank compliance issue. Under this section, the date of non-compliance must be fully documented and included in the report submitted within one hundred twenty (120) hours of the determination. Additionally, the repair period of seventy (72) hours begins when the non-compliant determination is made. TORC believes that this notification is unnecessary, puts additional burden on the facility, and is inconsistent with other District rules such as Rule 1173, which does not require the immediate verbal reporting of leaks. Accordingly, TORC requests that this notification requirement be removed from PAR 1178. 2-5

Exemptions

In the Revised March 2023 Language Section (j)(2), District staff proposes to exempt Storage Tanks with organic liquids less than 0.1 psia from the requirements of PAR 1178 with the added exception of OGI monitoring. However, as stated previously, the District has not provided any emissions justification or BARCT incremental cost analysis to justify the burden and expense of a facility having to conduct such OGI inspections. Therefore, TORC believes the OGI requirement 2-6

should be removed from this exemption, and the PAR 1178 applicability be limited solely to tanks storing organic liquid greater than 0.1 psia TVP. 2-6

Further, to qualify for the Revised March 2023 Language Section (j)(2) exemption, a facility must semi-annually test the organic liquid in a tank to confirm that the TVP is less than 0.1 psia. However, the semi-annually test requirement conflicts with the District's draft PAR 1178 Staff Report, which requires the TVP testing be conducted at least annually. TORC supports the draft Staff Report annual test requirement as most of these types of organic materials such as Jet Fuel and Diesel have TVPs much less than 0.1 psia. The tanks are designated to store these fuels and cannot have other products comingled with them. Accordingly, the need to confirm the TVP more than once annually for rule applicability is unnecessary. 2-7

BARCT Cost-Effectiveness Analysis

In addition to the other cost-effectiveness concerns brought up by the WSPA during the PAR 1178 rulemaking, TORC has additional concerns regarding the District staff's BARCT cost-effectiveness analyses, or lack thereof. In establishing BARCT, as previously performed for Rule 1109.1, and as required under California law, the District must do all of the following:

1. Identify one or more potential control options which achieves the emission reduction objectives for the regulation.
2. Review the information developed to assess the cost-effectiveness of the potential control option.
3. Calculate the incremental cost-effectiveness for the potential control options. This means that the District shall calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option.
4. Consider the effectiveness of the proposed control option, the cost-effectiveness of each potential control option, and the incremental cost-effectiveness between the potential control options. 2-8

On March 1, 2023, the District staff presented a summary of its cost-effectiveness and incremental cost-effectiveness analyses in the Revised March 2023 Language and Public Workshop Slide 27. In Slide 27, the District staff further provided a summary of the cost-effectiveness for each control option. However, there is not a cost-effectiveness analysis for "more stringent gap requirements" or "98% Emission Control for fixed roof tanks" options. The District staff's draft Staff Report also fails to present a cost-effectiveness analysis for these control options. Under California law, and consistent with prior adopted rules, the District must include these analyses in its BARCT assessment. Moreover, when the 98% control for fixed roof tanks option is already being met, the District should not be able to take credit for the emission reductions on Slide 26. 2-9

Additionally, Slide 26 lists the proposed BARCT controls in order of reductions obtained. However, the incremental cost-effectiveness analyses only consisted of evaluating the proposed control for a specific type of tank (e.g., 98% emission control for fixed roof with TVP > 0.1 psia) 2-10

and then incrementally applied it to all fixed roof tanks. The cost-effectiveness analysis should have been done for each of the control options. The District must determine the incremental cost-effectiveness for each progressively more stringent control option, whereas incremental cost analysis should not be done for control options outside of the rule objectives, meaning that the rule is to establish controls on tanks storing organic liquids greater than 0.1 psia. Presenting incremental controls outside of that objective (i.e., tanks with organic liquids less than 0.1 psia TVP), except for OGI monitoring, is inappropriate for the PAR 1178 rulemaking and does not achieve any emission reductions. 2-10

The District staff's Draft Staff report stated that the reduced emissions using an OGI camera was based solely on a fixed roof tank storing crude oil with a malfunctioning pressure vacuum vent. As the District staff are aware, there are other types of tanks and materials stored where the emissions from a leak would be much less. However, since the emissions reduced as shown in the draft Staff Report and Slide 26 are only based on a fixed roof tank, OGI inspections may not be cost-effective for other tanks since the emissions reduced could have zero tons reduced. Therefore, before adopting PAR 1178, the District must determine the cost-effectiveness of requiring each type of tank to have an OGI inspection. 2-11

As part of PAR 1178, the District staff proposes to include all tanks at the facility regardless of the organic liquid vapor pressure and without. However, to determine the realistic cost of PAR 1178, the District staff's cost effectiveness analyses should have more categories of OGI inspections with increasingly higher reductions such as: 2-12

1. All tanks less than 0.1 psia TVP;
2. Internal floating roof tanks greater than 0.1 psia TVP;
3. Domed external floating roof tanks greater than 0.1 psia TVP;
4. External floating roof tanks greater than 0.1 psia TVP; and
5. Fixed roof tanks greater than 0.1 psia TVP.

Based on Slides 26 and 27, and as discussed above, the District is obligated to perform the BARCT incremental cost-effective analysis in order of least stringent to most stringent provided that the individual control option is cost effective. Accordingly, the PAR 1178 control options in the District staff's BARCT incremental cost-effective analysis should be ordered as shown below: 2-13

1. Weekly OGI inspections for all tanks less than 0.1 psia TVP;
2. Weekly OGI inspections for Internal floating roof tanks greater than 0.1 psia TVP;
3. Weekly OGI inspections for Domed external floating roof tanks greater than 0.1 psia TVP;
4. Weekly OGI inspections for External floating roof tanks greater than 0.1 psia TVP;
5. More Stringent gap requirements;
6. Secondary Seals for internal floating roof tanks greater than 0.1 psia TVP;
7. Doming for tanks storing material greater than 3 psia TVP; and
8. Weekly OGI inspections for Fixed roof tanks greater than 0.1 psia TVP.

* * *

In closing, TORC believes that there are still too many issues and concerns regarding the Revised March 2023 Language and urges the District to meet with industry to work through these issues before any new revisions are made to PAR 1178. As described above, TORC has significant concerns related to the cost and application of the proposed OGI monitoring and certain reporting and notification requirements currently proposed in PAR 1178. TORC appreciates that the District staff is considering bifurcating the PAR 1178 rulemaking process so that all the critical issues discussed above can be addressed in a thoughtful, dispassionate, and informed manner. 2-14

Thank you for the opportunity to submit comments on the March 2023 Revised Language and Public Workshop presentation presented by District staff on March 1, 2023 as part of the PAR 1178 rulemaking. TORC stands ready to work diligently with District staff and other stakeholders to address the complex issues associated with PAR 1178.

Please note that in submitting this letter, TORC reserves the right to supplement its comments as it deems necessary, especially if additional or different information is made available to the public regarding the PAR 1178 rulemaking process.

If you have any questions regarding TORC's comments, please call or email me or John Sakers. Our office phone numbers are 310-212-4500 (Sara) and (310) 212-4292 (John).

Sincerely,

Sara C. Wilson

Sara Wilson
Refinery Manager

cc: **District Staff - via e-mail and overnight delivery**

Wayne Nastri	Executive Officer
Michael Krause	Assistant Deputy Executive Officer
Michael Moore	Planning and Rules Manager

cc: **District Refinery Committee Members - via e-mail and overnight delivery**

Hon. Larry McCallon	Governing Board Member and Refinery Committee Chair
Hon. Vanessa Delgado	Governing Board Chair
Hon. Michael A. Cacciotti	Governing Board Vice-Chair
Hon. Andrew Do	Governing Board Member
Hon. Veronica Padilla-Campos	Governing Board Member

Comment 2-1
Paragraph (j)(4) has been revised to exempt tanks storing material with a true vapor pressure of 0.1 psia and less from all requirements provided that the facility demonstrates the true vapor pressure of the material stored is 0.1 psia periodically. The testing frequency requirements will depend on the material stored. PAR 1178 will retain the proposed applicability to subject tanks storing material with a true vapor pressure of 0.1 psia or less to require periodic testing of TVP to verify qualification for exemption from rule requirements.

Comment 2-2
Subparagraph (d)(1)(D) has been revised to require that tanks remain free of visible vapors resulting from a defect. Staff's intent is to require an inspection of the rim seal system during a component inspection. The component inspection has been revised to allow for a determination of when demonstration of compliance with gap requirements is required. That determination is based on the detection of visible vapors emitted from the rim seal system. Requirements for the inspection is contained in paragraph (f)(4).

Comment 2-3
See response to Comment 2-1.

Comment 2-4
PAR 1178 has been revised to allow 3 days to determine compliance with the applicable rule requirement or make the necessary repairs when visible vapors are detected from component required to be vapor tight or in a condition with no visible gaps and when defects are observed.

Comment 2-5
Paragraph (h)(2) has been revised to require reporting within 24 hours of visible vapors detected during tank farm inspections emitted from a component required to be maintained in a vapor tight condition or in a condition with no visible gaps, or visible vapors detected that are resulting from defective equipment. South Coast AQMD staff finds it beneficial to inform South Coast AQMD Compliance staff when visible vapors are detected during a tank farm inspection given the likelihood that emissions are significant and indicative of a leak.

Comment 2-6
See response to Comment 2-1.

Comment 2-7
Paragraph (j)(4) has been revised to require TVP testing for refined products that meet consistent specifications for sale every 5 years. All other organic liquids are required to be tested on an annual basis.

Comment 2-8
Cost-effectiveness and incremental cost-effectiveness for control requirements have been conducted in accordance with the requirements of the Health and Safety Code. Cost-effectiveness evaluates the costs to comply with a proposed control requirement. For more stringent gap requirements and requiring emission control systems that achieve at least 98% control efficiency, by weight, staff determined that the proposed requirements are currently met. Thus, no additional

costs to meet the proposed control requirement is considered. When the cost to meet a proposed control requirement is zero, a cost-effectiveness calculation (where the cost to meet a proposed requirement is divided by the tons of pollutant reduced), is not conducted because it is understood that the resulting cost-effectiveness would be zero.

Comment 2-9
Emission reductions are calculated in two ways depending on the purpose. For cost-effectiveness, staff calculates emission reductions based on actual emissions. In the case of more stringent gap requirements and increased emission control system efficiency, the BARCT assessment results determined that the proposed requirements are currently met and the resulting emission reductions are zero, assuming that the equipment continually operates at the achievable level. For the cost-effectiveness calculation, staff assumes no emission reductions.

Emission reductions are also calculated and submitted to the State Implementation Plan. These emission reductions are based on the change to rule requirements. For example, if the rule currently requires 95 percent emission control efficiency and the proposed requirement is 98 percent control efficiency, staff calculates emission reductions associated increased control efficiency. When Rule 1178 was adopted, emission reductions were claimed for the implementation of emission control systems based on 95 percent emission control. Since staff is now proposing greater emission control efficiency and will submit the additional reductions to the State Implementation Plan. The resulting emission reductions are 0.01 tpd for requiring more stringent gap requirements and 0.07 tpd for requiring emission control efficiency of 98 percent by weight for fixed roof tanks.

Comment 2-10
Incremental cost-effectiveness was conducted in accordance with the Health and Safety Code. It is not unreasonable to consider requiring controls to additional tanks as a more stringent control option. Additionally, requiring controls to storage tanks storing material with TVP of 0.1 psia or less is not outside of the scope of the rule development and was analyzed as a measure to achieve additional emissions reductions from the type of equipment the rule applies to. It is incorrect to state that requiring controls for tanks storing organic material with TVP of 0.1 psia and less does not achieve emission reductions. The incremental cost-effectiveness shows that emission reductions would be achieved, however, it is not cost-effective to require an emission control system with 98 percent control efficiency to tanks storing material with a TVP of 0.1 psia or less.

Comment 2-11
The Preliminary Draft Staff Reports explains that baseline emissions were estimated using emission factors contained in U.S. EPA's 2016 CTG for uncontrolled tanks. Since the emission factors were likely based on emissions from tank batteries at oil production sites that are typically fixed roof tanks, staff used the average throughput of fixed roof tanks storing crude oil to estimate the associated emissions. Staff also compared U.S. EPA's estimates to results from measurements from a fixed roof tank with a malfunctioning pressure-vacuum vents. The comparison showed that using estimates for uncontrolled tanks can provide an estimate for a tank with malfunctioning controls resulting in a large leak. Staff determined that any tank with malfunctioning controls would emit in similar way to an uncontrolled tank and that U.S. EPA's estimates for uncontrolled tanks can characterize emissions from a large leak.

It is unreasonable to conclude that only fixed roof tanks can leak when all tank types are equipped with controls that can potentially fail. Staff is aware of significant leaks that have occurred from floating roof tanks, including a roof collapse, missing seals, and OGI footage of large emissions from floating roof tanks. Staff has concluded that any type of tank equipped with controls to reduce emission is capable of a large leak due to controls malfunction and it is appropriate to require OGI for all tanks, as well as analyze the cost-effectiveness for all tanks subject to OGI requirements without differentiating tank type.

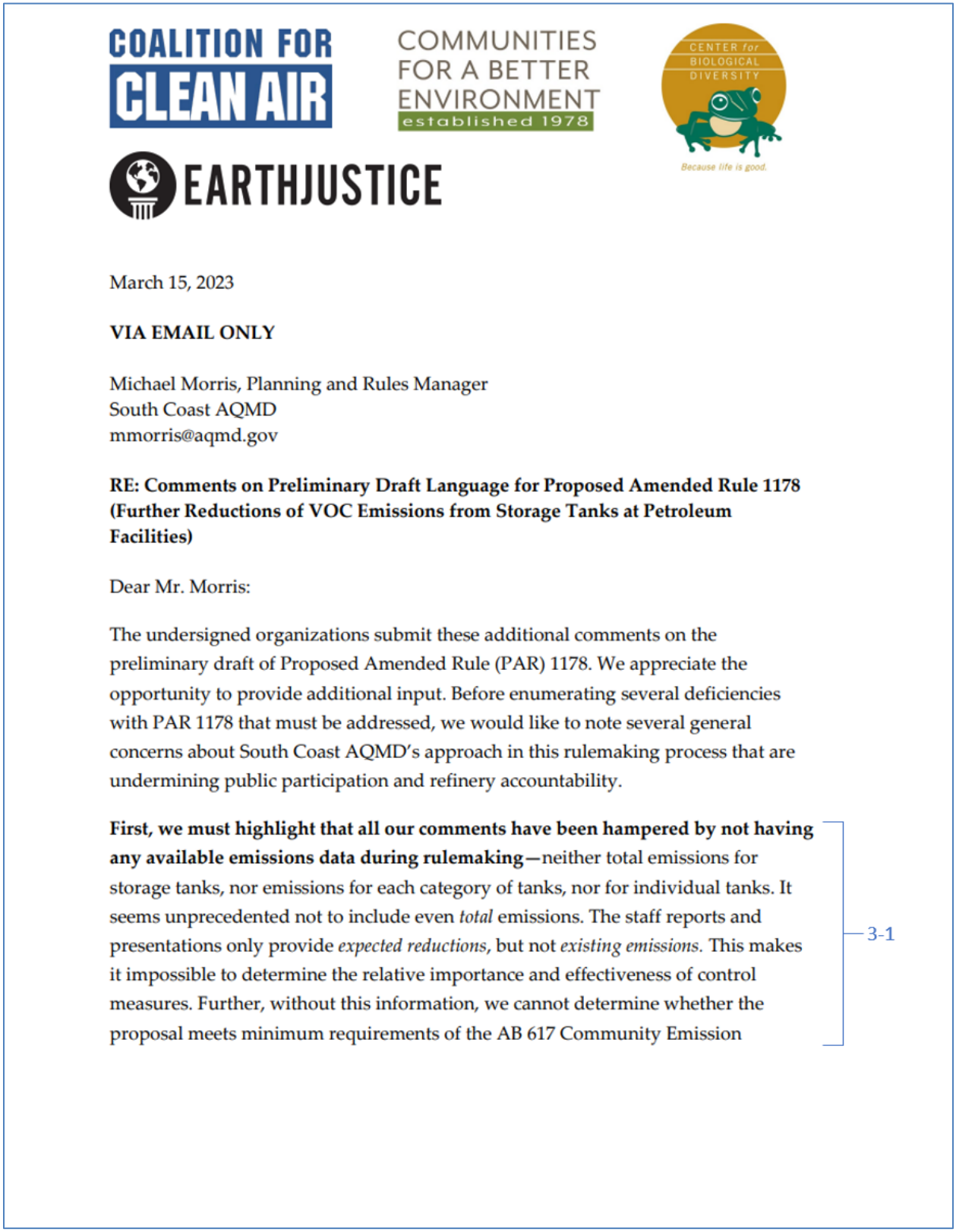
Comment 2-12
PAR 1178 has been revised to exempt tanks storing organic liquid with TVP of 0.1 psia and less from OGI inspections at this time since they are not subject to controls. Staff has determined that a large leak can occur from any tank type and it is appropriate to analyze the cost-effectiveness for all tanks subject to OGI requirements without differentiating tank type (see response to Comment 2-11).

Comment 2-13
PAR 1178 has been revised to exempt tanks storing organic liquid with TVP of 0.1 psia and less from OGI inspections at this time since they are not subject to controls. Additionally, staff has determined that a large leak can occur from any tank type and it is appropriate to analyze the cost-effectiveness for all tanks subject to OGI requirements without differentiating tank type. An incremental cost-effectiveness for remaining categories was conducted and is shown in the table below. The total cost-effectiveness of PAR 1178 is $27,800.

Control Option	Annual Cost ($)	Annual Reductions (tons)	Incremental Cost-effectiveness ($/ton)
Gap requirements	$0	0	--
Gap requirements + Increased emission control (98%)	$0	0	0
Gap requirements + Secondary seals	$0 + $21,455 = $21,455	0 + 0.94 = 0.94	$21,455/0.94 = $22,800
Gap requirements + Secondary seals + Doming	$0 + $21,455 + $1,659,561 = $1,681,016	0 + 0.94 + 45.17 = 46.11	$1,681,016/46.11 = $36,800
Gap requirements + Secondary seals + Doming + Weekly OGI inspections	$0 + $21,455 + $1,659,561 + $4,212,000 = $5,893,016	0 + 0.94+ 45.17 + 166 = 212.11	$5,893,016/212.1 = **$27,800**

Comment 2-14
Amendments to 1178 were bifurcated as requested to allow addition time to resolve outstanding issues.

3. Comment Letter from ~~the~~ Earth Justice, et. al., Received March 15, 2023



COALITION FOR CLEAN AIR

COMMUNITIES FOR A BETTER ENVIRONMENT established 1978

CENTER for BIOLOGICAL DIVERSITY Because life is good.

EARTHJUSTICE

March 15, 2023

VIA EMAIL ONLY

Michael Morris, Planning and Rules Manager
South Coast AQMD
mmorris@aqmd.gov

RE: Comments on Preliminary Draft Language for Proposed Amended Rule 1178 (Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities)

Dear Mr. Morris:

The undersigned organizations submit these additional comments on the preliminary draft of Proposed Amended Rule (PAR) 1178. We appreciate the opportunity to provide additional input. Before enumerating several deficiencies with PAR 1178 that must be addressed, we would like to note several general concerns about South Coast AQMD's approach in this rulemaking process that are undermining public participation and refinery accountability.

First, we must highlight that all our comments have been hampered by not having any available emissions data during rulemaking—neither total emissions for storage tanks, nor emissions for each category of tanks, nor for individual tanks. It seems unprecedented not to include even *total* emissions. The staff reports and presentations only provide *expected reductions*, but not *existing emissions*. This makes it impossible to determine the relative importance and effectiveness of control measures. Further, without this information, we cannot determine whether the proposal meets minimum requirements of the AB 617 Community Emission

3-1

Reduction Plan (CERP), which committed to at least 50% cuts in VOCs by 2030 or higher if feasible.[1] 3-1

South Coast AQMD staff has informed us that they expect to provide some form of this data in two weeks, which is almost at the point of rule adoption. **Consequently, we may need to propose an unfortunate delay in adoption. This information can certainly affect our recommendations and decisions about whether we support or oppose adoption of PAR 1178.** 3-2

Second, there are already many tradeoffs and exemptions that we do not support. One major problem is allowing exemptions from doming external floating roof tanks, and instead allowing occasional vapor pressure measurements that would be kept in-house at the polluting facilities. But adding a permanent roof is far superior to bi-annual parameter measurements that only measure a snapshot of vapor pressure, which can fluctuate widely over shorter periods of time. Many of the tradeoffs are driven by too low cost-effectiveness limits and are further skewed by known underestimation of emissions in the inventory. Large emissions of VOCs, including benzene and other harmful toxics, make strict application of Best Available Control Technologies (BACT) and Best Available Retrofit Control Technologies (BARCT) essential, but without the data we have requested, it is very hard for us to determine to what extent this will be applied, and what percent of reductions will be achieved. 3-3

Third, we urge you to reconsider our recommendation to implement a moratorium on new storage tanks subject to PAR 1178, or, at a minimum, explain to the public and Governing Board how PAR 1178 does not conflict with the 2022 Air Quality Management Plan (AQMP) and the California Air Resources Board (CARB) 2022 Scoping Plan. Specifically, the AQMP relies on electrification and the deployment of zero-emissions technology to achieve air quality standards in the 3-4

[1] South Coast AQMD, Governing Board Meeting Agenda No. 25C (Sept. 6, 2019) at 4, http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-sep6-025c.pdf?sfvrsn=6 [archived at https://perma.cc/Z3C8-KYLK].

region.[2] That, in turn, requires a pause of the continued expansion of fossil fuel infrastructure that would undermine reductions secured through the deployment of these technologies. Similarly, the 2022 Scoping Plan to reduce GHG emissions outlines the need to significantly reduce demand for liquid petroleum and fossil fuel use by 2045.[3] In updating regulations, such as PAR 1178, the South Coast AQMD should consider these air quality and climate objectives and identify opportunities to further—*and not undermine*—those commitments. 3-4

Finally, we urge you to reconsider our recommendation to conduct regular Fluxsense-type studies as part of the regulation. The 2015 Fluxsense study[4] (published 2017) is the *only* monitoring that uncovered the drastic underestimation of VOCs and BTEX emissions at every single petroleum refinery. This type of study, conducted regularly, will be necessary to confirm whether PAR 1178 amendments have been successfully reducing VOC emissions. The South Coast AQMD expected its earlier updates to Rule 1178 to be much more restrictive of emissions than they 3-5

[2] South Coast AQMD, 2022 Air Quality Management Plan (Dec. 2022) at 4-7, http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16 [archived at https://perma.cc/2XEK-AQS9].

[3] CARB, 2022 Scoping Plan for Achieving Carbon Neutrality at 2 (Nov. 2022), https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp.pdf [archived at https://perma.cc/7M4A-8CAM].

[4] *See generally* Johan Mellqvist et al., 2015 *Emission Measurements of VOCs, NO2 and SO2 from the Refineries in the South Coast Air Basin Using Solar Occultation Flux and Other Optical Remote Sensing Methods* (Final Report, Apr. 2017), http://www.aqmd.gov/docs/default-source/fenceline_monitroing/project_1/fluxsense_scaqmd2015_project1_finalreport(040717).pdf [archived at https://perma.cc/HV28-7CBB]; CBE Decoder Factsheet (Apr. 2017), https://www.cbecal.org/wp-content/uploads/2017/05/CBE-Decoder-Socal-Refinery-Study-Emissions-Underreported.pdf [archived at https://perma.cc/694N-6MU7]. The Fluxsense study found drastically under-estimated VOC and benzene emissions for Los Angeles area refineries, likely due to storage tanks. It found normal calculations do not include degradation over time. This is likely true nationally, as indicated by a Fluxsense study in Texas that that found similar results. John K. E. Johansson et al., *Emission measurements of alkenes, alkanes, SO_2, and NO_2 from stationary sources in Southeast Texas over a 5 year period using SOF and mobile DOAS*, 119 Journal of Geophysical Research: Atmospheres 1973, 1983 (Feb. 2014), https://doi.org/10.1002/2013JD020485 (attached as Ex. 1).

turned out to be. We want to ensure this will not happen again. If the South Coast AQMD cannot include this monitoring every three years, at least require it every five years to confirm the regulation is achieving the intended emission reductions. 3-5

***

As detailed below, we have identified several deficiencies with PAR 1178 that must be addressed before finalizing this amended rule for adoption:

- **South Coast AQMD must require the preparation of doming plans and a verification process to assess compliance with storage tank doming timelines and to confirm whether a petroleum facility intends to obtain a permit modification to exempt certain storage tanks.** PAR 1178 establishes a compliance schedule for all doming external floating roof tanks on a lengthy schedule—by December 31, 2038.[5] Without the development of a plan and verification process, the public is left to speculate on petroleum facilities' progress towards meeting doming requirements. Moreover, the public is uninformed as to whether a facility claims an exemption to limit "organic liquids stored in the tanks to lower than 3 psia" to avoid doming requirements.[6] Without these requirements, oversight will be difficult for both the public and regulators. Given the number of petroleum facilities and storage tanks that would be subject to these doming requirements, plans should be developed that note which external floating roof tanks would be domed and which would be exempt through permit modifications, along with the proposed timeline for making those changes. Furthermore, emission reductions may not be achieved as expeditiously as feasible, and in compliance with AB 617's WCWLB CERP toward 50% or more reductions of VOC emissions by 2030. 3-6

[5] PAR 1178(d)(5), http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-1178-preliminary-draft-rule-language.pdf?sfvrsn=6 [archived at https://perma.cc/UK66-NN33].

[6] PAR 1178 (j)(5).

- **South Coast AQMD must require that Optical Gas Imaging (OGI) measurements of leaks be made publicly available by mandating that petroleum facilities submit those recordings to the Executive Officer as part of leak reporting requirements.** Under PAR 1178, petroleum facilities are required to record visible vapors from tanks "for a minimum of 5 seconds" that must be "accurately time-stamped and *kept on-site*" as part of inspections conducted using OGI.[7] Petroleum facilities are required to maintain these recordings "for a minimum of 2 years" and to make them "available to the Executive Officer upon request," which would undermine public access to this information.[8] Since the agency would not have custody of this information, the public would be unable to obtain these recordings through a Public Records Act request. At a minimum, petroleum facilities should be required to submit these recordings to the agency as part of their non-compliance reporting. Under PAR 1178, facilities are not required to submit OGI recordings when reporting a violation of leak requirements identified by an inspection.[9] 3-7

- **South Coast AQMD must establish control and monitoring measures during undefined maintenance and repair periods under subdivision (g), rather than allow petroleum facilities to pollute with impunity during these periods.** PAR 1178 waives the "Vapor Tight Condition" requirement during "preventative maintenance or repair specified in subdivision (g) of this rule."[10] "Vapor Tight Condition" is defined as "a condition that exists when the reading on a portable hydrocarbon analyzer is less than 500 parts per million (ppm), expressed as methane, above background, measured using EPA Reference Method 21."[11] In effect, under PAR 1178, petroleum facilities would receive an exemption from applicable emission limits and could 3-8

[7] PAR 1178(f)(4), (h)(2)(D).
[8] PAR 1178 (h)(3)(D).
[9] PAR 1178(f).
[10] PAR 1178(d)(1)(B).
[11] PAR 1178(c)(45).

potentially assert an affirmative defense for releasing excess VOC emissions during maintenance and repairs. Moreover, PAR 1178 does not define what constitutes a preventative maintenance or repair, which would inevitably make enforcement difficult and allow petroleum facilities to exploit this loophole by claiming certain significant VOC releases are due to maintenance or repair activities. 3-8

- There are many problems with the vapor pressure limits and exemptions under PAR 1178. Some of these issues can be improved but are inherently less permanent and reliable than requiring BACT equipment to be installed.

    - **Recording of vapor pressure determinations are insufficient. The South Coast AQMD must mandate that petroleum facilities record True Vapor Pressure (TVP) determinations at storage tanks, which facilities are currently not required to log and disclose under the updated Rule 1178 Compliance Reports.** Throughout PAR 1178, petroleum facilities are required to make determinations of "True Vapor Pressure", defined as "vapor pressure of a liquid at actual storage conditions."[12] Under PAR 1178 test methods and procedures, TVP of organic liquids would be determined using ASTM Method D-323 for Reid Vapor Pressure (RVP) and converted to TVP.[13] Petroleum facilities, however, are not required to log these TVP correlations. Instead, the revised Rule 1178 Compliance Report requires only that facilities record product RVP, leaving the public to speculate as to the TVP.[14] Importantly, recording TVP determinations is not only key in evaluating compliance with Rule 1178, but also with Title V permit conditions that generally specify TVP requirements for storage tanks rather than RVP. Consequently, as written, PAR 1178 would make it difficult to ensure compliance with applicable requirements and undermine enforcement efforts. 3-9

[12] PAR 1178(c)(43).

[13] PAR 1178(i).

[14] PAR 1178, Attachment A.

- **TVP correlations themselves can lead to inaccuracies, making them unsuitable alternatives to more stringent BACT technology installations like permanent doming of tanks.** Requirements in the rule for RVP testing (easier to perform) followed by correlation with TVP nomographs (since TVP is hard to test) can lead to inaccuracies, even when TVP determinations are properly logged. For example, **one oil industry article found that TVP determinations could be 50 to 300% off from actual TVP due to errors that can occur using standard methods that estimate TVP by correlating it with measured RVP.**[15] The South Coast AQMD has not demonstrated that it has set conditions equivalent to doming in its draft regulation. Standardized EPA tests are useful for many reasons, but in this case, not to exempt external floating roof tanks based on inherently less accurate measurements. Tank doming should be a high priority for the South Coast AQMD, as an inherently more reliable means to permanently cut emissions and protect public health. Indeed, **it is also required under AB 617's mandates to install BARCT at refineries.**[16] 3-10

- **The frequency of testing is also insufficient to ensure that high-turnover tanks meet the TVP requirement for exemption from doming.** Biannual testing to avoid a requirement to dome a tank through a permit limit of 3 psia TVP is not sufficient to ensure the tank contents stay under this limit throughout the year. For example, crude oil tanks can turn over more than 50 times a year.[17] The South Coast AQMD must demonstrate that RVP and TVP have no potential for changing more frequently, when 3-11

[15] J.K. Henderson, *Test Method for "Actual" True Vapor Pressure of Crude Oils, SPE Advance Technology Series* 4 (Aug. 1996), https://doi.org/10.2118/29740-PA [archived at https://perma.cc/9NTK-PP3L].

[16] *See* Cal. Health & Safety Code, § 40920.6(c).

[17] *See* Final Environmental Impact Report for Tesoro Los Angeles Refinery: Appendix B (SCH No. 2014091020) at B-3-139 (May 2017), http://www.aqmd.gov/docs/default-source/ceqa/documents/permit-projects/2017/tesorolaric/appb.pdf?sfvrsn=2 [archived at https://perma.cc/ZHU5-GD6H]. For TANKS modeling inputs for six new crude oil tanks at 500,000 bbls each (21,000,000 gallons), Annual Turnovers are listed as 51.1. Tank turnovers can go higher.

refineries receive varying crude oil deliveries into their tanks. South Coast refineries receive crude from many nations with varying characteristics. While refineries likely tend to isolate heaviest crudes from lighter crudes in different tanks, individual tanks could still vary sufficiently to meet the exemption limit twice a year, while failing the rest of the year, hiding substantial emissions.

3-11

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We appreciate South Coast AQMD staff's consideration of these concerns. We hope the agency will make necessary revisions to address these issues to ensure compliance with PAR 1178 requirements.

Sincerely,

/s/ Oscar Espino-Padron
Oscar Espino-Padron, Senior Attorney
Earthjustice
oespino-padron@earthjustice.org

/s/ Julia May
Julia May, Senior Scientist
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/s/ Liz Jones
Liz Jones, Attorney
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/s/ Christopher Chavez
Christopher Chavez, Deputy Policy Director
Coalition for Clean Air
chris@ccair.org

cc: Melissa Gamoning, Air Quality Specialist
mgamoning@aqmd.gov

Rodolfo Chacon, Program Supervisor
rchacon@aqmd.gov

Michael Krause, Assistant Deputy Executive Officer
mkrause@aqmd.gov

- 8 -

Comment 3-1
Staff has included baseline emission for categories of tanks subject to proposed controls. Additional emissions information beyond the scope of this proposed amended rule can be available through a public records request.

Comment 3-2
Staff has provided emissions information used for the PAR 1178 rule development. The rule development was bifurcated to allow additional time for stakeholders to work with staff on proposed requirements.

Comment 3-3
Staff is proposing an option for facilities to limit the TVP of crude oil stored that will result in approximately the same emission reductions that would result from doming. Facilities would be prohibited from storing crude oil TVP greater than 3 psia which is verified on a semi-annual basis.

The cost-effectiveness threshold used has been established in the 2022 Air Quality Management Plan and was approved by the South Coast AQMD Governing Board. Emissions were estimated using the most currently methods and calculations for determining emissions from tanks.

Comment 3-4
PAR 1178 partially implements FUG-01 of the 2022 AQMP that commits to improved leak detection requirements in South Coast AQMD rules. Electrification is not applicable to storage tank operations and the 2022 AQMP does not include any measures to establish a moratorium on new storage tanks. The scope of amendments to PAR 1178 include reducing emissions with implementation of BARCT technologies.

Comment 3-5
Mobile monitoring informed the WCWLB community about potential leaks. Staff determined that OGI monitoring on a weekly basis would be far more effective to identify leaks more quickly and precisely. While staff agrees that monitoring studies can provide useful data about emissions from the monitored sources, staff does not agree that a requirement for periodic emissions studies will further reduce emissions from storage tanks as PAR 1178 is designed to do.

Comment 3-6
Paragraph (j)(5) was revised to require facilities with tanks subject to the doming requirements and doming schedule of subparagraph (d)(5)(B) to submit a permit application to limit the TVP of the crude oil stored to less than 3 psia within one year from date of adoption. Any tanks for which permit applications were not submitted for within one year from date of adoption are subject to the doming schedule of subparagraph (d)(5)(B).

Comment 3-7
Rule 1178 currently requires a written report be submitted to South Coast AQMD for all tanks found in non-compliance during an inspection. PAR 1178 extends this requirement for OGI inspection. It is sufficient for South Coast AQMD to obtain the written report and staff does not find a benefit in requiring facilities to submit the recording of the leak. Recordings are required to

inform compliance staff of when a leak was identified to determine a facility's compliance with repair timelines.

Comment 3-8
PAR 1178 does not affect current requirements for maintenance and repair. These requirements have been in effect since the rule's adoption in 2001 and are in place to allow facilities to make necessary repairs when a tank is found in non-compliance with rule requirements. Facilities have 72 hours to make any necessary repairs to bring a tank back into compliance. Staff does not propose to change these existing requirements that encourage facilities to identify leaks, make repairs to, and maintain equipment to effectively operate. If an unreported leak is found by South Coast AQMD compliance staff, staff may take enforcement action immediately.

Comment 3-9
PAR 1178 requires facilities to maintain and keep sampling results of TVP tests on site for 5 years.

Comment 3-10
PAR 1178 requires determination of TVP using current industry standards. Additionally, staff calculated emission reductions associated with doming and emission reductions associated with limiting TVP with the same emission calculating software (TankESP PRO) that provides the same methodology in estimation of emission reductions for both control options.

The Health and Safety Code Section 40920.6(c) requires implementation of BARCT which is defined as "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." Staff determined that limiting the TVP of crude oil stored, as well as doming, align with the definition of BARCT since both control options provide approximately the same emission reductions.

Comment 3-11
PAR 1178 requires semi-annual testing of TVP for crude oil tanks that are not domed. Staff agrees that TVP of crude oil stored can vary between testing periods and will rely on compliance staff's ability to conduct random TVP testing in between testing conducted by the facility to prevent potential circumvention of the TVP allowance. In addition, tank operators may conduct TVP testing with greater frequency than required and those test records would be utilized to determine compliance.

4. Kinder Morgan, Received March 15, 2023

KINDER MORGAN

Delivering Energy to Improve Lives

Via Email at: mgamoning@aqmd.gov

March 15, 2023
Melissa Gamoning
Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: Comments on February 17, 2023 Preliminary Draft Rule Language for Proposed Amended Rule 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities

Dear Ms. Gamoning:

Kinder Morgan (KM) appreciates the opportunities to participate in the Work Group Meetings and converse with South Coast Air Quality Management District (SCAQMD) Rule Writing Staff (Staff) regarding Proposed Amended Rule (PAR) 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities. Kinder Morgan operates bulk refined products storage terminals and pipeline transfer stations located within the South Coast Air Basin that are subject to Rule 1178.

SCAQMD PAR 1178 Rule Writing Staff released the preliminary draft Rule 1178 language and draft Staff report on February 17, 2023. KM respectfully offers the following comments on the draft rule language.

Inspection and Monitoring Requirements

1. **(f)(4)(E)** PAR 1178 (f)(4)(E) lists the subparagraphs of tank conditions for determining compliance. During the Public Workshop held on March 1, 2023, Staff indicated that the conditions in PAR 1178 (d)(1)(D), (d)(2)(C), and (d)(3)(C) had been added to the preliminary draft rule language to minimize the need for inspectors to make a confined space entry into the tank to access the floating roof during Component Inspections. The language in PAR 1178 (f)(4)(E) does not reference the allowance for Visible Vapors from the rim seal system as a means to determine compliance. As a result, during a Tank Farm Inspection, if Visible Vapors are observed from the peripheral or center vents, a confined space tank entry would be required to determine whether the rim seal systems are in compliance with PAR 1178 (d)(1)(C). Given that Tank Farm Inspections are required to be performed at least every seven days, the allowance of Visible Vapors during Tank Farm Inspections must be added to PAR 1178 (f)(4)(E) in order to maintain consideration for safety concerns. KM recommends revising the language by including the red and underlined text as follows.

   Demonstration of compliance with subparagraphs (d)(1)(B), (d)(1)(C), clause (d)(4)(A)(ii)-(iii) or (d)(4)(A)(v), shall be made within 24 hours from when Visible Vapors were detected. Concurrent with a Tank Farm Inspection, a Component Inspection may be performed to demonstrate compliance with (d)(1)(D), (d)(2)(C), and (d)(3)(C). If compliance with applicable requirements cannot be demonstrated or is not determined, within 24 hours, the Storage Tank is non-compliant.

4-1

1001 Louisiana Street, Suite 1000, Houston, TX 77002

Recordkeeping and Reporting Requirements

1. **(h)(1)(A)** PAR 1178 (h)(1)(A) requires facilities to make a notification within 8 hours when a non-compliant condition is identified. KM asserts that this notification is unnecessary. Rule 1178 currently has sufficient requirements to submit a written report within 120 hours of identifying a non-compliant condition in (h)(4), to maintain those records for at least five years in (h)(6), to make the records available upon request in (h)(6). The requirements have been in place since at least the April 7, 2006 amendment and were not determined to be insufficient in the subsequent 17 years. The draft Staff report did not provide any data or statements to conclude that reporting thus far has been inadequate. KM recommends removing the requirement to make a notification within 8 hours. — 4-2

2. **(h)(2)(A)** PAR 1178 (h)(2)(A) requires facilities to report all Visible Vapors by phone within 8 hours of detection. Similar to PAR 1178 (h)(1)(A), KM asserts that this notification also is unnecessary. The draft Staff report did not provide any data or statements to conclude that existing reporting has been inadequate. With the frequency of OGI tank farm and component inspections, the requirement to report the occurrence of each Visible Vapor without confirmation of an actual non-compliance will create a burdensome level of notification and follow-up communication for facilities and Compliance Staff. Staff have added to existing requirements to ensure sufficient communication of non-compliance occurrences during OGI inspections. PAR 1178 (h)(2)(C) and (D) respectively will require records to be kept onsite when Visible Vapors are detected as well as the compliance determinations of PAR 1178(f)(4)(E) and for the Visible Vapors digital recording duration. Staff are retaining the requirements to submit a report within 120 hours of the non-compliance determination in PAR 1178 (h)(3) and to keep these records for five years and make the records available upon request PAR 1178 (h)(6). Additionally, Staff allow the provision for rim seal systems to have Visible Vapors during a Component Inspection per PAR 1178 (d)(1)(D), (d)(2)(C), and (d)(3)(C). PAR 1178 creates confusion as to which Visible Vapors are would be a deviation and when. KM recommends removing the requirement to make a notification within 8 hours. — 4-3

Exemptions

1. **(j)(2)** PAR 1178(j)(2) exempts tanks that store Organic Liquid with a True Vapor Pressure equal to or less than 5 mmHg or (0.1 psia) under actual storage conditions, but requires the tanks to undergo OGI inspections per PAR 1178 (f)(4), complete the reporting requirements of (h)(1), and perform the recordkeeping requirements of (h)(6). Due to existing applicability in Rules 463 and 1178, external floating roof, internal floating roof, and fixed roof tanks storing Organic Liquids at or below this vapor pressure limit have not needed to comply with the control requirements in Rule 1178 (d). PAR 1178 (j)(2) references (1) conducting the OGI inspections in accordance with PAR 1178 (f)(4), which also requires demonstrating a Vapor Tight Condition, no Visible Gaps, and no Rim Seal Gap exceedances and (2) making an 8-hour notification when "identifying a Storage Tank that not in compliance with all applicable requirements of the rule…" [KM assumes the (h)(1) reference is intended to be (h)(2) as the requirement is discussing OGI inspections]. The observation of Visible Vapors from these tanks would cause them to be in a state of deviation from conditions to which they are not currently subject. The ramifications are that PAR 1178 no longer exempts these tanks from the majority of Rule 1178 and circumvents the permitting process. KM asserts that this was not the intent of PAR 1178 or Staff, and that performing OGI inspections on Organic Liquids at or below 5 mmHg or (0.1 psia) True Vapor Pressure will only create confusion when attempting to determine compliance with PAR 1178 and tank and facility permit conditions. KM recommends revising the language by removing red and struck-through text as follows. — 4-4

Storage Tanks that do not have a Potential For VOC Emissions of 6 tons per year or greater used in Oil Production and are storing Organic Liquid with a True Vapor Pressure equal to or less than 5 mm Hg (0.1 psi) absolute under actual storage conditions are exempt from the requirements of this rule, with the exception of the requirements specified in paragraph~~s (f)(4), (h)(1) and~~ (h)(6), provided the owner or operator demonstrates that the Organic Liquid stored has a True Vapor Pressure of 5 mm Hg (0.1 psi) absolute or less under actual storage conditions semi-annually.

4-4

2. **Comment 4-33** from the February 1, 2023 WSPA letter recommended including an exemption from OGI inspections for tanks that are out of service. A tank that has been taken out of service, as described in Comment 4-5, is understood within KM to mean that the tank has been emptied of Organic Liquid product and opened to atmosphere (manways open) for the purposes of tank entry to perform planned maintenance or repair and planned inspections (API 653, 40 CFR 60 Subpart KB, current rule 463 (e)(3)(B), current Rule 1178 (f)(2)(B), etc.). Rule 1149 (c)(1) presents the control requirements based on capacity and the Organic Liquid's Reid vapor pressure in order for a tank to be opened to the atmosphere. The tank is no longer storing Organic Liquids that would generate VOC emissions. Upon refilling with Organic Liquid, the tank would then become subject to the OGI inspection requirement. KM supports adding clarification to PAR 1178 to exempt tanks from OGI inspections that are out of service with opened manways in accordance with Rule 1149.

4-5

Sincerely,

William Toepfer
Director of Operations
Kinder Morgan

cc: Michael Morris, Michael Krause, Rodolfo Chacon, SCAQMD
Peter Jensen, Nina McAfee, Cinnamon Smith, Kinder Morgan

Comment 4-1
Paragraph (f)(4) was revised to allow an inspection for defects in the rim seal system during a tank farm inspection when vapors are detected from a tank and determined and originate from the rim seal system. If a defect is identified in the rim seal system, a facility is required make any necessary repairs within 3 days.

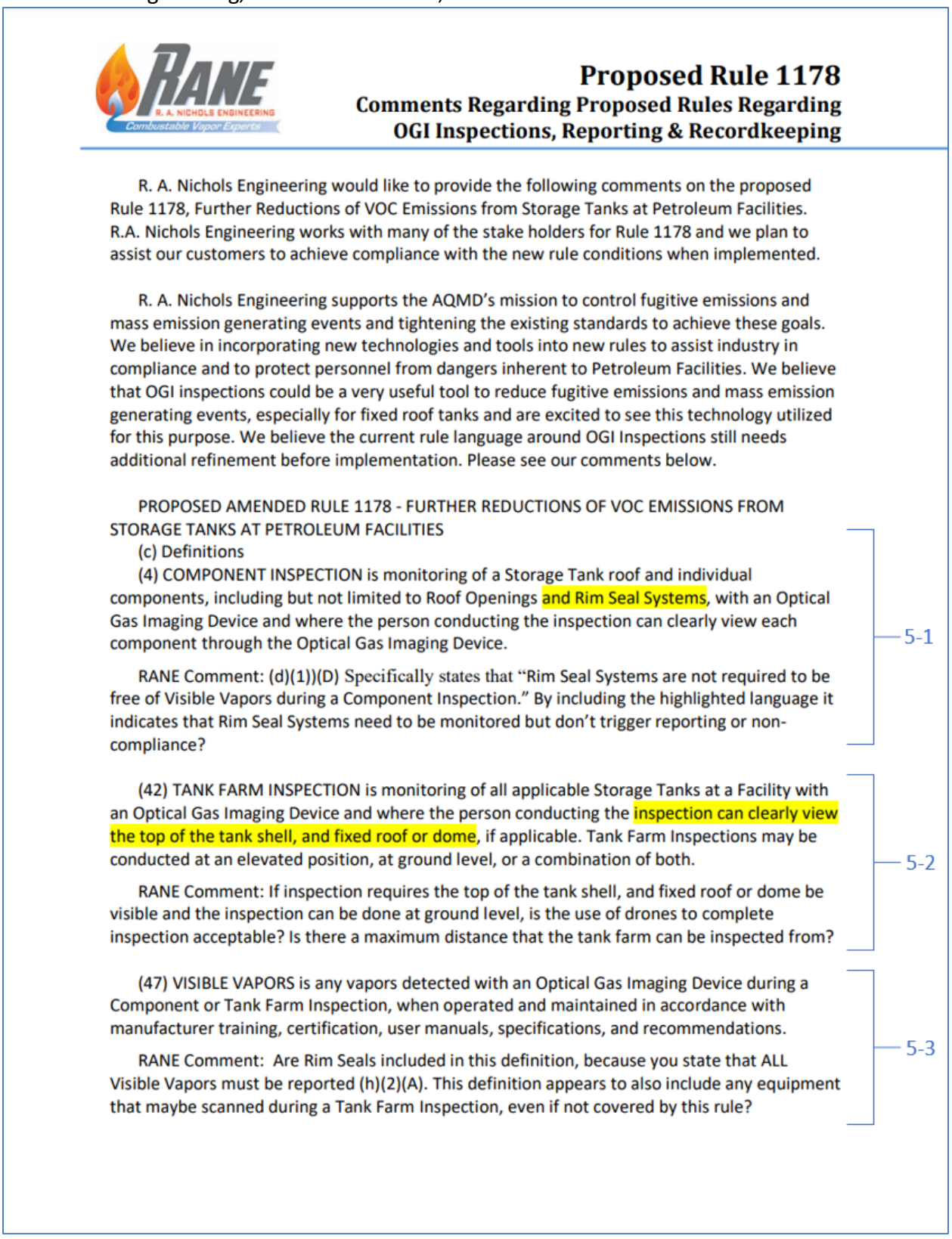
Comment 4-2
See response to Comment 2-5.

Comment 4-3
See response to Comment 2-5.

Comment 4-4
See response to Comment 2-1.

Comment 4-5
The rule language has been revised to exempt tanks that are out of service from OGI inspections.

5. R.A. Nichols Engineering, Received March 15, 2023



Proposed Rule 1178
Comments Regarding Proposed Rules Regarding OGI Inspections, Reporting & Recordkeeping

R. A. Nichols Engineering would like to provide the following comments on the proposed Rule 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities. R.A. Nichols Engineering works with many of the stake holders for Rule 1178 and we plan to assist our customers to achieve compliance with the new rule conditions when implemented.

R. A. Nichols Engineering supports the AQMD's mission to control fugitive emissions and mass emission generating events and tightening the existing standards to achieve these goals. We believe in incorporating new technologies and tools into new rules to assist industry in compliance and to protect personnel from dangers inherent to Petroleum Facilities. We believe that OGI inspections could be a very useful tool to reduce fugitive emissions and mass emission generating events, especially for fixed roof tanks and are excited to see this technology utilized for this purpose. We believe the current rule language around OGI Inspections still needs additional refinement before implementation. Please see our comments below.

PROPOSED AMENDED RULE 1178 - FURTHER REDUCTIONS OF VOC EMISSIONS FROM STORAGE TANKS AT PETROLEUM FACILITIES

(c) Definitions

(4) COMPONENT INSPECTION is monitoring of a Storage Tank roof and individual components, including but not limited to Roof Openings and Rim Seal Systems, with an Optical Gas Imaging Device and where the person conducting the inspection can clearly view each component through the Optical Gas Imaging Device.

RANE Comment: (d)(1)(D) Specifically states that "Rim Seal Systems are not required to be free of Visible Vapors during a Component Inspection." By including the highlighted language it indicates that Rim Seal Systems need to be monitored but don't trigger reporting or non-compliance? — 5-1

(42) TANK FARM INSPECTION is monitoring of all applicable Storage Tanks at a Facility with an Optical Gas Imaging Device and where the person conducting the inspection can clearly view the top of the tank shell, and fixed roof or dome, if applicable. Tank Farm Inspections may be conducted at an elevated position, at ground level, or a combination of both.

RANE Comment: If inspection requires the top of the tank shell, and fixed roof or dome be visible and the inspection can be done at ground level, is the use of drones to complete inspection acceptable? Is there a maximum distance that the tank farm can be inspected from? — 5-2

(47) VISIBLE VAPORS is any vapors detected with an Optical Gas Imaging Device during a Component or Tank Farm Inspection, when operated and maintained in accordance with manufacturer training, certification, user manuals, specifications, and recommendations.

RANE Comment: Are Rim Seals included in this definition, because you state that ALL Visible Vapors must be reported (h)(2)(A). This definition appears to also include any equipment that maybe scanned during a Tank Farm Inspection, even if not covered by this rule? — 5-3

Proposed Rule 1178
Comments Regarding Proposed Rules Regarding OGI Inspections, Reporting & Recordkeeping

(d) Requirements
(1) External Floating Roof Tanks
(D) Tank Condition Requirements
The owner or operator of an External Floating Roof Tank shall maintain the tank in a condition that is free of Visible Vapors, except when compliance with subparagraphs (d)(1)(B) and (d)(1)(C) can be demonstrated pursuant to subparagraphs (f)(4)(E). Rim Seal Systems are not required to be free of Visible Vapors during a Component Inspection.

RANE Comment: Are Rim Seal findings reportable, do they require record keeping? — 5-4

(f) Inspection and Monitoring Requirements
(4) Optical Gas Imaging Instrument (OGI) Inspections
Effective January 1, 2024, the owner or operator shall demonstrate compliance with subparagraphs (d)(1)(D), (d)(2)(C), (d)(3)(C) and (d)(4)(C), by conducting OGI inspections in accordance with the following requirements:
(A) Inspections shall be conducted by a person who has completed a manufacturer's certification or training program for the OGI device used to conduct the inspection.
RANE Comment: To understand what is a tank component for documentation, shouldn't the OG Operator be required to be or be accompanied by a Certified Person? — 5-5

(C) Tank Farm Inspections shall be conducted at least every 7 calendar days since the last Tank Farm Inspection was conducted.

RANE Comment: Process required if inspection is not able to be done within the 7 calendar days? Does an incomplete inspection reset the 7 day timer? — 5-6

(D) Component Inspections shall be conducted for floating roof tanks according to the following schedules:
(i) In the 3rd month after an inspection required by paragraph (f)(1) for external floating roof tanks.
(ii) Semi-annually for domed External Floating Roof Tanks and Internal Floating Roof Tanks.

RANE Comment: Can the OGI component inspection be done in conjunction with the semiannual 1178 inspection for domed external floating roof tanks and internal floating roof tanks? — 5-7

(E) Demonstration of compliance with subparagraphs (d)(1)(B), (d)(1)(C), clause (d)(4)(A)(ii)-(iii) or (d)(4)(A)(v), shall be made within 24 hours from when Visible Vapors were detected. If compliance with applicable requirements cannot be demonstrated or is not determined, within 24 hours, the Storage Tank is non-compliant.

RANE Comment: If visible vapors are detected for External Floating Roof Tank with Domed Roof or Internal Floating Roof tank, the language above indicates visible vapors would trigger a Rim Seal inspection per (d)(1)(C), even though the Rim Seal Systems are not required to be free of Visible Vapors per (d)(1)(D). Can the language be changed to specifically require External — 5-8

Proposed Rule 1178
Comments Regarding Proposed Rules Regarding OGI Inspections, Reporting & Recordkeeping

Floating Roof Tanks to comply with (d)(2)(D) and Internal Floating Roof Tanks to comply with (d)(3)(D), the LEL requirements to prove compliance. 5-8

(h) Reporting and Recordkeeping Requirements
(2) For OGI inspections required by subparagraph (f)(4), the owner or operator shall:
(A) Report all Visible Vapors to the Executive Officer by phone (1-800-CUT-SMOG or 1-800-288-7664) within 8 hours of detection. 5-9

RANE Comment: Are Rim Seal findings, tanks exempt from 1178 or other non-tank visible vapor indications reportable?

(C) Keep records Visible Vapors detected during a Tank Farm Inspection, including tank identification, date of inspection, and findings. Findings shall include identification of tanks from which Visible Vapors were identified, any determinations made pursuant to subparagraph (f)(4)(E), and corrective measures taken, if applicable.
(D) Record all Visible Vapors from tanks for a minimum of 5 seconds. Digital recordings shall be accurately time-stamped and kept on-site for a minimum of 2 years to be made available to the Executive Officer upon request. 5-10

RANE Comment: Do visible vapors detected from tanks not covered by Rule 1178 require recordkeeping?

Thank you for reviewing our comments and allowing us to participate in the Rule Development Process.

Comment 5-1
See response to Comment 2-2.

Comment 5-2
Staff is not currently proposing to allow the use of drones. If it is anticipated that drones will be an effective method to comply with the OGI inspections requirements of PAR 1178, staff encourages stakeholders to meet with staff to discuss the utilization of a drone. PAR 1178 does not specify a maximum distance for which tank farm inspections must be conducted within. The qualified person conducting the tank farm inspection should be able to determine an appropriate maximum distance at which the OGI device used is effective.

Comment 5-3
Paragraph (h)(2) has been revised to require reporting of visible vapors detected during tank farm inspections emitted from a component required to be maintained in a vapor tight condition or in a condition with no visible gaps, or visible vapors detected that are resulting from defective equipment. South Coast AQMD staff finds it beneficial to inform South Coast AQMD Compliance staff when visible vapors are detected during a tank farm inspection given the likelihood that emissions are significant and indicative of a leak. Equipment that is not subject to Rule 1178 is not subject to the requirements of Rule 1178. If visible vapors are detected from other sources not subject to Rule 1178, the facility is not required to act unless specifically required by another rule, regulation, permit condition, or other requirement.

Comment 5-4
See response to Comments 2-2 and 2-5.

Comment 5-5
PAR 1178 component inspections require inspection of the tank roof and individual components including roof openings and rim seal systems. The facility is responsible for complying with all requirements of PAR 1178, including reporting, and may use a certified person.

Comment 5-6
Clause (f)(4)(B)(i) was revised to require tank farm inspections at least once every calendar week. Any required inspection that is not conducted is a violation of the rule with an exception for documented~~to~~ time periods where unsafe conditions exist.

Comment 5-7
Clause (f)(4)(C)(i) was revised to require semi-annual inspections for floating roof tanks that may be conducted when other required inspections are conducted.

Comment 5-8
See response to comment 2-2. Staff does not propose to allow compliance with LEL requirements as a demonstration to show compliance with tank condition requirements to be free of visible vapors. The OGI device can detect vapors that are indicative of a malfunction in the rim seal system other controls. LEL readings in compliance with the requirements of the rule may not indicate a potential malfunction of the rim seal system or other controls.

Comment 5-9
See responses to Comments 2-5 and 5-3.

Comment 5-10
See response to Comment 5-3.

6. Shell Oil Products US, Received March 15, 2023

Shell Oil Products US
Carson Distribution Terminal
20945 S. Wilmington Ave.
Carson, CA 90810-1039

March 10, 2023

Melissa Gamoning
Air Quality Specialist
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: SCAQMD Proposed Rule Changes to Rule 1178

Dear Ms. Gamoning:

Thank you for this opportunity to submit these comments on the Proposed Amended Rule (PAR) 1178. Shell appreciates the opportunity to participate in the South Coast Air Quality Management District (SCAQMD) PAR 1178 public workshops. Shell operates four facilities in the South Coast Air Basin that will be impacted by the SCAQMD's PAR 1178.

SCAQMD has presented the proposed amendments to Rule 1178 during various public workshops with the most recent on March 1, 2023. Shell offers the following comments:

1. **SCAQMD is proposing to remove the true vapor pressure (TVP) threshold in Rule 1178.**

   The proposed rule as currently written requires OGI monitoring of all tanks subject to the rule, including low TVP tanks such as diesel. But section (j)(2) exempts tanks storing low vapor pressure liquids (≤0.1 psia) from any type of control requirements. Therefore, if visible emissions were discovered on a low TVP tank, the regulation does not require repair. Visible emissions would not be expected during OGI inspections of low TVP tanks and in our discussions with folks who have done these inspections, they have not ever observed visible emissions from equipment in diesel service. It is likely that the only time an OGI inspection would find visible emissions at a tank in low-TVP liquid service would be if the liquid in that tank was not below 0.1 psia. To ensure that the low TVP tanks really are low TVP tanks, the rule already requires a demonstration of low TVP twice per year. This should be adequate to ensure all tanks that need to be monitored with OGI are monitored with OGI. Shell requests that the requirement to perform OGI inspections on low TVP liquids be removed from the rule. 6-1

2. **SCAQMD has shared high level data in the cost-effectiveness analysis. Shell would like to better understand and gain more clarity on the extent of this cost-effectiveness analysis.** 6-2

Can SCAQMD share additional cost-effectiveness data to better help understand documented conclusions in the rulemaking? What other items did SCAQMD evaluate in the analysis other than what has been made available? The available analysis data did not make it clear whether items such as repair costs, lost productivity costs, and practical life of the equipment were addressed or captured. 6-2

3. **SCAQMD is proposing exemptions for tanks storing organic liquid with TVP <0.1 psia, as demonstrated semi-annually, from all requirements except OGI inspections and associated reporting.**

   Exemption (j)(2) specifies requirements provided the owner or operator demonstrates that Organic Liquid stored has a TVP of 0.1 psi absolute or less under actual storage conditions semi-annually. The rule does not specify what an acceptable form of demonstration is. Are published TVP values acceptable? SDS? Vapor pressure measurements of distillate products such as jet fuel and diesel are not typically taken while the products are in storage. 6-3

Shell appreciates the opportunity to provide these comments related to the proposed amendments to Rule 1178. We look forward to continued discussion of this important rulemaking. If you have any questions, please contact me at (310) 816-6025 or via e-mail at christopher.sherman@shell.com.

Sincerely,

Christopher Sherman
Environmental Advisor

Cc: Rodolfo Chacon, SCAQMD
Mike Morris, SCAQMD
Michael Krause, SCAQMD

Comment 6-1
See response to Comment 2-1.

Comment 6-2
Multiple cost-effectiveness analyses were conducted as part of the rule development and were detailed in the staff report that included discussion about maintenance, loss of productivity, and equipment life. Details of the cost-effectiveness analysis are contained in this report.

Comment 6-3
Rule 1178 currently contains test methods for demonstrating true vapor pressure greater than 0.1 psia (or 0.1 psia and less) in subdivision (i). PAR 1178 will retain the same methods for demonstrating TVP of organic liquids to determine applicability to rule requirements.

7. Western States Petroleum Association, Received March 15, 2023

WSPA

Patty Senecal
Director, Southern California Region

March 15, 2023

Mike Morris
Manager, Planning and Rules
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Via e-mail at: mmorris@aqmd.gov

Re: SCAQMD Proposed Amended Rule 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities, and Proposed Amended Rule 463, Organic Liquid Storage – WSPA Comments on Rulemaking Process and Preliminary Draft Rule Language

Dear Mr. Morris,

Western States Petroleum Association (WSPA) appreciates the opportunity to participate in the Working Group Meetings (WGMs) for South Coast Air Quality Management District (SCAQMD or District) Proposed Amended Rule 1178, Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (PAR 1178). WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport, and market petroleum, petroleum products, natural gas, renewable fuels, and other energy supplies in five western states including California. WSPA has been an active participant in air quality planning issues for over 30 years. WSPA-member companies operate petroleum refineries and other facilities in the South Coast Air Basin that will be impacted by PAR 1178 and Proposed Amended Rule 463 (PAR 463), Organic Liquid Storage.

The California Health & Safety Code (HSC) requires the District, in adopting any Best Available Retrofit Control Technology (BARCT) standard, to ensure the standard is technologically feasible, and take into account "environmental, energy, and economic impacts" and to assess the cost-effectiveness of the proposed control options.[1] Cost-effectiveness is defined as the cost, in dollars, of the control alternative, divided by the emission reduction benefits, in tons, of the control alternative.[2] If the cost per ton of emissions reduced is less than the established cost-effectiveness threshold, then the control method is considered to be cost-effective. Cost-effectiveness evaluations need to consider both capital costs (e.g., equipment procurement, shipping, engineering, construction, and installation) and operating (including expenditures associated with utilities, labor, and replacement) costs. Currently, the District is applying a cost-effectiveness threshold of $36,000 per ton of VOC emissions reduced, consistent with the 2022 Air Quality Management Plan (2022 AQMP).[3]

As discussed in previous comment letters, the cost-effectiveness analysis presented is incomplete. In estimating costs for doming of external floating roof tanks, the District has not included potential operation and maintenance (O&M) costs. When O&M costs are included, the — 7-1

[1] California Health & Safety Code §40406, 40440, 40920.6.
[2] California Health & Safety Code §40920.6.
[3] SCAQMD Draft Final 2022 Air Quality Management Plan. Available at: http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan.

doming of crude oil tanks exceeds the cost effectiveness threshold.[4,5] Additionally, SCAQMD has significantly overstated the potential emission reductions for doming of external floating roof crude oil tanks by assuming an RVP of 8.19 psi across all tanks modeled. WSPA believes Staff needs to consider RVP as a parameter in establishing appropriate classes and categories for the BARCT assessment and revise the emissions modeling to obtain more realistic emissions estimates. 7-1 7-2

WSPA understands from the March 17, 2023 Stationary Source Meeting presentation that Staff is now proposing a bifurcation of PAR 1178 to address EPA concerns separately from other updates related to the BARCT analysis.[6] WSPA agrees that there are a number of outstanding issues with the BARCT analysis that need to be resolved which will require additional stakeholder engagement. For this reason, WSPA supports the District's proposal to bifurcate the proposed rule. 7-3

On February 17, 2023, SCAQMD released new preliminary draft rule language for PAR 1178 and PAR 463.[7,8] WSPA offers the following comments.

1. **SCAQMD has held no additional WGMs since its release of PAR 1178 rule language. The District has held no working group meetings for PAR 463 since opening the rule for amendment. SCAQMD has stated that they are adding rule language to PAR 463 and PAR 1178 to address the EPA disapproval of the California Air Resources Board (CARB) Oil and Gas Regulation. WSPA agrees that SCAQMD needs to bifurcate the rule so CARB requirements can be addressed in a timely manner. This will also allow additional time to ensure proper analysis and provide an opportunity for stakeholders to comment on the unsettled portions of the draft rule language.**

   SCAQMD held seven working group meetings during the PAR 1178 rulemaking process, with the most recent meeting held on January 5, 2023. SCAQMD has held no working group meetings for PAR 463. 7-4

   Since the last PAR 1178 working group meeting held on January 5th, SCAQMD has released the following[9]:
   - January 11, 2023 – PAR 1178 Initial Preliminary Draft Rule Language
   - February 9, 2023 – PAR 463 Initial Preliminary Draft Rule Language
   - February 9, 2023 – Updated PAR 1178 Initial Preliminary Draft Rule Language
   - February 17, 2023 – PAR 1178 Preliminary Draft Rule Language
   - February 17, 2023 – PAR 463 Preliminary Draft Rule Language
   - February 17, 2023 – PAR 463/1178 Preliminary Draft Staff Report

   A public workshop was held for both rulemakings on March 1, 2023. It is highly unusual for the District to release draft rule language with no opportunity for stakeholder discussion at a 7-5

[4] WSPA Comment Letter dated January 19, 2023. Available in PAR 1178 Preliminary Draft Staff Report at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-1178-preliminary-draft-staff-report.pdf?sfvrsn=6.
[5] WSPA Comment Letter dated March 1, 2023.
[6] SCAQMD Stationary Source Committee presentation, March 17, 2023. Available at: http://www.aqmd.gov/docs/default-source/Agendas/ssc/ssc-agenda-3-17-2023.pdf?sfvrsn=10.
[7] PAR1178: Preliminary Draft Rule Language. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-1178-preliminary-draft-rule-language.pdf?sfvrsn=6/
[8] PAR 463: Preliminary Draft Rule Language. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-463-preliminary-draft-rule-language.pdf?sfvrsn=6.
[9] PAR 1178 and PAR 463 Rulemaking Documents. Available at: http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1178/

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working group meeting. In this case, there have been significant changes in each of the draft rule language documents since the last WGM, and it has been difficult to fully review and understand the impacts of these changes. Similarly, while the District presented their incremental cost effectiveness analysis in the Preliminary Draft Staff Report (PDSR), there has been no opportunity for stakeholders to review and comment on this analysis in a working group meeting. 7-5

While the District has stated that they are open to receiving information on such items as O&M costs and timeline for inspections, SCAQMD has not conducted an organized survey to request such information from facilities subject to these rules. 7-6

SCAQMD has stated that they are adding rule language to PAR 463 and PAR 1178 to address the EPA disapproval of the California Air Resources Board (CARB) Oil and Gas Regulation. CARB has requested that the changes impacting the EPA disapproval be in place by May 2023 so that they can meet their timeline. The proposed updates to address EPA disapproval are not applicable to petroleum refinery operations and address VOC emissions in the upstream oil and natural gas industry. The current rulemaking provides a sense of urgency that is more focused on completing the rulemaking process based on CARB's timeline than providing an appropriately analyzed and factually supported rule with stakeholder input. SCAQMD needs to bifurcate the rule such that CARBs concerns can be addressed on the appropriate timeline. This would also allow stakeholders time to fully understand the impacts of the rule language and the ability to comment on appropriate changes, and for the District to make adjustments as necessary. 7-7

2. **The District has not completed all of the cost-effectiveness analyses required under the California Health and Safety Code. Incremental cost-effectiveness of each progressively more stringent control option must be analyzed and compared to the cost-effectiveness threshold.** 7-8

HSC Section 40920.6 prescribes two different cost-effectiveness analyses for BARCT rules[10]:

- 40920.6(a)(2): "Review the information developed to assess the cost-effectiveness of the potential control option. For purposes of this paragraph, "cost-effectiveness" means the cost, in dollars, of the potential control option divided by emission reduction potential, in tons, of the potential control option."; and
- 40920.6(a)(3): "Calculate the incremental cost-effectiveness for the potential control options identified in paragraph (1). To determine the incremental cost-effectiveness under this paragraph, the district shall calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option."

In the Public Workshop held on March 1, 2023, the District presented estimated emission reductions from each proposed BARCT requirement.[11] Proposed requirements include: 7-9

- Weekly OGI inspections

[10] California Health and Safety Code 40920.6.
[11] PAR 1178 Public Workshop. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/pars-463-1178_public-workshop.pdf?sfvrsn=6.

- Doming for crude oil tanks
- 98% emission control for fixed roof tanks
- Secondary seals for internal floating roof tanks
- More stringent gap requirement

The District has not performed an incremental cost effectiveness analysis that evaluates each of the above control technologies against the other. Weekly OGI inspections for various types of tanks, including those that are <0.1 psi total vapor pressure, should be evaluated on an incremental basis to understand the incremental cost effectiveness of each control option. An incremental analysis on OGI inspections should be performed as follows: 7-9

1. Weekly OGI inspections for all tanks including those with less than 0.1 psia TVP;
2. Weekly OGI inspections for internal floating roof tanks greater than 0.1 psia TVP;
3. Weekly OGI inspections for domed external floating roof tanks greater than 0.1 psia TVP;
4. Weekly OGI inspections for external floating roof tanks greater than 0.1 psia TVP;
5. Weekly OGI inspections for fixed roof tanks greater than 0.1 psia TVP

Further incremental analysis should be performed to understand how the cost-effectiveness of the above OGI inspections and other proposed requirements compare, including: 7-10

6. More stringent gap requirements;
7. Secondary seals for internal floating roof tanks greater than 0.1 psia TVP; and
8. Doming for tanks storing material greater than 3 psia TVP.

Such incremental cost-effectiveness analyses are necessary to evaluate the cost per emission reduction for each progressively more stringent control option as compared to the next less expensive control option. Since the District is required to perform both cost-effectiveness evaluations to determine a BARCT standard, the District must include both analyses in its evaluation of proposed BARCT limits.

3. PAR 1178(b), Applicability:

The proposed rule language for the applicability section would remove the reference to true vapor pressure of organic liquids in storage tanks. Removal of this reference would result in tanks that were previously exempt from the rule (e.g., diesel or jet fuel storage tanks) becoming subject to the rule. SCAQMD has provided no technical basis for such a scope change. Absent this, the reference to true vapor pressure requirements should be re-added to the proposed rule. 7-11

The current rule language states that the rule applies to storage tanks used to store organic liquids with a true vapor pressure greater than 5 mm Hg (0.1 psi) absolute under actual storage conditions. The applicability section in the proposed rule language removes the reference to the true vapor pressure of the organic liquid stored. Removal of this reference would cause tanks that were previously exempt from the rule, such as diesel or jet fuel storage tanks, becoming subject to the rule. SCAQMD has provided no technical basis for such a change, nor have they presented stakeholders with impacts or costs. The Preliminary Draft Staff Report also does not describe this change in the section that discusses updates made to the applicability language. Since SCAQMD has provided no information demonstrating that organic liquids with a true vapor pressure less than 5 mm Hg have the potential to cause

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considerable emissions, WSPA recommends that the PAR 1178 Applicability section be updated as follows:

(b) Applicability
The rule applies to all aboveground Storage Tanks that have capacity equal to or greater than 75,000 liters (19,815 gallons), are used to store Organic Liquids with a true vapor pressure greater than 5 mm Hg (0.1 psi) absolute under actual storage conditions and are located at any Petroleum Facility that emits more than 40,000 pounds (20 tons) per year of VOC as reported in the Annual Emissions Report pursuant to Rule 301 - Permit Fees in any emission inventory year starting with the Emission Inventory Year 2000. This rule also applies to all aboveground Storage Tanks with Potential for VOC Emissions of 6 tons per year or greater used in Crude Oil Production.

7-11

4. PAR 1178(c), Definitions.

The District should update the definition of Emission Inventory Year to align with the District's Annual Emissions Reporting (AER) program requirements. Additionally, WSPA recommends an exemption from OGI inspections for Out of Service tanks and is therefore proposing a new definition be added for Out of Service.

(c)(7): Emission Inventory Year

Facilities within the SCAQMD are required to report emissions under the Annual Emissions Reporting (AER) Program. This program requires reporting based on a calendar year (referred to as "Data Year").[12] The definition of Emission Inventory Year should be updated to be consistent with the AER requirements.

7-12

WSPA recommends that the definition of Emission Inventory Year be updated as follows:

EMISSION INVENTORY YEAR is the annual emission-reporting period from January 1 – December 31 ~~beginning from July 1 of the previous year through June 30 December 31 of a given year. For example, Emission Inventory Year 2000 covers the period from July 1, 1999 through June 30, 2000~~.

(c): Out of Service

WSPA is proposing a new exemption from OGI inspections for tanks that are out of service. WSPA is therefore proposing a new definition be added to Section (c). The suggested definition is presented below:

7-13

[New Section]
OUT OF SERVICE means the tank has lost suction, has met the requirements of Rule 1149, and is open to the atmosphere.

7-14

5. PAR 1178(d), Requirements:

[12] SCAQMD Annual Emission Reporting Overview. Available at: https://www.aqmd.gov/home/rules-compliance/compliance/annual-emission-reporting.

SCAQMD is proposing more stringent rim seal gap requirements and more stringent control efficiency for emission control systems. Staff have not performed the analyses required by the California Health and Safety Code to demonstrate that the proposed requirements are both technically feasible and cost effective. Further, the District is taking credit for emission reductions even though they state that there are no costs associated with certain proposed requirements. If the tanks already meet the proposed requirements, as asserted in the PDSR, then there would be no creditable reductions available. 7-14

(d)(1)(C): Rim Seal Requirements

SCAQMD has proposed modifying the gap specifications in section (d)(1)(C)(iii). Staff noted that they examined gap measurement inspection reports of a "statistically significant percentage" of tanks and found that all tanks reviewed would be in compliance with more stringent gap requirements.[13] Because the 10% of tanks reviewed were found to be in compliance with the proposed requirement, SCAQMD reports it did not perform a cost-effectiveness analysis for the proposed change.

The California Health and Safety Code (HSC) states[14]: 7-15

(a) Prior to adopting rules or regulations to meet the requirement for best available retrofit control technology pursuant to Sections 40918, 40919, 40920, and 40920.5, or for a feasible measure pursuant to Section 40914, districts shall, in addition to other requirements of this division, do all of the following:

(1) Identify one or more potential control options which achieves the emission reduction objectives for the regulation.

(2) Review the information developed to assess the cost-effectiveness of the potential control option. For purposes of this paragraph, "cost-effectiveness" means the cost, in dollars, of the potential control option divided by emission reduction potential, in tons, of the potential control option.

The District has identified a potential control option. However, Staff have not performed the stringent analysis required by the HSC to ensure that the control is both technically feasible and cost-effective. Relying on results from tank inspections on only 10% of tanks, dismisses the possibility that a significant percentage of tanks may not be able to comply with the revised limits. Rim seals on existing tanks were designed and engineered to meet the gap specifications in the current rule. Because tanks are not round, if a facility adjusts the rim seal gap on one section of a tank, it could affect the rim seal gap at other parts of the tank. Thus, changing the gap specifications as proposed could potentially result in a refinery being required to completely reengineer both the floating roof and its seal. 7-16

Such a proposal would require a complete BARCT analysis, including evaluation of technical feasibility, potential compliance costs, and potential emission reductions benefits. To our knowledge, SCAQMD has not performed an evaluation on the technical feasibility or potential

[13] PAR 1178 Working Group Meeting #5. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par1178-wgm5-final.pdf?sfvrsn=12.
[14] California Health and Safety Code §40920.6. Available at: https://codes.findlaw.com/ca/health-and-safety-code/hsc-sect-40920-6/.

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compliance cost. Interestingly, even though the District states that all tanks already meet the revised gap requirement, they are still taking credit for reductions in the amount of 0.01 tons VOC per day.[15] If all tanks are meeting the proposed requirement, which has not been shown, then there would be no reductions expected. WSPA recommends that SCAQMD remove the proposed changes to section (d)(1)(C). 7-16 7-17

(d)(4)(A)(i): Fixed Roof Tanks

SCAQMD has proposed that Fixed Roof Tank emissions be vented to a Fuel Gas System or an Emissions Control System with an overall control efficiency of 98%. The control efficiency in the current rule is 95%. In the Preliminary Draft Staff Report, SCAQMD notes that the most common type of vapor recovery system used on fixed roof tanks are combustion systems, with one supplier guaranteeing 98% control efficiency on such systems.[16] Adsorption systems have higher capital costs and are less desirable for tanks, and the same supplier guaranteed 95% control efficiency for such systems.[17] The District reviewed four initial performance tests, which all showed greater than 99% control efficiency.[18] The District has not defined the number of vapor recovery systems in the regulated community, nor have they presented information that supports their claim that existing operating emission control systems already meet the proposed control efficiency.[19] Current permits are issued based on a 95% control efficiency. If the District intends to update the control efficiency requirement, they should provide further information to support the assertion that this requirement can be met by all existing fixed roof tanks with vapor recovery systems. If the District is unable to provide technical evidence to support their assertion, such a rule change would require a complete BARCT analysis, including evaluation of technical feasibility and potential compliance costs. 7-18

Furthermore, it is unclear why the District is claiming 0.02 tons per day of VOC emission reductions from this proposed change. If the existing emission control systems already meet the proposed control efficiency, as asserted in the PDSR, then there would be no creditable reductions available. 7-19

WSPA recommends that the language revert back to the current rule language:

The tank emissions are vented to an emission control system with an overall control efficiency of at least 95% by weight or the tank emissions are vented to a fuel gas system.

6. PAR 1178(f), Inspection and Monitoring requirements:

Section (f)(4) proposes requirements for Optical Gas Imaging (OGI) inspections and requires that a demonstration of compliance be made within 24 hours of detection of visible vapors. The proposed rule further states that if compliance with applicable requirements cannot be demonstrated or is not determined, within 24 hours, the Storage Tank is deemed non-compliant. Some tanks may show evidence of vapors 7-20

[15] SCAQMD PAR 1178 Working Group Meeting #5. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par1178-wgm5-final.pdf?sfvrsn=12.
[16] SCAQMD Preliminary Draft Staff Report. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-1178-preliminary-draft-staff-report.pdf?sfvrsn=6.
[17] Ibid.
[18] Ibid.
[19] SCAQMD PAR 1178 Working Group Meeting #7 Presentation. Available at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/par-1178_wgm7_fin.pdf?sfvrsn=6.

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during an OGI inspection, even when the tank is operating in compliance with rule requirements. The statement regarding non-compliance should therefore be stricken from the proposed rule language. Additionally, if a tank is found to have visible vapors, but is operating in compliance, no repairs or adjustments would be made. However, this same result would be expected during the next inspection. A facility would be forced to monitor, assess compliance, and monitor again in an endless cycle. A timeline should be added for tanks that are already demonstrated to be in compliance to break the cycle of re-inspecting every time visible vapors are detected. 7-20

Section (f)(4) sets forth the requirements for Optical Gas Imaging (OGI) Inspections. Section (f)(4)(C) requires that the Tank Farm Inspection be conducted at least every 7 calendar days since the previous inspection. This requirement will cause issues in planning, as the facilities will need to bring the inspection forward a day each time there is a holiday. WSPA recommends that the frequency be updated to once each calendar week. 7-21

Section (f)(4)(E) states that demonstrations of compliance with Section (d) requirements must be made within 24 hours. 24 hours is an extremely short timeframe in which to access the tank and perform an inspection. Gap measurements must be performed inside a tank. A facility would need to quiet the tank prior to entering to verify compliance. This can be difficult on a tank under high use. Three (3) days is a more reasonable time schedule to demonstrate compliance. Additionally, the rule language should specify the methodology for determining compliance with Section (d) requirements. 7-22

More importantly, some tanks may show evidence of visible vapors during an OGI inspection, even when the tank is operating in compliance with rule requirements. If a tank is found to have visible vapors, but is operating in compliance, no repairs or adjustments would be made. However, this same result could be expected during the next OGI inspection. A facility could be forced to monitor, assess compliance, and monitor again in an endless cycle. A timeline should be added for tanks that are already demonstrated to be in compliance to break the cycle of re-inspecting every time evidence of vapors is found.

Finally, the presence of visible vapors does not necessarily indicate that a tank is not in compliance. The rule provides limits on gap length and cumulative length. It is understood that there are working and breathing losses from these tanks. Section (d)(1)(D) states: 7-23

(d)(1)(D) …Rim Seal Systems are not required to be free of Visible Vapors during a Component Inspection.

The statement regarding non-compliance in (f)(4) should therefore be stricken from the proposed rule language.

WSPA recommends the proposed language be updated as follows:

(f)(4) Optical Gas Imaging Instrument (OGI) Inspections
Effective January 1, 2024, the owner or operator shall demonstrate compliance with subparagraphs (d)(1)(D), (d)(2)(C), (d)(3)(C) and (d)(4)(C), by conducting OGI inspections in accordance with the following requirements:

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(A) Inspections shall be conducted by a person who has completed a manufacturer's certification or training program for the OGI device used to conduct the inspection.

(B) The person conducting the inspection shall operate and maintain the OGI device in accordance with the manufacturer's specifications and recommendations.

(C) Tank Farm Inspections shall be conducted at least ~~every 7 calendar days since the last Tank Farm Inspection was conducted~~ once per week.

7-21 Cont.

(D) Component Inspections shall be conducted for floating roof tanks according to the following schedules:
(i) In the 3rd month after an inspection required by paragraph (f)(1) for external floating roof tanks.
(ii) Semi-annually for domed External Floating Roof Tanks and Internal Floating Roof Tanks.

(E) Demonstration of compliance with subparagraphs (d)(1)(B), (d)(1)(C), clause (d)(4)(A)(ii)-(iii) or (d)(4)(A)(v), shall be made using the methodology specified in (f)(1), (f)(2), or (f)(3), as applicable, within ~~24 hours~~ 3 days from when Visible Vapors were detected. ~~If compliance with applicable requirements cannot be demonstrated or is not determined, within 24 hours, the Storage Tank is non-compliant~~ If an inspected tank is demonstrated to be in compliance, another demonstration of compliance is not required unless evidence of Visible Vapors is found and 3 months have elapsed since the previous demonstration of compliance.

7-22 & 7-23 Cont.

7. PAR 1178(g), Maintenance Requirements

WSPA recommends that the proposed rule language be updated to allow a facility 3 days to repair a tank instead of 72 hours. This update would make the language consistent with the requirements of Rules 1173 and 1176.

PAR 1178(g) proposes new maintenance requirements in response to deficiencies found during inspections. WSPA recommends that SCAQMD update the allowable timeframe for repairs to 3 calendar days to be consistent with Rules 1173 and 1176. WSPA proposes language be updated as follows:

(g) The owner or operator shall repair, or replace any materials or components, including but not limited to, piping, valves, vents, seals, gaskets, or covers of Roof Openings or seals that do not meet all the requirements of this rule before filling or refilling an emptied and degassed storage tank, or within ~~72 hours~~ 3 calendar days after an inspection, including one conducted by the owner or operator or the contracted third-party as specified in subdivision (f).

7-24

8. PAR 1178(h), Record Keeping and Reporting Requirements

The presence of visible vapors is not necessarily indicative of a tank being out of compliance. Therefore, a facility should not be required to notify the Executive Officer

7-25

each time visible vapors are detected. A record of such detections will be maintained on site in accordance with the rule. Additionally, SCAQMD is proposing video recordings of the OGI inspections. It is unclear how the video capture will contribute to rule compliance. WSPA recommends that this requirement be removed from the rule language. 7-25

For inspections required by subparagraph (f)(4), the proposed rule language requires that all visible vapors be reported to the Executive Officer within 8 hours of detection. As discussed in Comment 5, the presence of visible vapors is not necessarily indicative of a tank being out of compliance. A facility should not be required to notify the Executive Officer of the presence of visible vapors unless a tank is found to be non-compliant. Additionally, a facility is required to maintain records of visible vapors under Section (h)(2)(B), so there will be a record to refer back to as needed. 7-26

SCAQMD is requiring that records of leaks identified with an OGI device include a digital recording of the leak for a minimum of 5 seconds. It is unclear how this video capture will contribute to compliance. WSPA recommends this requirement be removed from the rule language. 7-27

WSPA recommends the proposed language be updated as follows:

(h) Reporting and Recordkeeping Requirements
(1) …

(2) For OGI inspections required by subparagraph (f)(4), the owner or operator shall:

~~*(A) Report all Visible Vapors to the Executive Officer by phone (1-800-CUTSMOG or 1-800-288-7664) within 8 hours of detection.*~~ 7-26 Cont.

(B) Keep records of Component Inspections, including tank identification, date of inspection and findings. Findings shall include identification of Storage Tanks from which Visible Vapors were identified, any determinations made pursuant to subparagraph (f)(4)(E), and corrective measures taken, if applicable.

(C) Keep records Visible Vapors detected during a Tank Farm Inspection, including tank identification, date of inspection, and findings. Findings shall include identification of tanks from which Visible Vapors were identified, any determinations made pursuant to subparagraph (f)(4)(E), and corrective measures taken, if applicable.

~~*(D) Record all Visible Vapors from tanks for a minimum of 5 seconds. Digital recordings shall be accurately time-stamped and kept on-site for a minimum of 2 years to be made available to the Executive Officer upon request.*~~ 7-27 Cont.

9. PAR 1178(j), Exemptions

The District has not provided a technical basis for expanding the scope of Rule 1178 to tanks with a true vapor pressure less than or equal to 5 mm Hg, nor has the District assessed the impacts for such inclusion. These tanks should continue to be exempt 7-28

from all rule requirements. Separately, tanks that are out of service should be exempt from the requirements of OGI inspections.

As discussed in Comment 2, the District has provided no technical basis for inclusion of tanks with a true vapor pressure less than or equal to 5 mm Hg in the rule, nor have they provided any analysis of the impact to the regulated community from this inclusion. Therefore, WSPA recommends that the rule language continue to exempt storage tanks with a true vapor pressure less than or equal to 5 mm Hg.

WSPA recommends the proposed language be updated as follows:

7-28

(j)(2) Storage Tanks that do not have a Potential For VOC Emissions of 6 tons per year or greater used in Oil Production and are storing Organic Liquid ~~with a True Vapor Pressure equal to or less than 5 mm Hg (0.1 psi) absolute under actual storage conditions~~ are exempt from the requirements of this rule, with the exception of the requirements specified in paragraphs (f)(4), (h)(1) and (h)(6), provided the owner or operator demonstrates that the Organic Liquid stored has a True Vapor Pressure of 5 mm Hg (0.1 psi) absolute or less under actual storage conditions semi-annually.

PAR 1178(j) should also include an exemption from OGI inspections for tanks that are out of service.

WSPA recommends the PAR1178 language be updated to include the following:

7-29

[New Section]

(j)(6) An owner or operator of a Fixed Roof Tank, an External Floating Roof Tank, an Internal Floating Roof Tank, and Domed External Floating Roof Tank shall be exempt from OGI inspections required by subparagraph (f)(4) if the subject tank is Out of Service.

WSPA appreciates the opportunity to provide these comments related to PAR 1178. As outlined above, there are multiple items requiring further analysis and thorough discussion prior to rule adoption. The District and stakeholders need more time to ensure the necessary changes are incorporated into the rule. The District should bifurcate the rule such that the language necessary to address the EPA disapproval of the California Air Resources Board (CARB) Oil and Gas Regulation is incorporated in a timely manner, while still allowing the necessary time for stakeholder comment, further analysis, and revisions as appropriate.

We look forward to continued discussion of this important rulemaking. If you have any questions, please contact me at (310) 808-2144 or via e-mail at psenecal@wspa.org.

Sincerely,

Patty Senecal

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wspa.org

Cc: Wayne Nastri, SCAQMD
Sarah Rees, SCAQMD
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Comment 7-1
Staff revised the cost-effectiveness for requiring doming and added costs for O&M. Details regarding the revised cost-effectiveness are contained in Chapter 4. See Comment 1-1.

Comment 7-2
Crude oil tanks proposed to be domed are either permitted at an RVP of 11 psia or are limited to an RVP of 11 psia per rule requirements. Staff determined that crude oil tanks proposed to be domed are subject to the same RVP requirements and are of the same class and category. The highest reported actual RVP of crude oil for tanks proposed to be domed is 8.14 psia. A review of reported crude oil RVPs suggests that RVP varies and has the potential to be as high as 8.14 psia. For cases where facilities consistently store low TVP crude oil, PAR 1178 allows facilities to take a permit condition limiting TVP of the crude oil stored to a maximum of 3 psia (~RVP 4.7 psia) in lieu of doming. Using the maximum reported RVP value to calculate emission reductions provides an estimate of potential emission reductions achieved by doming.

Comment 7-3
The rule development schedule was bifurcated to allow additional time for stakeholders to work with staff on proposed requirements.

Comment 7-4
Staff stated in Working Group Meeting #5 that U.S. EPA identified deficiencies in Rules 463 and 1178 and that staff is working with U.S. EPA to address the deficiency. In Working Group Meeting #7, staff presented the proposed rule concepts that included how the RACT deficiency would be addressed. Staff released initial preliminary draft rule language prior to the release of the Preliminary Draft Rule Language informing stakeholders of the rule language that addresses the RACT deficiency. Subsequently, staff presented PARs 463 and 1178 in the Public Workshop.

Comment 7-5
Staff released initial preliminary draft rule language to allow stakeholders to comment prior to the release of the Preliminary Draft rule Language. As a result, staff received several comments after the release of the initial preliminary draft rule language and revised the rule language based on stakeholder comments. Staff also received information requested from facilities and updated the rule language based on the information received. The intent of updating rule language prior to the release of the Preliminary Draft Rule Language was to allow facilities time to review and comment so that stakeholder input can be considered for the Public Workshop. Staff also held meetings with participating facilities to discuss the initial drafts of the rule language to consider their input for the Public Workshop. Additionally, the rule development schedule was bifurcated to address the U.S. EPA identified deficiency in a timely manner while allowing additional time for stakeholders to work with staff on proposed requirements.

Comment 7-6
Over several months, staff worked with stakeholders to obtain cost information regarding controls. Cost-effectiveness for doming has been revised in include O&M costs. Refer to Chapter 4 for details. See response to Comment 1-1.

Comment 7-7

Rules 463 and 1178 were amended on May 5, 2023 to apply to tanks subject to the U.S. EPA's 2016 CTG, in addition to the existing applicability. The amended applicability does not include tanks that are not subject to U.S. EPA's 2016 CTG.

Comment 7-8
Incremental cost-effectiveness was conducted in accordance with the Health and Safety Code and is detailed in Chapter 4 of this report.

Comment 7-9
See response to Comment 2-12.

Comment 7-10
Refer to response to Comment 2-13 for the requested incremental cost-effectiveness results.

Comment 7-11
PAR 1178 was revised to exempt tanks used to store organic liquid with TVP of 0.1 psia and less from rule requirements if demonstrations are made on a semi-annual basis that the TVP of the organic liquid stored is 0.1 psia or less. Staff determined this requirement is necessary to confirm qualification for exemption from rule requirements and proposes to retain the removal of the TVP applicability threshold.

Comment 7-12
Paragraph (c)(8) was revised to reflect reporting periods required by the Annual Emission Reporting program specific to reporting years.

Comment 7-13
Paragraph (j)(6) was added to include an exemption from OGI inspections for tanks that have been emptied or opened to the atmosphere pursuant to the requirements of Rule 1149. See response to Comment 4-5.

Comment 7-14
Staff conducted a BARCT analysis on more stringent gap requirements and 98 percent emission control system efficiency, that includes an analysis of technical feasibility and cost-effectiveness. Refer to Chapter 2 for discussion detailing the BARCT assessment for the proposed requirements. See response to Comment 2-9 for discussion on emission reduction calculations.

Comment 7-15
See response to Comment 7-14.

Comment 7-16
Staff used a statistical significance approach to determine the likelihood of an outcome. Staff analyzed a sample size of 10 percent that statistically provides 95 percent certainty of an outcome for the entire population (tanks) analyzed. Refer to the BARCT assessment for Seal Requirements in Chapter 2 and the response to Comment 2-8 regarding cost-effectiveness for requiring more stringent gap requirements.

Comment 7-17
See response to Comment 2-9.

Comment 7-18
Refer to BARCT assessment in Chapter 2 for emission control systems. Staff relied on the information available as well as information provided by facilities during site visits to determine the capabilities of currently operating emission control system. Staff has encouraged stakeholders to provide information regarding the equipment under review and has not received information or supporting documentation regarding the performance of existing emission control systems. Currently, Rule 1178 requires facilities to conduct an annual performance test for emission control systems to demonstrate compliance with current requirements. Staff has informed WSPA that any performance tests that suggest the inability or difficulty to meet the proposed requirement should be provided to staff for reconsideration of the BARCT analysis conclusion for emission control systems. As of yet, staff has not received supporting information for existing emission control system inability to meet the proposed requirements.

Comment 7-19
See response to Comment 2-9.

Comment 7-20
PAR 1178 allows visible vapors from tanks during certain OGI inspections that are accepted as normal operations such as those that may be detected from rim seal systems during component inspections. PAR 1178 has been revised to allow visible vapors from components that staff has concluded are unavoidable given the current controls available and required for tanks. The proposed allowances for visible vapors should not result in any facility needing to demonstrate compliance except when visible vapors indicate a potential defect.

Comment 7-21
PAR 1178 has been revised to require tank farm inspections at least once every calendar week.

Comment 7-22
PAR 1178 has been revised to allow 3 days to demonstrate compliance with the requirements of subdivision (d). The methodology for demonstrating compliance with the requirements of subdivision (d) is stated in the requirements of subdivision (d) and include methods for determining a vapor tight condition and compliance with gap requirements.

Comment 7-23
PAR 1178 has been revised to allow for additional inspection to be conducted prior to demonstrating compliance with rule requirements when visible vapors are detected. The additional inspection allows facilities to determine if there is a defect or a potential defect without entering the tank. If a potential defect is observed, such as vapors emitted from vapor tight components or vapors observed from a visually defective rim seal or other component, a facility would then be required to demonstrate compliance with applicable rule requirements or make any necessary repairs.

Comment 7-24
Subdivision (g) was revised to allow 3 days for a repair for defects identified during OGI inspections. Staff will not make any current requirements in Rule 1178 less stringent, when the making a requirement less stringent can potentially result in an emission increase. Staff does not propose to extend the repair timeline and allow 3 days to make a repair for defects identified during existing inspection procedures.

Comment 7-25 and 7-26
See response to Comment 2-5.

Comment 7-25 and 7-27
PAR 1178 will require digital recordings of leaks identified during tank farm inspections to provide compliance staff information about the leak. Since leaks identified during an OGI inspection are not measured, a digital recording provides information about the size of the leak.

Comment 7-28
PAR 1178 has been revised to include in the applicability tanks storing organic liquid with TVP of 0.1 psia or less so that those tanks can be subject to TVP testing requirements to confirm qualification for exemption from rule requirements. PAR 1178 has been revised to exempt tanks storing organic liquid with TVP of 0.1 psia or less from all rule requirements except for TVP testing and recordkeeping. (Paragraph (j)(2))

Comment 7-29
PAR 1178 has been revised to contain an exemption from OGI inspections when the tank is out of service. (Paragraph (j)(6)). See response to Comment 4-5.

8. Regulatory Flexibility Group (Latham & Watkins), Received June 28, 2023

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June 26, 2023

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Re: Regulatory Flexibility Group Comments on Proposed Amended Rule ("PAR") 1178

Dear Mr. Morris:

Thank you for the opportunity to provide comments regarding Proposed Amended Rule 1178 ("PAR 1178"). We appreciate the South Coast Air Quality Management District (the "District") decision to bifurcate the rulemaking and its continued commitment to work with stakeholders on the further development of PAR 1178. We submit these comments on behalf of the Regulatory Flexibility Group ("RFG"), a coalition of Southern California businesses in the aerospace, automotive, energy and petrochemical sectors. The RFG is committed to supporting strategies for achieving state and national air quality standards that are cost-effective and fairly allocated among all sectors of the Southern California economy.

As set forth in this letter, we appreciate the dialogue and revisions reflected in the most recent rule language, but believe certain modest modifications to the current language of the PAR remain necessary. Further, to ensure a fully informed rulemaking, we also respectfully request the District to undertake the appropriate environmental, socioeconomic, and cost-effectiveness analysis in advance of bringing PAR 1178 to the Governing Board.

Proposed Amendments to PAR 1178

In Initial Draft Rule Language released June 13, 2023, District Staff proposes amendments to Rule 1178 based on a best available retrofit control technology ("BARCT") assessment.[1] Proposed amendments include requirements that storage tanks at petroleum facilities install domed roofs and use optical gas imagining ("OGI") devices for leak detection, as well as additional recordkeeping and reporting requirements.[2] We understand that, as soon as September 2023, District Staff intends to bring to the Governing Board proposed amendments. We appreciate that the District has continued to incorporate feedback from regulated entities in recent updates to PAR

[1] SCAQMD Draft Staff Report, Proposed Amended Rules 463 and 1178 (April 2023) at 3.
[2] *Id.*

1178 language. Specifically, we note the District has recognized that tanks storing organic liquids with a true vapor pressure equal to or less than 5 mm Hg (0.1 psi) and tanks that are out of service are not sources of significant VOC emissions and should remain exempt from the requirements of the rule. While we do appreciate these revisions, we respectfully request that District Staff make the modifications proposed herein to minimize economic and socioeconomic disruption while the regulated community and the District work towards shared air quality goals.

Flexibility in the Dome Installation Compliance Schedule

In the Initial Draft Rule Language, the District proposes to require that the "owner or operator of an External Floating Roof Tank shall install a Domed Roof on any External Floating Roof Tank used to store material with a True Vapor Pressure of 3 psia or greater"[3] on the following timeline:

> The owner or operator shall install a Domed Roof on any Storage Tanks under common ownership permitted to contain more than 97% by volume crude oil that become subject to the doming requirements of subparagraph (d)(1)(E) upon [Date of Adoption], in accordance with the following schedule:
>
> (i) No later than December 31, 2031, for at least 1/3 of the applicable Storage Tanks; and
> (ii) No later than December 31, 2033, for at least 1/2 of the applicable Storage Tanks; and
> (iii) No later than December 31, 2038, for all of the applicable Storage Tanks.[4]

8-1

Removing a storage tank from service in order to install a domed roof, or indeed for any reason, carries a risk of supply disruptions. The rigid timeline proposed by the District may require that some facilities take multiple tanks offline at the same time to comply with the doming requirement. Having multiple tanks offline simultaneously would exacerbate supply disruption and could fuel market speculation.

External factors (e.g., labor shortages, supply chain disruptions, etc.) could impact the ability to adhere perfectly to the proposed schedule. To address this risk, we propose to add new language to paragraph (d)(5)(B) and a new paragraph (d)(5)(E), shown below with accompanying definitions, providing for extensions to the compliance deadlines when a facility offers evidence satisfactory to the Executive Officer that the facility is unable to comply with the deadline, despite the facility's best efforts to do so. The proposed revisions would also provide that facilities with 10 or greater tanks could submit an optional, alternative "Doming Schedule" with specific requirements as an alternative to the schedule set forth in (d)(5)(B). These proposed safeguards

[3] SCAQMD PAR 1178 Initial Draft Rule Language (d)(1)(E) (released June 13, 2023).

[4] *Id.* at paragraph (d)(5)(B).

reduce the likelihood of unintended supply disruptions or market speculation due to multiple tanks going out of service at the same time.

Proposed Rule Language

New definitions:

BEST EFFORTS means the efforts that a petroleum facility desirous of achieving an identified doming schedule would use under reasonably foreseeable circumstances to facilitate such result.

DOMING SCHEDULE means an optional doming schedule for an owner or operator of a facility with ten or more tanks subject to this rule.

OUT OF SERVICE means a tank that has been or is in the process of being drained, degassed and cleaned pursuant to Rule 1149 and/or other regulatory requirements.

For addition to paragraph (d)(5)(B):

Upon demonstration that, despite Best Efforts, a Facility would be required to take more than one Storage Tank under common ownership Out of Service simultaneously in order to meet the deadlines specified in paragraphs (d)(5)(B)(i)-(iii), the Executive Office shall grant an extension to the specified deadline for the minimum duration necessary to avoid more than one Storage Tank being Out of Service simultaneously.

8-1

New paragraph (d)(5)(E):

As an alternative to complying with the schedule specified in paragraph (d)(5)(B), a Facility with ten or more Storage Tanks subject to the requirements of (d)(1)(E) may elect to implement a Doming Schedule. The Doming Schedule shall be submitted to the Executive Office for approval. The Doming Schedule must specify:

(i) The Storage Tanks at the Facility subject to the rule and the proposed timing for the doming of each;

(ii) The Best Efforts the Facility will undertake to install domes on the identified Storage Tanks consistent with the schedule proposed in the Doming Schedule, with due consideration for avoidance of multiple Storage Tanks being Out of Service simultaneously;

(iii) The anticipated mass emissions reductions and timing of the same associated with the Doming Schedule.

A Facility electing to implement a Doming Schedule shall provide an annual update on progress and mass emissions reductions to the Executive Officer within 60 days after the end of each Emission Inventory Year.

CEQA Analysis

The proposed amendments to Rule 1178 stem from Control Measure FUG-01, which is included in both the 2016 Air Quality Management Plan ("AQMP") and the 2022 AQMP and analyzed under the Program Environmental Impact Report ("PEIR") for each.[5] The District has stated that "the impacts of implementing this control measure [have] been evaluated in the Program EIR" for the 2022 AQMP.[6] As you know, the scope of the proposed amendments has changed meaningfully from the project description of Control Measure FUG-01 contained and analyzed in the PEIRs — from only leak detection and repair with optical gas imaging to requiring domed roof installation on external floating roof tanks.[7]

We recognize that the CEQA analysis did evolve slightly from the 2016 AQMP PEIR, which concluded FUG-01 would have no expected significant impacts,[8] to the 2022 AQMP PEIR, which concluded FUG-01 may cause air quality and greenhouse gas impacts due to construction.[9] But notably, it appears the 2022 AQMP PEIR only evaluated FUG-01 to include implementation of advanced leak detection technologies and the associated minor construction, without any mention of doming requirements.[10]

8-2

Dome installation will require substantial construction activities for the 54 tanks that would be subject to the doming requirements of PAR 1178, as the tanks are all larger than 90 feet in diameter and can be as large as 260 feet.[11] Such construction activities should be analyzed prior to rule adoption, and we therefore encourage the District to undertake additional environmental analysis of PAR 1178 to ensure compliance with CEQA.

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[5] *See* SCAQMD Final Program Environmental Impact Report, 2016 Air Quality Management Plan (Jan. 2017) at 2-22 [*hereinafter*, 2016 AQMP PEIR]; and SCAQMD, Final Program Environmental Impact Report for Proposed 2022 Air Quality Management Plan (Nov. 2022) at 2-20 [*hereinafter*, 2022 AQMP PEIR].

[6] 2022 AQMP PEIR at C-108.

[7] *See* 2022 AQMP PEIR at 2-20 ("FUG-01: Improved Leak Detection and Repair: This proposed control measure seeks to reduce emissions of VOCs from fugitive leaks from process and storage equipment located at a variety of sources including, but not limited to, oil and gas production, petroleum refining, chemical products processing, storage and transfer, marine terminals, and other. Some of these facilities are subject to leak detection and repair (LDAR) requirements established by the South Coast AQMD and the U.S. EPA that include periodic VOC concentration measurements using an approved portable organic vapor analyzer (OVA) to identify leaks. This measure would implement the use of advanced leak detection technologies including optical gas imaging devices (OGI), open path detection devices, and gas sensors for earlier detection of VOC emissions from leaks.")

[8] 2016 AQMP PEIR at 4.0-3, Table 4.0-1.

[9] *See* 2022 AQMP PEIR at A-7.

[10] *See* 2022 AQMP PEIR at A-7. The District also evaluated Control Measure MCS-01, Application of All Feasible Control Measures, which involves updating BARCT in any rule when feasible. *See Id.* at 2-21 to 2-22. However, the analysis of that control measure, which arguably may be applicable to PAR 1178 doming requirements, is limited to the effects of associated construction.

[11] *See* SCAQMD Preliminary Draft Staff Report, Proposed Amended Rules 1178 and 463 (February 2023) at p. 2-4 [*hereinafter*, "PAR 1178 Preliminary Draft Staff Report"].

Further, the 2022 AQMP PEIR determined that "no significant aesthetic impacts are expected due to the implementation of the 2022 AQMP,"[12] in contrast to the PEIR prepared for the 2016 AQMP. The 2016 AQMP PEIR found that significant aesthetic impacts could result from control measures which could generate "glare impacts due to the solar reflectance from the use of cool roof technology", and "[c]hange in visual character due to the use of bonnets on top of marine vessel stacks."[13] The domed roofs required by PAR 1178, which are often constructed of aluminum or other reflective alloys, may have similar solar reflectance and glare impacts compared to the "cool roof technology" analyzed in the 2016 AQMP PEIR. Further, installation of domed roofs on large storage tanks could change the visual character of the landscape in a similar way to bonnets placed on top of marine vessel stacks, particularly for tanks located near coastal sightlines. Accordingly, we encourage the District to analyze the potential aesthetic impacts of PAR 1178's doming requirements in connection with this rulemaking. 8-3

Socioeconomic Impact Assessment

We appreciate that District Staff has indicated it intends to prepare a socioeconomic impact assessment prior to bringing PAR 1178 before the Governing Board.[14] To meet the requirements of the Health & Safety Code, the assessment must, among other things, address "[t]he impact of the rule or regulation on employment and the economy in the south coast basin . . . [t]he range of probable costs, including costs to industry, of the rule or regulation . . . [and t]he availability and cost-effectiveness of alternatives to the rule or regulation."[15] In order to ensure a robust analysis, we note that the socioeconomic impact assessment should include, in addition to the costs on the individual facilities, considerations of supply chain disruptions, price spikes, and the potential effects of market speculation that may occur as facilities move tanks offline to comply with doming requirements. This analysis is particularly important given the new rule will require facilities to take tanks in crude oil service offline. The removal of these tanks from service naturally raises supply disruption concerns, and this should be fully analyzed in the context of the socioeconomic analysis. 8-4

Cost-Effectiveness Analysis

We also appreciate that Staff has continued to update its cost-effectiveness analysis throughout the rulemaking process. We trust that an updated analysis will consider the true costs of domed roof installation, as detailed further in our January 4, 2023 letter.[16] Evaluating all costs are integral to a meaningful cost-effectiveness analysis. Finally, regarding the cost-effectiveness threshold, Staff indicated that it will utilize the consumer price index to inflate that threshold 8-5 8-6

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[12] 2022 AQMP PEIR at 4.8-2.

[13] 2016 AQMP PEIR at 4.8-2, Table 4.8-1.

[14] *See* PAR 1178 Preliminary Draft Staff Report (February 2023) at 4-10.

[15] Health & Safety Code § 40440.8.

[16] *See* Letter from John C. Heintz, Latham & Watkins on behalf of RFG, to Michael Morris, SCAQMD (January 4, 2023) at p. 3 (discussing costs of dome installation, lost productivity, and the actual anticipated lifecycle of domes). We have attached this letter for your convenience as Attachment A.

annually.[17] We note that, to the extent that an inflated threshold is used in PAR 1178 rulemaking, inflated labor and material costs must also be used in an updated cost-effectiveness analysis. 8-6

Conclusion

We greatly appreciate the opportunity to provide these comments on PAR 1178, and we are especially thankful that the District has recognized the need for further analysis of the proposed amendments by bifurcating the rulemaking. We would also appreciate a meeting to discuss the amendments we propose to address the remaining requests expressed in this letter. Please contact me at (213) 891-7395, or by email at john.heintz@lw.com with your availability to schedule a discussion.

Best regards,

John C. Heintz
of LATHAM & WATKINS LLP

Cc: Michael Krause, SCAQMD
RFG Members
Chris Norton, Latham & Watkins LLP
Nick Cox, Latham & Watkins LLP

[17] PAR 1178 Preliminary Draft Staff Report, Appendix A: Response to Public Comments at Comment 2-4.

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Los Angeles	Tokyo
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January 4, 2023

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Re: Regulatory Flexibility Group Comments on Proposed Amended Rule ("PAR") 1178

Dear Mr. Morris,

Thank you for the opportunity to provide comments regarding Proposed Amended Rule 1178 ("PAR 1178"). We submit these comments on behalf of the Regulatory Flexibility Group ("RFG"), a coalition of Southern California businesses in the aerospace, automotive, energy and petrochemical sectors. The RFG is committed to supporting strategies for achieving state and national air quality standards that are cost-effective and fairly allocated among all sectors of the Southern California economy.

We appreciate the number of Working Group meetings the South Coast Air Quality Management District ("District") has held on PAR 1178. We are, however, concerned with the current cost-effectiveness analysis. The District's analysis and methodology to date raise a number of issues that cut across sectors and industries as the District moves forward with future rulemakings, particularly in light of the Governing Board's recent adoption of the 2022 Air Quality Management Plan ("AQMP") and its reliance on "extensive use of zero emission technologies across all stationary and mobile sources."[1] Accordingly, and as summarized in more detail below, we respectfully request the District fully consider the costs of the proposed rule and anticipated equipment life-cycle when establishing a cost-effectiveness threshold, and that the District undertake a tiered cost-effectiveness, incremental cost-effectiveness, and socioeconomic analysis prior to bringing the rule forward for a public hearing[2], as required by the AQMP.

[1] South Coast Air Quality Management District, 2022 Air Quality Management Plan, at Preamble to Executive Summary.

[2] Currently scheduled for April 2023. *See* South Coast Air Quality Management District, Presentation for Working Group Meeting 7 ("WGM 7 Presentation"), at 28 (presentation posted December 30, 2022).

The District Should Consider Additional Information to Ensure an Accurate Cost-Effectiveness Analysis

The Health & Safety Code requires the District to adopt rules which, among other things, "are efficient and cost-effective" (Health & Safety Code § 40440(c).) The Code states that:

> In adopting any regulation, the district shall consider, pursuant to Section 40922 [cost-effectiveness assessment], and make available to the public, its findings related to the cost-effectiveness of a control measure. . . . A district shall make reasonable efforts, to the extent feasible within existing budget constraints, to make specific reference to the direct costs expected to be incurred by regulated parties, including businesses and individuals.

(Health & Safety Code § 40703.)

Health & Safety Code Section 40440.8 requires the District to examine "[t]he availability and cost-effectiveness of alternatives to the rule or regulation" by considering the socioeconomic impacts of proposed rules and regulations.

Further, Health & Safety Code Section 40920.6 requires the District to, among other things:

1) Review the information developed to assess the cost-effectiveness of the potential control option. For purposes of this paragraph, "cost-effectiveness" means the cost, in dollars, of the potential control option divided by emission reduction potential, in tons, of the potential control option.
2) Calculate the incremental cost-effectiveness for the potential control options . . . . To determine the incremental cost-effectiveness under this paragraph, the district shall calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option.
3) [And consider t]he effectiveness of the proposed control option, . . . [t]he cost-effectiveness of each potential control option, . . . [and t]he incremental cost-effectiveness between the potential control options.

(Health & Safety Code § 40920.6.)

The requirements that the District create rules that are efficient and cost-effective and provide socioeconomic impact assessments reflect the legislature's intent: that the District consider and seek to minimize socioeconomic impacts and have these considerations as objectives of its rulemaking authority.

However, at this point in the PAR 1178 process, the District has not fully taken into account the significant costs this rule will impose on the regulated community. Specifically, we respectfully request the District further consider the following:

- ***True Dome Installation Costs***. When considering labor costs (particularly union labor), necessary tank cleaning and degassing prior to doming, required modifications to fire suppression systems, water treatment and disposal associated with the work and installation costs are significantly higher than the doming costs assumed by the District.

- ***Lost Productivity Costs***. The contemplated doming could require refiners to take tanks offline for potentially months at time. This would result in productivity losses that could be orders of magnitude greater than the District's applied lost productivity number (0.50/barrel to tanks with diameters greater than 200 ft.) in the October 2022 Working Group Meeting presentation.[3]

- ***The Useful Life Expectation Must Consider Actual Anticipated Lifecycle of the Equipment***. The District assumes, based on vendor and facility estimates, that the domes will have a 50-year life. However, this fails to recognize that state, regional, and local policies, rules and regulations will likely reduce the consumption of certain fuels produced by Basin refineries, and, accordingly, the likelihood that the domes required pursuant to this rule will actually be in place 50 years from now. Use of a 50-year assumption makes the control equipment appear more cost-effective by diluting the significant capital costs of required projects over a much longer time table than is likely to occur. The staff analysis should reflect a 25-year assumption, which is more consistent with the anticipated use of the domes. Considering actual anticipated life-cycle is also consistent with broader District commitments to consider equipment life on a case-by-case basis, attempt to avoid stranded assets, and in cases of stranded assets, include equipment replacement costs and salvage values in the analysis.[4]

The cost-effectiveness analysis called for throughout the Health & Safety Code is a critical element of the rulemaking process. The analysis is only as good as the assumptions made and the cost data used; use of incomplete and/or inaccurate data renders the entire process meaningless. While we appreciate that the rulemaking process has been underway for some time, it is clear that additional data is needed to support an appropriate cost-effectiveness determination.

And while we recognize the District has endeavored to consider some of the factors summarized above (and we appreciate the same), to date the analysis has not undergone the rigor necessary obtain meaningful cost-effectiveness numbers. We refer you to RFG member letters for additional detail on the anticipated costs of this rulemaking, and encourage you to work closely with the regulated community to get a more comprehensive understanding of the potential impacts of the rule.

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[3] South Coast Air Quality Management District, Working Group Meeting 6, at 28 n.2 (Oct. 27, 2022).

[4] We acknowledge Staff's indication it is open to considering permit conditions to remove tanks from service upon a future date in lieu of doming. *See* WGM 7 Presentation, at 5. However, RFG still believes the Health & Safety Code-driven cost-effectiveness analysis must consider the anticipated use timeline of the domes, not just the technical "useful life."

The AQMP Requires the District to Engage in a "Tiered" Cost-Effectiveness, Incremental Cost-Effectiveness, and Socioeconomic Impact Analysis

As you know, proposed amendments to Rule 1178 stem from 2016 AQMP Control Measure FUG-01.[5] The 2016 AQMP established cost-effectiveness thresholds for "tiered levels of analysis." More specifically, the 2016 AQMP provides that the :

> *2016 AQMP proposes **thresholds of $30,000 per ton of VOC** and $50,000 per ton of NOx for tiered levels of analysis. Note, however, with the new focus on incentives and public funding, not all of this cost will necessarily be borne by industry. Specifically, proposed rules with an average cost-effectiveness above these thresholds will trigger a more rigorous average cost-effectiveness, incremental cost-effectiveness, and socioeconomic impact analysis. A public review and decision-making process will be instituted to seek lower, more cost-effective alternatives. In addition, the SCAQMD staff, with input from stakeholders, will attempt to develop viable control alternatives within the industry source categories that a rule is intended to regulate. If it is determined that control alternatives within the industry source category are not feasible, staff will perform an evaluation of the control measure as described in the next paragraph. Viable alternatives will be reviewed by the SCAQMD Governing Board at a public meeting no less than 90 days prior to rule adoption and direction can be given to staff for further analysis. During this review process, incremental cost-effectiveness scenarios and methodology will be specified, and industry-specific affordability issues will be identified as well as possible alternative control measures.*[6]

The tiered analysis supports rigorous and careful consideration of the balance between air quality improvements and the economic concerns and impacts on the regulated community. As summarized above, we believe the current cost-effectiveness analysis vastly underestimates the actual costs. Notwithstanding, even the District's revised $32,400 per ton cost[7] exceeds the 2016 AQMP's established threshold for tiered review. Accordingly, we respectfully request the District undertake the more rigorous average cost-effectiveness, incremental cost-effectiveness, and socioeconomic impact analysis in connection with this rulemaking.

[5] *See* South Coast Air Quality Management District, 2016 Air Quality Management Plan at 4-21.

[6] *Id.* at 4-54 (emphasis added).

[7] *See* South Coast Air Quality Management District, Presentation for Working Group Meeting 7, at 27 (presentation posted December 30, 2022).

Conclusion

Thank you for considering these comments. We will reach out separately to you in order to request a meeting with District staff to discuss these comments in greater detail as the rulemaking advances.

Sincerely,

John C. Heintz

John C. Heintz
of LATHAM & WATKINS LLP

cc: Michael Krause, Assistant Deputy Executive Officer, SCAQMD
Michael Carroll
RFG Members

Comment 8-1
Staff appreciates the suggested rule language to allow for additional time for doming if required to avoid potentially removing more than one tank from service at a time. Staff received API schedules from facilities with tanks proposed be domed. API schedules indicated that, for some facilities, more than one tank is removed from service at a time to accommodate API internal inspections. Only one facility has expressed concerns about removing more than one tank from service at a time. Staff added an alternative compliance schedule to accommodate the needs of this facility as the doming schedule of subparagraph (d)(5)(B) would potentially negatively impact the fuels market.

Comment 8-2
Neither the 2016 AQMP nor the 2022 AQMP identified doming as a potential option for implementing Control Measure FUG-01 and thus, the CEQA analyses conducted in the Final Program Environmental Impact Reports (EIRs) for both the 2016 AQMP and the 2022 AQMP did not examine the potential environmental impacts associated with doming activities. However, for PAR 1178, an Environmental Assessment (EA) with less than significant impacts for all environmental topic areas was prepared which analyzed the potential environmental impacts from construction activities from installing domes on existing storage tanks. The Draft EA for PAR 1178 has been released for a 30-day public comment and review period from July 19, 2023 to August 18, 2023 and is available here: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2023/final-environmental-assessment-for-proposed-amended-rule-1178.pdf.

Comment 8-3
As mentioned in response to Comment 8-2, a Draft EA for PAR 1178 analyzed the environmental impacts associated with doming activities for all environmental topic areas, including the topic of aesthetics. The aesthetics analysis concluded less than significant impacts associated with doming relative to scenic vistas and resources, visual character and public views and surrounding, and light and glare (see pp. 2-6 to 2-10). The Draft EA for PAR 1178 is available here: http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2023/final-environmental-assessment-for-proposed-amended-rule-1178.pdf.

Comment 8-4
In conjunction with the staff report, the Draft Socioeconomic Impact Assessment (SIA) for PAR 1178 has been prepared pursuant to the requirements of California Health and Safety Code (H&SC) Sections 40440.8 and 40728.5 which require a socioeconomic impact assessment be performed for any proposed rule, rule amendment, or rule repeal which "will significantly affect air quality or emissions limitations." The scope of the Draft SIA includes a discussion of the type of affected industries, including small businesses; impact on employment and the regional economy; a range of probable costs, including those to industry; availability and cost-effectiveness of alternatives to the rule; emission reduction potential; and the necessity of adopting, amending, or repealing the rule in order to attain state and federal ambient air quality standards.

In conjunction with the staff report, the Draft SIA also satisfies the requirements of H&SC Section 40920.6, which requires incremental cost-effectiveness be performed for a proposed rule or amendment which imposes Best Available Retrofit Control Technology or “all feasible measures” requirements relating to ozone, CO, SOx, NOx, VOCs, and their precursors.

In relation to the potential impacts mentioned in the comment, the Draft SIA assesses the possibility of supply chain impacts to the petroleum refinery and petroleum bulk storage terminal industries based on historical evidence and includes an assessment of the potential tank downtime required for PAR 1178 compliance. The Draft SIA also assesses potential effects of PAR 1178 on gasoline prices in the region. The Draft SIA concludes that any potential impacts as listed above are expected to be minimal. For details, please refer to the Draft SIA for PAR 1178.

Comment 8-5

Costs considered for doming were based solely on costs provided by industry and based on actual and projected project costs, except for O&M costs. See response to Comment 1-1 regarding O&M costs. Facilities did not provide costs associated with actual O&M projects. See response to Comment 1-1 regarding O&M costs. Additionally, staff made conservative assumptions in the cost-effectiveness analysis including adding costs for fire suppressions systems for tanks located at facilities not required to use fire suppression systems and adding costs for cleaning and degassing for all tanks. Cleaning and degassing costs contribute to overall costs significantly. Facilities have stated that cleaning and degassing is conducted on a case-by-case basis and that all tanks will not require emptying prior to doming. Some facilities stated they would not empty their tanks prior doming and would idle the tanks while doming construction occurs. Staff has concluded that costs assumed for doming are conservative and that true cost of domed installation is less than or equal to what is assumed for the cost-effectiveness analysis.

Comment 8-6

Staff utilized costs from 2022-23 time period and is using the 2022 cost-effectiveness threshold. The threshold was not inflated for 2023.

9. Comment Letter from Earth Justice, et al., Received August 16, 2023

COMMUNITIES FOR A BETTER ENVIRONMENT established 1978 · EARTHJUSTICE · CCAT · East Yard Communities for Environmental Justice · COALITION FOR CLEAN AIR · CENTER for BIOLOGICAL DIVERSITY · CFASE

8/16/2023
SCAQMD Governing Boardmembers
By email

Re: Support Proposed Amended Rule 1178 with Strengthening to Reduce VOCs and Cancer-Causing Benzene

Dear Governing Boardmembers,

The undersigned Environmental Justice and Environmental organizations are writing to request your strong support for adoption with strengthening amendments of Proposed Amended Rule (PAR) 1178 (Storage Tanks at Petroleum Facilities), which is long overdue and sorely needed to reduce smog-forming volatile organic compounds (VOCs) and toxic emissions. The South Coast Air Basin is home to over a thousand storage tanks at petroleum facilities. Such tanks are a major source of VOC pollution. Moreover, direct measurements have shown that refinery storage tank VOCs are grossly underestimated in reporting to South Coast AQMD.

We applaud South Coast AQMD staff's work in proposing the following improvements under PAR 1178:

- **Adding domes to External Floating Roof crude oil tanks** (at right) to enclose emissions from: liquids coating open-air tank walls as the floating roof moves down (unloading), imperfect tank seals around the floating roof, and floating roof fittings. (Dome adds roof at top.)
- **Optical Gas Imaging (OGI)** using infrared cameras weekly, to detect leaks that are otherwise hard to predict, since *any* tank can leak to the air as they degrade over time.
- **Secondary seals and more stringent seal gap** requirements.
- **Increased vapor recovery system control efficiency of 98 percent** for fixed roof tanks.

VOC emission reductions are significant under PAR 1178 - estimated at almost 1 ton/day.[1] However, rule effectiveness is underestimated, since we know overall emissions are underestimated. Emissions estimation uses standard EPA TANKs factors, but a specialized study in the Basin found every oil refinery had greatly underestimated VOCs (6 times higher on average, even when part of the Torrance refinery was closed). Moreover, a Texas study found the same underestimation for storage tanks at oil refineries.[2] 9-1

There are still important weaknesses in PAR 1178 that need strengthening amendments: 9-2

[1] Staff Report, p. EX-1
[2] Published 11 April 2017, 2015, Emission Measurements of VOCs, NO2 and SO2 from the Refineries in the South Coast Air Basin Using Solar Occultation Flux and Other Optical Remote Sensing Methods, available S. Coast Fluxsense. p. 5, 94, 95. (See CBE decoder explaining this technical report.) Also see similar Texas Fluxsense study .

- **Exemptions to avoid doming should be removed.** PAR 1178 allows refineries to take a lower permit limit for vapor pressure in lieu of doming. This is difficult to enforce, and methods are inaccurate (e.g., vapor pressure is not measured frequently,[3] and other methods can introduce errors). 9-2
- **Timelines are far too long.** Most refiners are allowed until 2038 (15 years!) to dome crude oil tanks; one is allowed until 2041(18 years!). **Doming should be completed as expeditiously as possible but no later than 2035, unless refiners agree to decommission the tank.** 9-3
- **The original tanks rule adopted in 2001 had much more expeditious deadlines.** It required doming for many tanks, though it excepted crude oil tanks, and required completion by 2008 (with 1/3 domed within 3 years, 2/3rds in 5 years). **All doming was required to be completed within 7 years after adoption**.[4] The updated rule is excessively generous due to an arbitrary cost effectiveness threshold and inflated implementation costs. The District already allowed the crude oil tanks to escape doming that should have been required in the original 2001 regulation, and in the new draft, would continue polluting long into the future. 9-4

Staff should also commit to reworking the cost effectiveness threshold for VOCs (similar to what they did with Nitrogen Oxides). The outdated and very low-cost threshold has been an obstacle to emission reduction measures, undermining the agency's mission. This threshold will be a problem for other upcoming rulemakings, including updates to regulations 1173 and 1176. 9-5

In addition to PAR 1178 itself, it is crucial that the District commit to repeat the Fluxsense study ever few years, to ensure that the new rule amendments are effective. This study was the *only* one which unearthed the underestimation of emissions compared to the District's inventory. Staff have told us they may be able to make such a commitment outside the regulation itself. **Therefore, we propose including a resolution alongside Rule adoption, committing to a repeat of the Fluxsense study every 3-5 years.** 9-6

We are providing additional comments to South Coast AQMD staff. Thank you for your consideration to clean up long-standing toxic and smog-forming oil refinery emissions!

Sincerely,

Alicia Rivera and Julia May, Communities for a Better Environment (CBE)

Oscar Espino-Padron and Byron Chan, Earthjustice

Chris Chavez, Coalition for Clean Air (CCA)

Jan Victor Andasan, East Yard Communities for Environmental Justice (EYCEJ)

Liz Jones, Center for Biological Diversity (CBD)

Jane Williams, California Communities Against Toxics (CCAT)

Jesse Marquez, Coalition for a Safe Environment (CFASE)

cc. Michael Krause, Michael Morris, Melissa Gamoning, Rodolfo Chacon

[3] Staff agreed with our March 2023 letter regarding one error: *"Staff agrees that TVP of crude oil stored can vary between testing periods and will rely on compliance staff's ability to conduct random TVP testing in between testing conducted by the facility to prevent potential circumvention of the TVP allowance."* Staff Report p. A-25

[4] Original regulation, adopted 2001, (d)(2)(A)(i-iii)

2

Comment 9-1
Emission reductions were calculated using Tank ESP PRO that is based on emissions estimate procedures from Chapter 7 of U.S. EPA's Compilation of Air Pollutant Emission Factors for VOC emissions from storage tanks. This software uses the most current calculation methodologies for determining the effectiveness of certain tank controls. Staff understands that emerging technologies may, in the future, provide more accurate emissions estimates. However, at this time, staff has not determined a better method available that can accurately and efficiently estimate emission reductions associated with the installation of specific controls on individual sources.

Comment 9-2
Staff is proposing an option for facilities to limit the TVP of crude oil stored that will result in approximately the same emission reductions that would result from doming. Facilities would be prohibited from storing crude oil TVP greater than 3 psia which is verified on a semi-annual basis. Additionally, the emission reductions from any facilities with tanks that will be permitted to limit the TVP of crude oil stored will be achieved much sooner, within one year from date of adoption, than the emission reductions from doming.

Comment 9-3
The doming implementation schedule is based on the cost-effectiveness threshold for VOC established in the 2022 Final AQMP. The alternative implementation schedule is proposed to allow adequate for certain facilities with several crude oil tanks subject to doming to complete doming projects without impacting the fuels market. Emptying and cleaning a tank is expensive and facilities periodically empty and clean tanks for inspections. The doming schedule aligns with the periodic inspection schedules and that allowed rules staff to remove cleaning and degassing costs from its cost-effectiveness analysis. With the removal of cleaning and degassing costs, staff was able to propose doming for all crude tanks consistent with the cost-effectiveness threshold guidelines set forth in the 2022 Final AQMP for rule development.

Comment 9-4
The tanks proposed to be domed in the 2001 adoption of Rule 1178 were not crude oil tanks. There are different implications associated with doming crude oil tanks. Crude oil tanks are much larger than the tanks subject to doming as part of the 2001 Rule 1178 adoption and potentially require a more extensive cleaning and degassing process compared to tanks storing other material. Additionally, facilities do not have the same flexibility to store crude oil in other tanks at the facility while some crude oil tanks undergo doming construction. Because of this, multiple crude oil tanks may need to be removed from service at a time to meet an expedited compliance schedule. Having multiple crude oil tanks removed from service may result in impacts to the fuels market. Staff has determined that, due to the complexity of removing crude oil tanks from service and the potential market impacts, the proposed implementation schedule is feasible and cost-effective for facilities while not providing unnecessary additional time to dome.

Comment 9-5
Staff works within the guidelines established by the Governing Board and performs a cost-effectiveness analysis to evaluate and compare proposed control measures during the rulemaking process. Committing to reworking the cost-effectiveness threshold for VOCs is outside the rulemaking scope of PAR 1178.

Comment 9-6
The Fluxsense study provided a snapshot of a moment in time where emissions from sources were quantified. Staff believes that the inclusion of monitoring using OGI technology into PAR 1178 provides a more frequent inspection tool that will assist operators and owners of regulated tanks to identify leaks and thus reduce overall emissions more quickly and efficiently. Committing to conducting a Fluxsense study every 3 – 5 years, as suggested by the commentor, is outside the rulemaking scope of PAR 1178.

ATTACHMENT H

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Environmental Assessment for Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities

August 2023

South Coast AQMD Number: 07192023KN
State Clearinghouse Number: 2023070354

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EXECUTIVE OFFICER:

WAYNE NASTRI

PREFACE

This document constitutes the Final Environmental Assessment (EA) for Proposed Amended Rule (PAR) 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities. The Draft EA was circulated for a 30-day public review and comment period from July 19, 2023 to August 18, 2023, and four comment letters were received during the comment period. The comments and responses relative to the Draft EA are included in Appendix D of this Final EA.

Subsequent to the release of the Draft EA for public review and comment, the following modifications were made to the proposed project: 1) edits were made to the rule language for clarity and rule reference accuracy; and 2) three facilities were added to the total number of facilities that will be subject to PAR 1178. Of the three additional facilities, two facilities would require the installation of additional seals on 16 of their existing internal floating roof tanks. The third facility has five existing storage tanks which are not subject to PAR 1178 because the total VOC emissions at the facility currently do not exceed 20 tons per year. However, this facility has previously approved permits to construct six new storage tanks (which are designed to be built with domes) and once construction is completed, the total VOC emissions are expected to exceed 20 tons per year which would mean that domes will need to be installed on the five existing storage tanks. As such, the CEQA analysis was updated accordingly.

For the topics of air quality and transportation, the original analysis in the Draft EA was conservative with multiple facilities potentially undergoing concurrent construction activities on the same day even though the extended implementation timeframes allowed by PAR 1178 would make such an overlap unlikely. For this reason, the conclusion of less than significant peak daily construction impacts to air quality and transportation did not change as a result of the modifications made to the PAR 1178 after the Draft EA was circulated for public review and comment. Modifications were also made to the total greenhouse gas (GHG) emission calculations, which are quantified on an annual basis, and energy impacts, both of which resulted in slightly increased, but less than significant impacts. For this reason, the conclusion of less than significant GHG and energy impacts also did not change as a result of the modifications made to the PAR 1178 after the Draft EA was circulated for public review and comment. Lastly, revisions to the proposed project in response to verbal or written comments during the rule development process were not found to create new, avoidable significant effects. To facilitate identification of the changes between the Draft EA and the Final EA, modifications to the document are included as <u>underlined text</u> and text removed from the document is indicated by ~~strikethrough text~~. To avoid confusion, minor formatting changes are not shown in underline or strikethrough mode.

South Coast AQMD staff has evaluated the modifications made to PAR 1178 after the release of the Draft EA for public review and comment and concluded that none of the revisions constitute significant new information, because: 1) no new significant environmental impacts would result from the proposed project; 2) there is no substantial increase in the severity of an environmental impact; 3) no other feasible project alternative or mitigation measure was identified that would clearly lessen the environmental impacts of the project and was considerably different from others previously analyzed, and 4) the Draft EA did not deprive the public from meaningful review and comment. In addition, revisions to PAR 1178 and the analysis in response to verbal or written comments during the rule development process would not create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft EA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft EA has been revised to include the aforementioned modifications such that it is now the Final EA.

TABLE OF CONTENTS

Page No.

Page No.

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

PROJECT DESCRIPTION

INTRODUCTION

The California Legislature created the South Coast Air Quality Management District (South Coast AQMD) in 1977[1] as the agency responsible for developing and enforcing emission control rules and regulations in the South Coast Air Basin (Basin) and portions of the Salton Sea Air Basin and Mojave Desert Air Basin. By statute, the South Coast AQMD is required to adopt an air quality management plan (AQMP) demonstrating compliance with all federal and state ambient air quality standards for the areas under the jurisdiction of the South Coast AQMD.[2] Furthermore, the South Coast AQMD must adopt rules and regulations that carry out the AQMP.[3] The AQMP is a regional blueprint for how the South Coast AQMD will achieve air quality standards and healthful air; it contains multiple goals promoting reductions of criteria air pollutants including volatile organic compounds (VOC). The 2022 AQMP included Control Measure FUG-01 – Improved Leak Detection and Repair (LDAR), which explores the potential for newer leak detection technologies to improve current LDAR requirements thereby reducing VOC emissions from fugitive leaks from process and storage equipment at a variety of sources including, but not limited to, oil and gas production, petroleum refining, storage and transfer, etc.[4] Previously, the 2016 AQMP included Control Measure FUG-01 to utilize advanced remote sensing technologies to allow for faster identification and repair of leaks, and the 2012 AQMP included Control Measure FUG-03 – Further Reductions of Fugitive VOC Emissions, which identified the implementation of advanced leak detection technologies, including optical gas imaging (OGI), as a method to reduce the emissions impact from leaks.

In accordance with Assembly Bill (AB) 617, which was signed into state law in 2017, and the California Air Resources Board's (CARB) Community Air Protection Program which implements AB 617, the South Coast AQMD is required to take specific actions to reduce air pollution and toxic air contaminants from commercial and industrial sources to address the disproportionate impacts of air pollution in environmental justice communities. The Wilmington, Carson, and West Long Beach (WCWLB) community, which is qualified as a high priority area, identified in its Community Emission Reduction Plan (CERP) adopted on September 6, 2019, emissions from refineries as an air quality concern. In particular, Chapter 5b, Action 4 in the WCWLB CERP recommended initiating rule development to amend Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities. Recommendations for proposed amendments to consider included improving current LDAR requirements by incorporating advanced leak detection technologies and requiring additional controls.

Since its adoption on December 21, 2001, Rule 1178 has been applicable to any aboveground storage tank that meets the following criteria: is located at a petroleum facility that has emitted more than 20 tons of VOC in any reporting year starting with emission inventory year 2000; and 1) has a capacity equal to or greater than 75,000 liters (19,815 gallons), or 2) is used to store organic liquids with a true vapor pressure (TVP) greater than 0.1 pound per square inch absolute (psia). Potential methods for reducing VOC emissions from aboveground storage tanks subject to Rule 1178 have included converting roofs, installing emission control systems, covering roof openings, and installing best available rim seal systems.

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

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

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

[4] South Coast AQMD, Final 2022 Air Quality Management Plan, December 2022. http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan

As directed in the 2022 AQMP and WCWLB CERP, Proposed Amended Rule 1178 (PAR 1178) establishes more stringent leak detection and repair and control requirements, such as weekly optical gas inspections, and additional control requirements for installing domes (referred to as doming) and secondary seals. PAR 1178 applies to 1,093 ~~1,059~~ tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. The proposed amendments will reduce VOC emissions from these sources by 0.82 ton per day and partially implement Control Measure FUG-01 of the 2022 AQMP.

Implementation of PAR 1178 is expected to result in less than significant increases of criteria air pollutants in the short-term due to construction impacts, and overall long-term decrease in VOC emissions through minimizing fugitive losses from storage tanks at petroleum facilities.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) is comprised of Public Resources Code Section 21000 *et seq.* and CEQA Guidelines which are codified at Title 14 California Code of Regulations, Section 15000 *et seq.* CEQA requires all potential adverse environmental impacts of proposed projects be evaluated and methods to reduce or avoid identified significant adverse environmental impacts of these projects be implemented, if feasible. [Public Resources Code Section 21061.1 and CEQA Guidelines Section 15364]. The purpose of the CEQA process is to inform decision makers, public agencies, and interested parties of potential adverse environmental impacts that could result from implementing a proposed project and to identify feasible mitigation measures or alternatives, when an impact is significant.

Public Resources Code Section 21080.5 allows public agencies with regulatory programs certified by the Secretary of the Resources agency to prepare a plan or other written documents in lieu of a Negative Declaration or Environmental Impact Report (EIR). The South Coast AQMD's regulatory program was certified on March 1, 1989. [CEQA Guidelines Section 15251(l)]. In addition, the South Coast AQMD adopted Rule 110 – Rule Adoption Procedures to Assure Protection and Enhancement of the Environment, which implements the South Coast AQMD's certified regulatory program. Under the certified regulatory program, the South Coast AQMD typically prepares an Environmental Assessment (EA) to evaluate the environmental impacts for rule projects proposed for adoption or amendment.

The proposed amendments to Rule 1178 are a discretionary action subject to South Coast AQMD Governing Board consideration that has the potential for resulting in changes to the environment, and therefore, is considered a "project" as defined by CEQA. [CEQA Guidelines Section 15378]. The lead agency is the "public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect upon the environment." [Public Resources Code Section 21067]. Since the South Coast AQMD Governing Board has the primary responsibility for approving and carrying out the entire project as a whole, the South Coast AQMD is the most appropriate public agency to act as CEQA lead agency for the proposed project. [CEQA Guidelines Section 15051(b)].

The proposed project would further reduce VOC emissions from storage tanks through establishing weekly optical gas inspections and additional control requirements for doming, emission control systems, and secondary seals. However, South Coast AQMD's review of the proposed project also shows that the activities that facility operators may undertake to comply with PAR 1178 may also create secondary adverse environmental impacts that would not result in significant impacts for any environmental topic area. Thus, the analysis of PAR 1178 indicates

that the type of CEQA document appropriate for the proposed project is an EA with no significant impacts. The EA is a substitute CEQA document, which the South Coast AQMD, as lead agency for the proposed project, prepared in lieu of a Negative Declaration with no significant impacts [CEQA Guidelines Section 15252], pursuant to the South Coast AQMD's Certified Regulatory Program [Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l); South Coast AQMD Rule 110].

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

The Draft EA ~~is being~~was released for a 30-day public review and comment period from July 19, 2023 to August 18, 2023. ~~Any~~ Four comment letters on the analysis presented in this Draft EA were received during the public comment period; the comment letters and the responses are~~will be responded to and~~ included in ~~an a~~Appendix D of the Final EA.

Subsequent to the release of the Draft EA for public review and comment, the following modifications were made to the proposed project: 1) edits were made to the rule language for clarity and rule reference accuracy; and 2) three facilities were added to the total number of facilities that will be subject to PAR 1178. Of the three additional facilities, two facilities would require the installation of additional seals on 16 of their existing internal floating roof tanks. The third facility has five existing storage tanks which are not subject to PAR 1178 because the total VOC emissions at the facility currently do not exceed 20 tons per year. However, this facility has previously approved permits to construct six new storage tanks (which are designed to be built with domes) and once construction is completed, the total VOC emissions are expected to exceed 20 tons per year which would mean that domes will need to be installed on the five existing storage tanks. As such, the CEQA analysis was updated accordingly.

For the topics of air quality and transportation, the original analysis in the Draft EA was conservative with multiple facilities potentially undergoing concurrent construction activities on the same day even though the extended implementation timeframes allowed by PAR 1178 would make such an overlap unlikely. For this reason, the conclusion of less than significant peak daily construction impacts to air quality and transportation did not change as a result of the modifications made to the PAR 1178 after the Draft EA was circulated for public review and comment. Modifications were also made to the total greenhouse gas (GHG) emission calculations, which are quantified on an annual basis, and energy impacts, both of which resulted in slightly increased, but less than significant impacts. For this reason, the conclusion of less than significant GHG and energy impacts also did not change as a result of the modifications made to the PAR 1178 after the Draft EA was circulated for public review and comment. Lastly, revisions to the proposed project in response to verbal or written comments during the rule development process were not found to create new, avoidable significant effects. As a result, these revisions do not require recirculation of the Draft EA pursuant to CEQA Guidelines Sections 15073.5 and 15088.5. Therefore, the Draft EA has been revised to include the aforementioned modifications such that is now the Final EA for the proposed project.

Prior to making a decision on the adoption of the proposed project, the South Coast AQMD Governing Board must review and certify the Final EA, including responses to comments, as providing adequate information on the potential adverse environmental impacts that may occur as a result of amending Rule 1178.

PROJECT LOCATION

The proposed project applies to owners or operators of storage tanks used to store organic liquid located at any petroleum facility that emits more than 20 tons per year of VOC in any reporting year starting with emission inventory year 2000: 1) aboveground storage tanks with capacity equal to or greater than 75,000 liters (19,815 gallons) storing organic liquid with a true vapor pressure (TVP) greater than 0.1 psia under actual storage conditions; and 2) storage tanks with a potential for VOC emissions of six tons per year used in crude oil and natural gas production operations. PAR 1178 applies to 1,093 ~~1,059~~ tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. The majority of affected facilities are located within Los Angeles County near the ports while a few are located in San Bernardino county.

South Coast AQMD's jurisdiction covers an area of approximately 10,743 square miles and includes the four-county Basin (all of Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portion of the Salton Sea Air Basin and the non-Palo Verde, Riverside County portion of the Mojave Desert Air Basin. The Basin is a subarea of South Coast AQMD's jurisdiction; it 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 Riverside County portion of the Salton Sea Air Basin, which is a federal nonattainment area known as the Coachella Valley Planning Area, is bounded by the San Jacinto Mountains to the west and spans the eastern boundary of the Coachella Valley up to the Palo Verde Valley (see Figure 1-1).

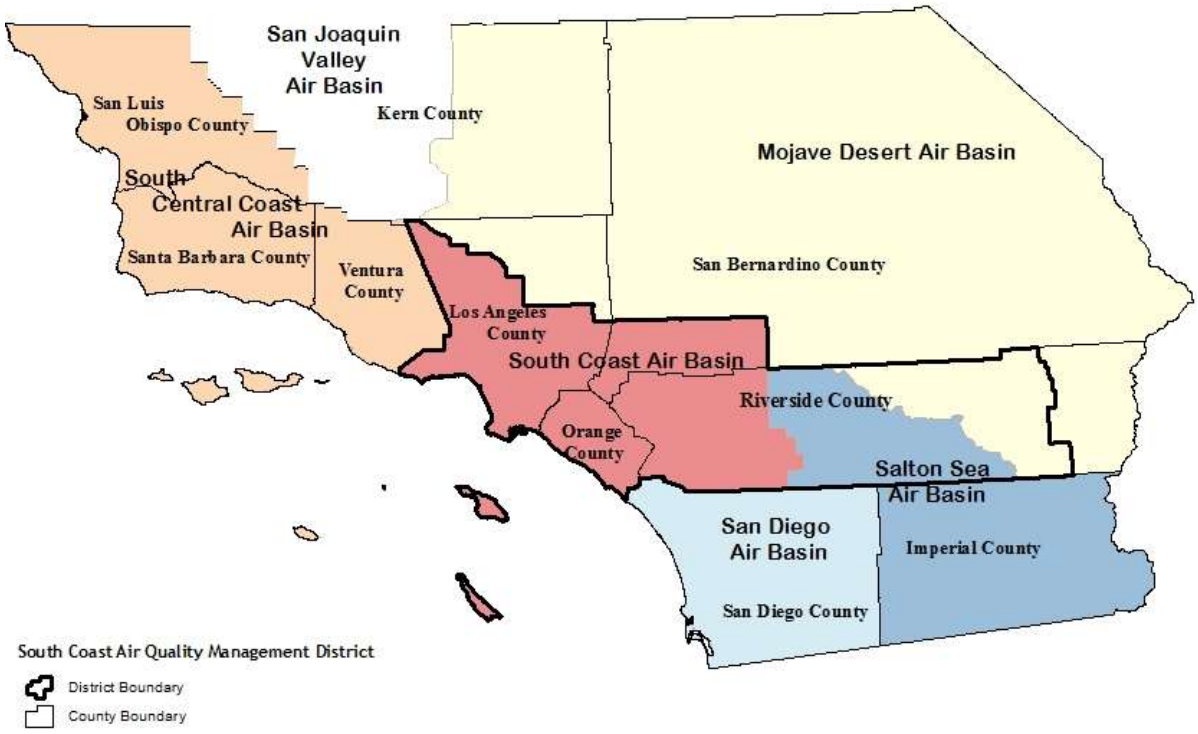

Figure 1-1
Southern California Air Basins and South Coast AQMD's Jurisdiction

PROJECT BACKGROUND

Since its adoption on December 1, 2001, Rule 1178 has applied to aboveground storage tanks that have a capacity equal or greater than 75,000 liters (19,815 gallons) used to store organic liquids with a TVP greater than 0.1 psia, located at petroleum facilities that have emitted more than 20 tons of VOC in any reporting year starting with emission inventory year 2000. Potential methods for reducing VOC emissions from aboveground storage tanks subject to Rule 1178 have included converting roofs, increasing the efficiency of emission control systems, covering roof openings, and installing best available rim seal systems.

Rule 1178 was amended several times over the years. Table 1-1 presents a summary of the previous key changes made to Rule 1178 by amendment year:

Table 1-1
History of Amendments to Rule 1178

Rule 1178 Amendment Date	Key Changes to Rule 1178
April 7, 2006	• Allowed an alternative for drain covers; • Included a modified seal requirement; • Updated the inspection form; and • Clarified the compliance schedule
April 6, 2018	• Specified requirements for flexible enclosure systems; • Required repairs or replacements to be conducted within 72 hours of an identified leak; and • Clarified report submissions
November 6, 2020	• Allowed certain operators to accept a permit condition limiting vapor pressure on the material stored in lieu of installing a domed roof
May 5, 2023	• Expanded rule applicability to include storage tanks subject to the United States Environmental Protection Agency's (U.S. EPA's) 2016 Control Techniques Guidelines (2016 CTG) for the Oil and Gas Industry

In accordance with AB 617, which was signed into state law in 2017, and the CARB Community Air Protection Program which implements AB 617, the South Coast AQMD is required to take specific actions to reduce air pollution and toxic air contaminants from commercial and industrial sources to address the disproportionate impacts of air pollution in environmental justice communities, such as Wilmington, Carson, and West Long Beach. The WCWLB CERP, adopted on September 6, 2019 by this community, identified emissions from refineries as an air quality concern, and Chapter 5b, Action 4 in the CERP specifically seeks to have South Coast AQMD initiate rule development to amend Rule 1178. Recommendations for potential amendments included improving current leak detection and repair requirements by incorporating advanced leak detection technologies and requiring additional controls. Also, both the 2016 AQMP and 2022 AQMP included Control Measure FUG-01 – Improved Leak Detection and Repair (LDAR) which was specifically designed to utilize advanced remote sensing technologies to allow for the faster identification and repair of leaks from equipment at oil and gas and other facilities that are currently required to maintain a LDAR program.

In response, staff initiated rule development to amend Rule 1178; however, it was first necessary to perform a limited amendment on November 6, 2020 in response to an affected facility's request for relief from the requirement of installing a domed roof because doing so could result in a safety hazard. The amendment allowed certain operators to accept a permit condition limiting vapor pressure on the material stored in lieu of installing a domed roof.

In 2016, U.S. EPA released the 2016 CTG for the Oil and Gas Industry. Nonattainment areas classified as "Moderate" or worse, such as South Coast AQMD, are required to implement Reasonably Available Control Technology (RACT) for VOC sources covered by the CTG. Storage tanks covered by the 2016 CTG include those with the potential for VOC emissions of six tons per year or more, and are located at oil and natural gas facilities (excluding distribution); the RACT recommendation for such storage tanks is 95% emission control. While Rule 1178 contained requirements for 95% emission control or greater, the rule did not apply to storage tanks based on the quantity of their potential VOC emissions. Rather, Rule 1178 was applicable to storage tanks based on the capacity and the TVP of the material stored. Because the U.S. EPA stated that it was unclear whether all tanks subject to the 2016 CTG were covered by the applicability requirements, Rule 1178 was amended on May 5, 2023 to ensure the applicability would use direct terms to include storage tanks subject to the U.S. EPA's 2016 CTG for the Oil and Gas Industry.

PAR 1178 is now being amended to implement the 2022 AQMP Control Measure FUG-01 and the goals of the WCWLB CERP.

TECHNOLOGY OVERVIEW

The following discussion provides a general overview of the control technologies and enhanced leak detection technologies associated with aboveground storage tank emissions.

Control Technologies

Domes

Domes are covers that can be installed onto external floating roof tanks, typically of a geodesic dome shape and made of lightweight material such as aluminum. Domes have the effect of preventing wind movement over the external floating roof as wind can cause vapors from inside the tanks to escape through the floating roof seals. By installing domes onto external floating roof tanks storing crude oil, standing losses may be reduced by 70% to 75%.[5] Staff identified ~~54~~ external floating roof tanks that are used for storing crude oil, ranging from 90 feet to 260 feet in diameter, which could be domed.

Alternative to Doming

Staff analyzed alternative options to doming and determined that by limiting the TVP of crude oil stored, equivalent VOC emission reductions may be achieved. Based on emissions calculations using TankESP PRO software, staff found that limiting Reid Vapor Pressure (RVP) of crude oil to approximately 3.7 psia results in equivalent VOC emission reductions to doming. RVP is the vapor pressure of the organic liquid at 100 degrees Fahrenheit as determined by ASTM Method D-323, whereas TVP is the vapor pressure of the organic liquid at actual storage temperature. The average TVP of crude oil in the storage tanks that results in equivalent emission reductions to doming is 2.2 psia (approximately RVP 3.7 psia). Staff is proposing to maintain the requirement for doming on external floating roof tanks used to store organic liquid with TVP of 3 psia or greater and remove the exemption for crude oil tanks. In lieu of installing a dome on these eligible tanks, some facilities may elect to take a permit condition limiting the storage of only crude oil with a TVP less than 3 psia.

[5] Based on results from TankESP PRO for doming external floating roofs of different diameters storing crude oil with RVP 6-9 at 80 deg. F in Los Angeles, with deck fittings currently required by Rule 1178.

Emission Control Systems (Vapor Recovery)
Vapor recovery systems collect VOC vapors and either destroy the VOC by combustion or remove VOC from gas streams with adsorption. These systems are currently used for emissions control on sources at petroleum facilities such as fixed roof tanks and truck loading racks. The most common type of vapor recovery system used on fixed roof tanks are combustion systems that have associated NOx emissions. Adsorption with carbon canisters does not emit NOx emissions, but has higher capital costs and is less desirable for tanks.

Seals
Primary and secondary seals are used on floating roof tanks to block the annular space between the floating roof and the tank shell, thus preventing the emission of VOC vapors. Gaps between floating roof seals and tank shells are allowed by Rule 1178 and other tank agencies' tank rules; however, more stringent gap requirements are contained in San Joaquin Valley Air Pollution Control District and U.S. EPA rules. Rule 1178 also does not require both a primary seal and secondary seal on all tanks. An assessment was conducted to determine the feasibility to require more stringent gap requirements and secondary seals on all tanks, and staff concluded that ~~eight~~ 24 internal floating roof tanks used to store organic liquid with a true vapor pressure of greater than 0.1 psia were not equipped with secondary seals and would benefit from their installation.

Leak Detection Technologies

Optical Gas Imaging (OGI)
An optical gas imaging camera uses infrared technology to visualize vapors and has different detectors capable of visualizing a variety of gas wavelengths. VOC wavelengths range between 3.2 and 3.4 micrometers. OGI cameras with the ability to detect or visualize in this range of wavelength contain a cryocooler that is integrated into the sensor which increases the sensitivity of the camera and the ability to detect smaller leaks. OGI cameras are widely used a screening tool for leak detection purposes.

OGI cameras are accepted as a viable leak detection technology Handheld OGI cameras are used widely by leak detection service providers as well as facilities. Figures 1-2 and 1-3 show images captured with an OGI device by South Coast AQMD compliance and enforcement staff.

Staff proposes weekly OGI inspections for all tanks subject to Rule 1178 and additional semi-annual inspections for floating roof tanks. Semi-annual inspections will only be required for floating roof tanks since fixed roof tanks are already subject to quarterly U.S. EPA Method 21 inspections.

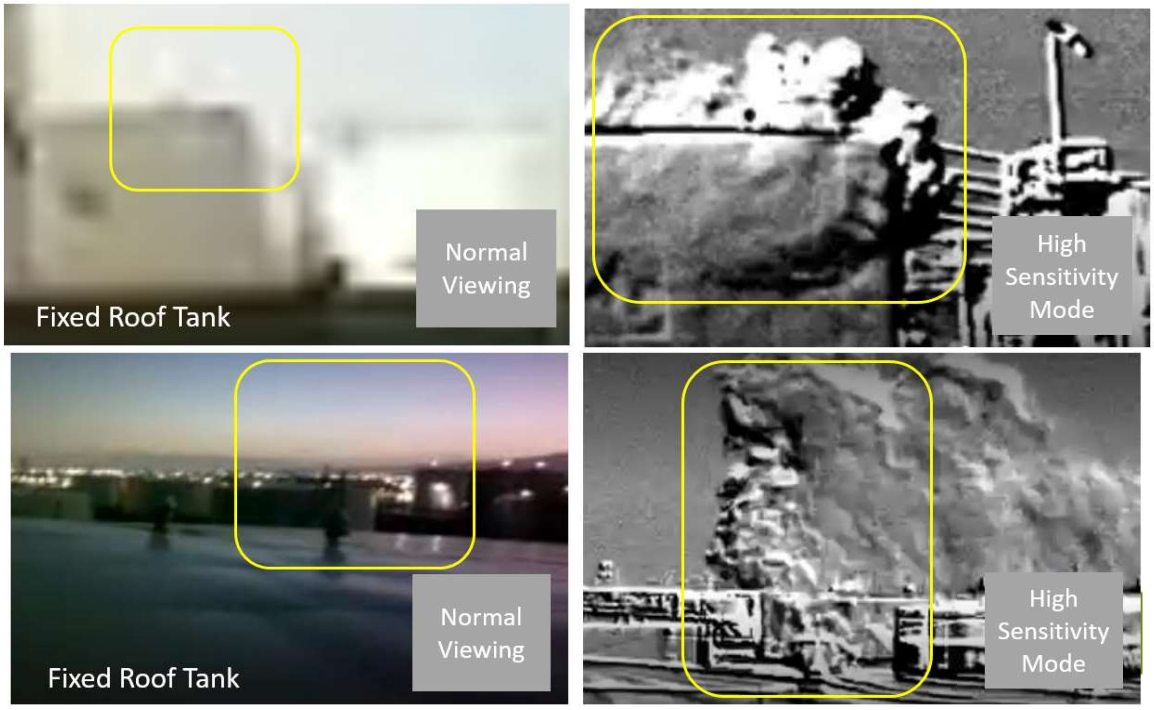

Figure 1-2
Fixed Roof Tank Viewing with an OGI Device

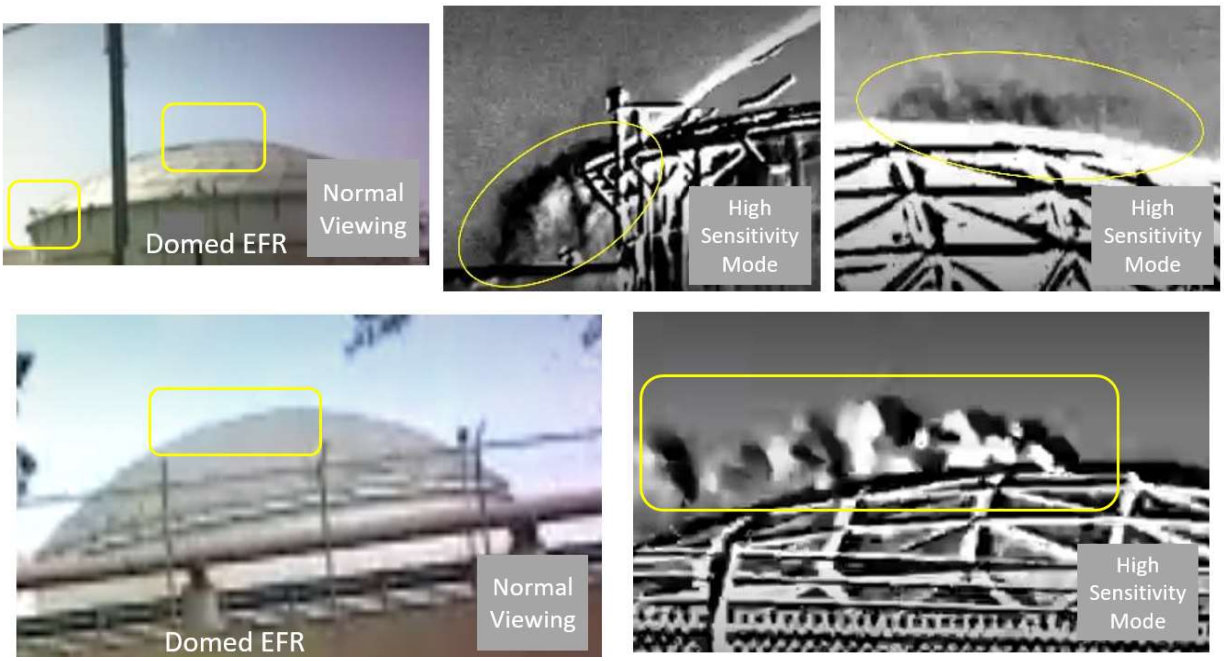

Figure 1-3
Domed External Floating Roof Tank Viewing with an OGI Device

PROJECT DESCRIPTION

Proposed Amended Rule (PAR) 1178 establishes more stringent leak detection and repair and control requirements for storage tanks located at petroleum facilities that have emitted more than 20 tons of VOC in any reporting year since the rule's adoption in 2001. PAR 1178 establishes requirements for: 1) conducting inspections, including but not limited to weekly optical gas inspections; 2) installing domes and secondary seals; 3) increasing the efficiency of emission control systems; and 4) conducting maintenance, recordkeeping, and reporting activities. PAR 1178 applies to storage tanks located at 30~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day.

The following is a detailed summary of the key elements contained in PAR 1178. Appendix A of this EA contains draft rule language; actual text from PAR 1178 is italicized while the explanation and clarification of each provision is in a non-italicized font.

Proposed Amended Rule 1178

PAR 1178 will contain the following subdivisions:

a) Purpose
b) Applicability
c) Definitions
d) Requirements
e) Identification Requirements
f) Inspection and Monitoring Requirements
g) Maintenance Requirements
h) Record Keeping and Reporting Requirements
i) Test Methods and Procedures
j) Exemptions

Subdivision (a) – Purpose

The purpose of this rule is to reduce VOC emissions from storage tanks containing organic liquid located at large petroleum facilities.

Subdivision (b) – Applicability

Applicability will be revised to clarify that determination of the 20 tons per year of VOC emissions threshold is based on Annual Emission Reports.

Subdivision (c) – Definitions

Definitions were added for clarity for new requirements and are referenced and discussed below.

- *COMPONENT INSPECTION is monitoring for Visible Vapors with an Optical Gas Imaging Device of a Storage Tank roof and individual components, including but not limited to Roof Openings and Rim Seal Systems, viewable from the tank platform and ground.*
  This is a new definition added to specify the requirements for this type of inspection.

- *EMISSION INVENTORY YEAR is the annual emission-reporting period specified by the Annual Emission Reporting Program requirements for a given year.*

This definition was modified to reflect the change in required reporting periods specified by the Annual Emission Reporting Program for different years.

- *OPTICAL GAS IMAGING DEVICE is an infrared camera with a detector capable of visualizing gases in the 3.2-3.4 micrometer waveband.*
  This is a new definition to specify the capability of the OGI camera allowed to be used for required OGI inspections.

- *TANK FARM INSPECTION is monitoring for Visible Vapors with an Optical Gas Imaging Device of all applicable Storage Tanks at a Facility where the person conducting the inspection views the top of the tank shell, and fixed roof or dome, if applicable. Tank Farm Inspections may be conducted at an elevated position and/or at ground level.*
  This is a new definition added to specify the requirements for this type of inspection.

- *VISIBLE VAPORS is any vapors detected with an Optical Gas Imaging Device during a Component or Tank Farm Inspection, when operated and maintained in accordance with manufacturer training, certification, user manuals, specifications, and recommendations.*
  This is a new definition to clarify rule requirements for storage tanks that must be maintained in a condition that is free of Visible Vapors.

Subdivision (d) – Requirements
PAR 1178 includes revisions to existing and new requirements as described in this the following discussion. PAR 1178 establishes requirements for secondary seal gaps, emission control systems efficiencies, doming, testing, implementation, and monitoring. Requirements with implementation dates that that have already been met have been removed for clarity and simplicity.

Secondary Seal Gap Requirements – Clause (d)(1)(C)(iii)
Gap requirements for secondary seals have been revised to reflect the stringency of gap requirements at other air districts as well as the stringency of gap requirements contained in U.S. EPA's 40 CFR 60 Subpart Kb. The lengths of gaps greater than 0.5 inch wide cannot, when totaled together, exceed 10% of the length of the circumference. The length of gaps greater than 1/8 inch wide cannot, when totaled together, exceed 30% of the length of the circumference.

External Floating Roof Tank Condition – Subparagraph (d)(1)(D)
External floating roofs tanks must be kept in a condition free of Visible Vapors resulting from a defect or malfunction of equipment and is determined by an optical gas imaging inspection conducted pursuant to the requirements of paragraph (f)(4).

Doming External Floating Roof Tanks – Subparagraph (d)(1)(E)
Facilities are required to install a dome on any External Floating Roof Tank storing Organic Liquid with a true vapor pressure of 3 psia or greater unless permitted to contain 97% by volume crude oil. All external floating roof tanks permitted to contain 97% by volume crude oil are required to have a dome installed unless a permit application is submitted to limit the true vapor pressure of the crude oil to less than 3 psia within one year from date of adoption. An external floating roof tank permitted to contain 97% by volume crude oil for which a permit application has not been submitted to limit the true vapor pressure to less than 3 psia within one year from date of adoption is subject to the doming schedule of paragraph (d)(5).

True Vapor Pressure Measurements – Subparagraph (d)(1)(F)
Facilities are required to measure and record the true vapor pressure of the organic liquid inside all external floating roof tanks not equipped with a dome on a semi-annual (once every six months) basis to verify the true vapor pressure is less than 3 psia.

Internal/Domed External Floating/Fixed Roof Tank Condition Requirements – Subparagraphs (d)(2)(C), (d)(3)(F), and (d)(4)(C)
Internal floating roof, domed external floating roof, and fixed roof tanks are required to comply with the requirements of subparagraph (d)(1)(D) that specify the condition in which tanks must be maintained.

Emission Control Systems for Fixed Roof Tanks – Clause (d)(4)(A)(i)
Emission control systems required on fixed roof tanks must achieve 98% control efficiency by weight. Based on a review of the available source test reports for emission control systems currently installed on fixed roof tanks, staff found that all met the 98% control efficiency that is proposed. Therefore, staff expects no physical modification to the equipment would be required. However, the permits should be updated to reflect the proposed 98% control efficiency.

Compliance Schedules – Paragraph (d)(5)
This paragraph contains compliance schedules detailing when requirements of the rule apply for facilities currently subject to the rule, facilities that may later become subject to the rule, equipment that becomes subject to specific rule requirements on date of rule adoption, and equipment that may later become subject to specific requirements.

Tank Requirements – Subparagraph (d)(5)(A)
This subparagraph contains existing compliance timelines for tanks to meet the requirements of Rule 1178 if the facility they are located at becomes subject to Rule 1178 after date of rule adoption.

Doming Requirements – Subparagraph (d)(5)(B)
Any facility or facilities under common ownership with external floating roof tanks permitted to contain 97% crude oil by volume that become subject to doming upon date of adoption are required to dome one-third of their applicable tanks by December 31, 2031, half of their applicable tanks by December 31, 2033 and all of their applicable tanks by December 31, 2038.

Crude Oil External Floating Roof Tanks Later Subject to Doming – Subparagraph (d)(5)(C)
Any external floating roof tank that is permitted to contain more than 97% by volume crude oil with a True Vapor Pressure of less than 3 psia, which becomes subject to doming requirements after the date of rule adoption due to exceeding the true vapor pressure limitation of 3 psia or greater, must install a dome within 3 years of that exceedance and becoming subject to the doming requirement.

Internal Floating Roof Tank Requirements – Subparagraph (d)(5)(D)
Any internal floating roof tanks not equipped with a secondary seal are required to have a secondary seal installed the next time the tank is emptied and degassed starting two years after date of adoption. All internal floating roof tanks must have a secondary seal installed no later than 10 years after date of adoption.

Subdivision (f) – Inspection and Monitoring Requirements

Optical Gas Imaging (OGI) Inspections – Paragraph (f)(4)

Optical gas imaging inspections are required to determine compliance with the requirement for tanks to be maintained in a condition that is free of Visible Vapors resulting from a defect or malfunction of control equipment. This paragraph contains the requirements for OGI inspections.

Certification/Training of Person Conducting OGI Inspection – Subparagraph (f)(4)(A)

Persons conducting the OGI inspection must be manufacturer-certified or have undergone manufacturer's training for the camera used, including all subsequent certification or training recommended by the OGI manufacturer. The OGI camera must be operated and maintained in accordance with all manufacturer guidance including but not limited to that stated in any training or certification course, user manuals, specifications, and recommendations.

Tank Farm Inspection Requirements – Subparagraph (f)(4)(B)

This subparagraph contains requirements for Tank Farm Inspections.

Frequency (Tank Farm Inspection) – Clause (f)(4)(B)(i)

Inspections must be conducted at least once every calendar week.

Procedure (Tank Farm Inspection) – Clause (f)(4)(B)(ii)

An inspector is required to monitor for Visible Vapors with a Tank Farm Inspection. If Visible Vapors are detected during a Tank Farm Inspection, an inspector must conduct an additional inspection from the tank's platform to determine the source of emissions. From the platform, an inspector will use an OGI device to inspect components required to be maintained vapor tight or with no visible gaps viewable from the tank platform. If Visible Vapors are detected from any components that are required to be maintained in a Vapor Tight Condition or in a condition with no Visible Gaps, the facility must demonstrate compliance with rule requirements for any component in which Visible Vapors are emitted or make a repair, within 3 days of identifying the Visible Vapors. If Visible Vapors are detected from the roof or other components, the inspector must identify any defects in components or equipment from which Visible Vapors are detected with a visual inspection which may include the use of an OGI device. If no defects are identified, no further action is required for the inspection. If a defect is identified, a repair must be made within 3 days.

Alternative Option (Tank Farm Inspection) – Clause (f)(4)(B)(iii)

If an inspector performs an inspection required by Clause (f)(4)(B)(ii) on tank and determines that no demonstrations and repairs are required, the inspector has the option to record the Visible Vapors from that tank to use as a baseline to determine an increase in emissions in subsequent weekly Tank Farm Inspection for that tank. If Visible Vapors are detected from that tank during the following Tank Farm Inspections but do not indicate an increase in emissions compared to the baseline emissions, the inspector does not need to perform an inspection required by Clause (f)(4)(B)(ii); however, this applies only for the weekly inspections in the same calendar month that the baseline emissions were determined.

Component Inspections – Subparagraph (f)(4)(C)

This subparagraph contains requirements for Component Inspections. Component inspections include monitoring of individual components including, but not limited to rim seals, pressure-vacuum vents, hatches, guidepoles, roof legs, emission control system connections, and vents.

Frequency (Component Inspection) – Clause (f)(4)(C)(i)
Inspections must be conducted at least once every six months for floating roof tanks and may be conducted during other required semi-annual inspections.

Procedure (Component Inspection) – Clauses (f)(4)(C)(ii)-(iii)
Repairs or demonstration with applicable rule requirements must be conducted when Visible Vapors are detected from any component or equipment, except for rim seal systems. Repairs or demonstrations with rim seal requirements must be conducted when Visible Vapors are emitted from the rim seal and are also detectable at the top of the tank shell or from roof vents.

Subdivision (g) – Maintenance Requirements
This subdivision contains maintenance requirements for tanks that do not meet the requirements of the rule.

Repairs Schedules – Paragraph (g)(2)
Repairs or adjustments must be made within three days of identifying Visible Vapors requiring a repair determined pursuant to paragraph (f)(4).

Maintenance Schedule for Domed Tanks – Paragraph (g)(3)
Any tank subject to the doming schedule of paragraph (d)(5) must maintain the dome by performing a complete re-seal of the dome seams and hubcaps every 20 years beginning the date of dome installation.

Subdivision (h) – Reporting and Recordkeeping Requirements
This subdivision contains updated recordkeeping and reporting requirements for OGI inspections and additional reporting requirements of inspections required by paragraphs (f)(1) through (f)(3).

Reporting and Recordkeeping Requirements for OGI Inspections – Paragraph (h)(2)
This paragraph contains notification and recordkeeping requirements for OGI inspections.

Reporting for OGI Inspections – Subparagraph (h)(2)(A)
If Visible Vapors resulting from a defect are detected during a Tank Farm Inspection, facilities must report to 1-800-CUT-SMOG within 24 hours after the inspection is completed.

Records for Tank Farm Inspections – Subparagraph (h)(2)(B)
This subparagraph contains recordkeeping requirements for Tank Farm Inspections. Written and digital records must be kept of Visible Vapors resulting from a defect in equipment or from components required to be vapor tight or with no visible gap.

Records for Component Inspections – Subparagraph (h)(2)(C)
This subparagraph contains recordkeeping requirements for Component Inspections.

Records of True Vapor Pressure – Paragraph (h)(6)
This paragraph was revised to include a requirement to keep records of true vapor pressure test results.

Subdivision (j) – Exemptions
This subdivision contains criteria for exemption from all or some of the requirements of the rule.

Exemption from Doming – Paragraph (j)(3)
This exemption was modified to clarify that tanks with a permit condition limiting the true vapor pressure of the organic liquid stored to less than 3 psia are exempt from doming requirements only if the organic liquid stored in the tank has a true vapor pressure less than 3 psia as demonstrated by required testing.

Exemption for Tanks Storing Organic Liquid with Low True Vapor Pressure – Paragraph (j)(4)
Tanks storing organic liquid with TVP of 0.1 psia or less are exempt from all requirements of the rule provided that the owner or operator tests the TVP of the organic liquid at least every five years for refined organic liquid or products meeting specifications for sale and at least annually for all other organic liquids, and demonstrates a TVP of 0.1 psia or ~~lower~~less.

Exemption from Doming for Crude Oil Tanks – Paragraph (j)(5)
Crude oil tanks that become subject to doming requirements upon the date of rule adoption may be exempt from doming if a permit application is submitted to limit the crude oil TVP to ~~lower~~ less than 3 psia within one year from the date of rule adoption. Any crude oil tanks for which a permit application is not submitted to limit the TVP to ~~lower~~ less than 3 psia within one year from date of adoption is subject to the doming requirements, including crude oil with a TVP of less than 3 psia.

Exemption from OGI Inspections – Paragraph (j)(6)
Any tank that is empty or opened to the atmosphere, and complying with the requirements of Rule 1149 is exempt from OGI inspections.

Exemption Removals
Former paragraph (j)(2) – Proposed amendments remove the exemption for secondary seals for domed external floating roof tanks. All domed external floating roof tanks subject to the rule must have secondary seal installed.

Former paragraph (j)(7) – Proposed amendments remove the exemption from doming for tanks permitted to contain more than 97% by volume crude oil. Any tank with organic liquid with true vapor pressure of 3 psia of greater is required to install a dome unless otherwise stated in the rule.

CHAPTER 2

ENVIRONMENTAL CHECKLIST

INTRODUCTION

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

GENERAL INFORMATION

Project Title:	PAR 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
CEQA Contact Person:	Kevin Ni, (909) 396-2462, kni@aqmd.gov
PAR 1178 Contact Person:	Melissa Gamoning, (909) 396-3115, mgamoning@aqmd.gov
Project Sponsor's Name:	South Coast Air Quality Management District
Project Sponsor's Address:	21865 Copley Drive Diamond Bar, CA 91765
General Plan Designation:	Not applicable
Zoning:	Not applicable
Description of Project:	PAR 1178 establishes more stringent leak detection and repair and control requirements for storage tanks located at petroleum facilities that have emitted more than 20 tons of VOC in any reporting year since the rule's adoption in 2001. PAR 1178 establishes requirements for: 1) conducting inspections, including but not limited to weekly optical gas inspections; 2) installing domes and secondary seals; 3) increasing the efficiency of emission control systems; and 4) conducting monitoring, maintenance, recordkeeping, and reporting activities. PAR 1178 applies to storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day.
Surrounding Land Uses and Setting:	Various
Other Public Agencies Whose Approval is Required:	Not applicable

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

DETERMINATION

On the basis of this initial evaluation:

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

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

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

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

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

Date: July 18, 2023 **Signature:** 

Kevin Ni
Acting Program Supervisor, CEQA
Planning, Rule Development and
Implementation

ENVIRONMENTAL CHECKLIST AND DISCUSSION

As explained in Chapter 1, PAR 1178 proposes to reduce VOC emissions from storage tanks used to store organic liquid located at any petroleum facility that emits more than 20 tons per year of VOC in any reporting year starting with emission inventory year 2000: 1) aboveground storage tanks with capacity equal to or greater than 75,000 liters (19,815 gallons) storing organic liquid with a true vapor pressure greater than 5 mmHg (0.1 psia) under actual storage conditions; and 2) storage tanks with a potential for VOC emissions of six tons per year used in crude oil and natural gas production operations. PAR 1178 proposes to establish more stringent leak detection and repair and control requirements, such as weekly optical gas inspections, and additional control requirements for domes, secondary seals, and emission control systems.

Of the proposed changes in PAR 1178, only the installation of domes on external floating roof tanks and additional roof seals on internal floating roof tanks are expected to require physical modifications involving construction and these activities could create secondary adverse environmental impacts. In particular, installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks under PAR 1178 might require the specific storage tank set to undergo modifications to be emptied and degassed first if repairs are needed. Construction from doming external floating roof tanks involves assembling the dome, lifting it, and installing the dome; while installing additional roof seals on internal floating roof tanks is a one-step process. These activities create the potential for secondary adverse environmental impacts from construction.

PAR 1178 provides long time frames for when domes are required to be installed on applicable storage tanks in accordance with subparagraph (d)(5)(B), as follows: one-third of applicable storage tanks by year's end 2031, half by year's end 2033, and all remaining tanks by year's end 2038. In addition, construction activities associated with installing domes are expected to occur concurrently in situations when requirements other than PAR 1178 necessitate emptying and degassing the tank. For example, PAR 1178 subparagraph (d)(5)(A)(iii) specifies that the timing of construction should be coordinated and coincide with when the storage tank is next emptied or degassed when installing additional roof seals on internal floating roof tanks. For these reasons, storage tank emptying and degassing activities are not considered unique to PAR 1178 and as such, the environmental impacts from these activities are excluded from the analysis of construction activities. In addition, no grading or site preparation activities are required for constructing domes. Thus, this construction analysis focuses on impacts from the combined efforts associated with: 1) doming external floating roof tanks which involves assembling the dome, lifting it, and installing the dome; and 2) installing additional roof seals on internal floating roof tanks as a one-step process.

Once the domes and additional roof seals are installed, no changes in process operations involving these storage tanks are expected to occur. Therefore, other than VOC emission reductions, which are an environmental benefit to air quality, no adverse operational impacts are expected.

Other components of PAR 1178, such as requirements for conducting weekly optical gas imaging inspections and other types of inspections, establishing a maintenance repair schedule and conducting maintenance , and implementing recordkeeping and reporting provisions would not be expected to cause any physical changes that would create any secondary adverse environmental impacts either during construction or operation.

For these reasons, the analysis in this EA focuses on the key elements in the proposed project with the potential to create secondary adverse environmental impacts associated with doming ~~54~~ 59 external floating roof tanks at ~~eight~~ nine facilities and installing additional secondary seals on ~~eight~~ 24 internal floating roof tanks.

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

Significance Criteria

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

- The project will block public views from a scenic highway or corridor.
- The project will adversely affect the visual continuity of public views 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

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

I. a), b), & c) Less Than Significant Impact. For the purpose of determining significance under CEQA, a scenic vista is generally considered a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Some scenic vistas are officially designated by public agencies, or informally designated by tourist guides. Vistas provide visual access or panoramic views to a large geographic area and are generally located at a point where surrounding

views are greater than one mile away. Panoramic views are usually associated with vantage points over a section of urban or natural areas that provide a geographic orientation not commonly available. Examples of panoramic views might include an urban skyline, valley, mountain range, a large open space area, the ocean, or other water bodies. A substantial adverse effect to a scenic vista is one that degrades the view from such a designated view spot.

A scenic highway is generally considered a stretch of public roadway that is designated as a scenic corridor by a federal, state, or local agency. Caltrans defines a scenic highway as any freeway, highway, road, or other public right of way, that traverses an area of exceptional scenic quality.

Physical modifications associated with the proposed project are limited to doming external floating roof tanks and installing additional roof seals on internal floating roof tanks at existing facilities. The construction equipment is expected to be at the height of or just above the existing storage tanks and not substantially visible to the surrounding area due to construction occurring within each existing facility's property line, existing fencing along property lines, and existing structures currently within each facility's boundaries that may buffer the views of the construction activities.

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

Since all of the affected facilities are located in urbanized areas, any changes to the buildings or structures would require approvals from the local city or county planning departments. It is important to note that the affected facilities are located throughout Los Angeles county, with some located in San Bernardino county. Both counties are mandated by the state of California to prepare a general plan containing an aesthetics element. None of the anticipated physical activities associated with implementing PAR 1178 are intended to interfere or be inconsistent with the local planning department aesthetics requirements in their general plans. Based on the locations of the affected facilities, the proposed project would neither take place in nor have a substantial adverse effect on a scenic vista indicated in the Los Angeles County General Plan 2035 or San Bernardino Countywide Plan.[6, 7] Further, none of the affected facilities are located within the views of a scenic vista or state scenic highway as designated by the California Department of Transportation (CalTrans).[8] Also, Therefore, PAR 1178 would not be expected to conflict with applicable zoning or other regulations governing scenic quality.

In addition, staff received a comment claiming that installation of domed roofs on large storage tanks could change the visual character of the landscape, particularly for storage tanks located near

[6] Los Angeles County, General Plan 2035 Chapter 9 Section VII, Updated July 14, 2022. https://planning.lacounty.gov/wp-content/uploads/2022/11/9.0_gp_final-general-plan-ch9.pdf.

[7] San Bernardino County, Countywide Plan, Accessed January 2023. https://countywideplan.com/policy-plan/natural-resources/

[8] Caltrans, Officially Designated County Scenic Highways. Accessed January 2023. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways

coastal sightlines. Of the ~~eight~~ nine facilities with ~~the 54~~ 59 existing storage tanks that may be domed, Figure 2-1 illustrates the locations of the ~~eight~~ nine facilities and their proximity to coastal areas and only three facilities are located at or near the coastline.

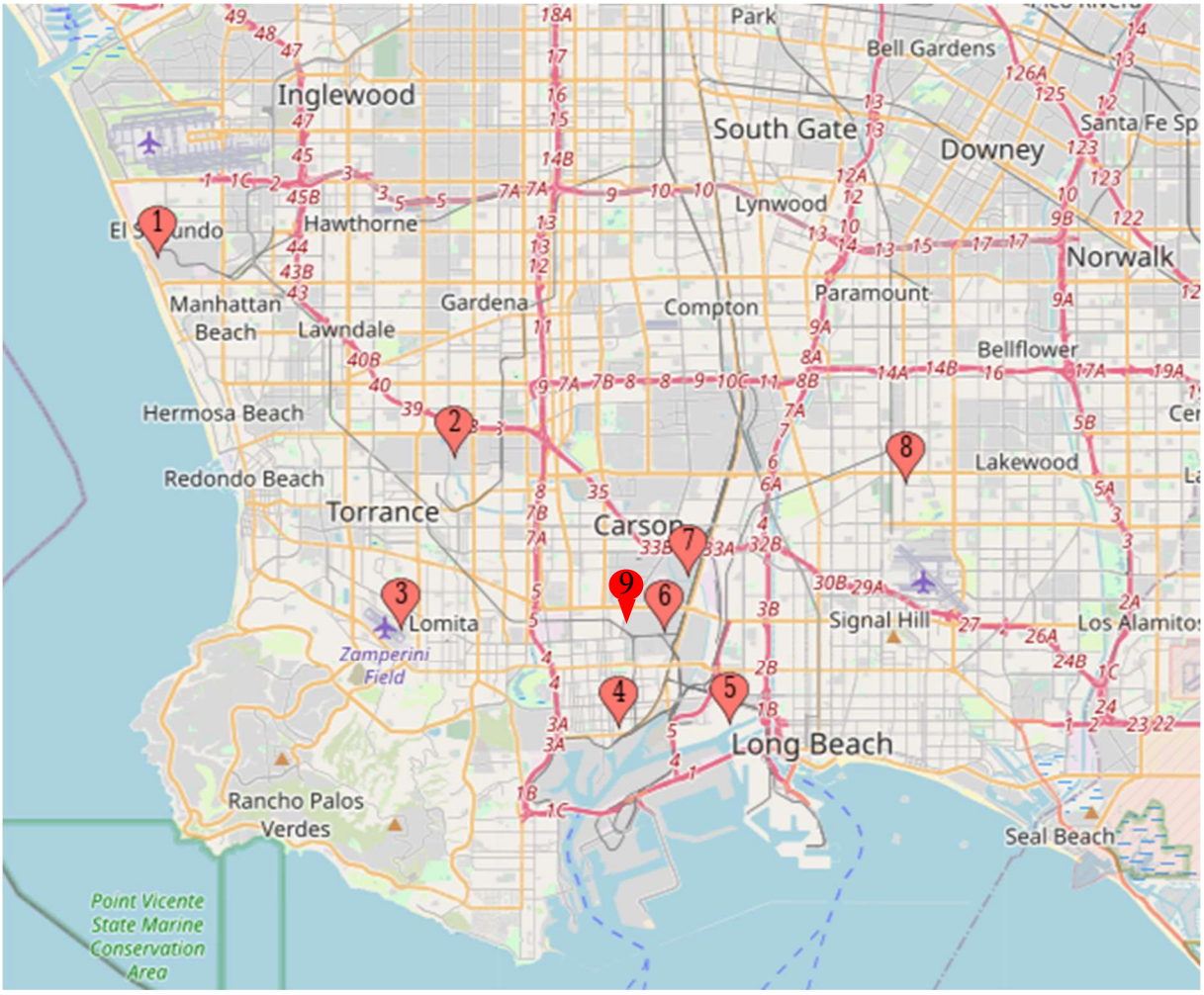

Figure 2-1
Proximity of Affected Facilities to Coastal Areas

Whether a facility is located near the coast or more inland, these existing properties are zoned for heavy industrial use. Existing storage tanks are clustered, and all ~~eight~~ nine facilities proposed to have domes installed on their external floating roof tanks already have other existing storage tanks which are domed. Of the facilities subject to PAR 1178, there are 260 existing domed storage tanks. Thus, installing more domes on other existing storage tanks will not be expected to significantly change the overall visual character of the facilities themselves or the surrounding landscape, whether located near the coast or more inland.

The existing storage tanks that will be domed range in height from 37 to 63 feet and diameter from 90 to 260 feet. For context, the size of these storage tanks can be compared to a building that is almost four to seven floors or stories in height.

Domes for these existing storage tanks are typically designed with a maximum radius equal to 1.2 times the tank diameter with a minimum of 0.7 times the tank diameter; the ratio of dome height

to tank diameter is about 1:6.[9] For example, the largest of the affected storage tanks that would need a dome is 63-feet in height with a diameter of 260 feet and the new dome would be one-sixth of the diameter, or 43.3 feet which is equivalent to adding about four floors or stories in a building. After doming, the total height would be approximately 106 feet.

In conclusion, the visual character of the landscape at these ~~eight~~ nine facilities is already predominantly defined by the existing storage tanks themselves, and at a height that already obstructs the surrounding views, depending on the observer's location, regardless of whether the storage tanks are located at or near the coast or coastal sightlines or more inland. Further, the installation of domes are expected to blend in with the current industrial aesthetic profile of existing domed storage tanks at these ~~eight~~ nine facilities.

The requirements in PAR 1178 specific to conducting monitoring and inspections would involve low-profile activities, if at all, that would be expected to blend in with routine day-to-day operations occurring within the fence line of each affected facility. Therefore, monitoring and inspections would not be expected to cause any discernable aesthetic impacts visible to outside the property lines of each facility.

Based on the foregoing analysis, implementation of the proposed project would have less than significant impacts on scenic vistas and would not be expected to substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. In addition, PAR 1178 would not be expected to substantially degrade the existing visual character or quality of public views of the affects sites and their surroundings. Finally, PAR 1178 would not be expected to conflict with applicable zoning or other regulations governing scenic quality.

I. d) Less Than Significant Impact. PAR 1178 does not include any components that would require construction activities to occur at night. Further, cities often have their own limitations and prohibitions that restrict construction from occurring during evening hours and weekends. Therefore, no additional temporary construction lighting at the facility would be expected. However, if facility operators determine that the construction schedule requires nighttime activities, temporary lighting may be required. Nonetheless, since construction activities would be completely located within the boundaries of each affected facility, additional temporary lighting is not expected to be discernable from the existing permanent night lighting.

The existing buildings at the affected facilities are currently illuminated at night for safety and security purposes, and the lighting typically faces toward the interior of each facility's property so that they point downward or parallel to the ground, which has the effect of limiting the amount of lighting to what is needed to adequately illuminate the specific locations. While minimal, additional permanent light sources could potentially be installed at or near the installation of new domes, PAR 1178 does not specifically require new lighting to be installed. Thus, any new lighting, if installed, would likely be consistent in intensity and type with the existing lighting on equipment and other structures at the existing facilities and directed to minimize potential lighting impacts on areas outside the property lines. These practices are followed to avoid or minimize potential lighting impacts on areas outside each facility's property. Since the anticipated

[9] Maxwell Continental Tank Serv Engineering, https://maxwelltanks.com/domed-floating-roof-tank/alu-geodesic-dome-roofs/, accessed on July 14, 2023.

modifications would occur within the boundaries of each facility's property, no new areas are expected to be illuminated off-site by permanent additional lighting, in the event any new lighting is installed.

Staff received a comment claiming that the potential solar reflectance and glare from domed roofs constructed of aluminum or other reflective alloys will cause glare impacts in a similar manner to cool roof technology. Dome manufacturers indicated that standard doming material is mill finish aluminum, which is not the same as cool roof technology. In addition, while any new aluminum dome could create an initial glare initially, the dome's aluminum panels will gradually oxidize such that the initial glare will dull naturally over the course of three to 12 months, or sooner at facilities located within industrial areas or by the ocean. In addition, to more quickly alleviate or eliminate the glare, dome panels can also be painted or sandblasted to dull the finish.

As described earlier in the discussion for questions 1a), b), and c), the existing storage tanks are at a very tall height (e.g., from 37 to 63 feet) and the installation of a dome would increase the total overall height by about 15 to 44 feet, depending on the tank diameter. As such, the installation of aluminum domes will mainly reflect up towards the sky except for certain angles and at certain times of the day as the sun moves across the sky. The degree of reflection will fade over time as the aluminum oxides. In any case, construction to install domes, whether painted, unpainted or sanded, on the affected storage tanks will be subject to local planning department aesthetics requirements to avoid any conflict with a city or county general plan's aesthetics element. PAR 1178 does not contain requirements or restrictions relative to the surface features of the dome. Further, all facility owners have other existing storage tanks that are domed and prior experience and understanding of what the local planning departments and any other agencies that may have oversight have required previously and if any glare reduction actions may be needed on any new domes that are installed at the individual site. As such, facility owners will need to work with contractors and coordinate with the local planning agency when designing each dome to determine the appropriate course of action for how to employ glare minimization features on the domes, if needed.

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

Conclusion
Based upon these considerations, less than significant adverse aesthetics impacts are expected from implementing the proposed project. Since no significant aesthetics impacts were identified, no mitigation measures are necessary or required.

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
II.	**AGRICULTURE AND FORESTRY RESOURCES.** Would the project:				
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non- agricultural use?	☐	☐	☐	☑
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☑
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☑
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☑
e)	Involve other changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☑

Significance Criteria

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

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

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

Discussion
PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

II. a), b), c), d), & e) No Impact. Pursuant to the California Land Conservation Act of 1965, a Williamson Act Contract enables private landowners to voluntarily enter into contracts with local governments for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive lower property tax assessments based upon farming and open space uses as opposed to full market value.

The affected facilities and their immediately surrounding areas are not located on or near areas zoned for agricultural use, Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Department of Conservation.[10] Therefore, the proposed project would not result in any construction of new buildings or other structures that would require converting farmland to non-agricultural use or conflict with zoning for agriculture use or a Williamson Act contract. The construction and operation activities would be expected to occur within the confines of existing industrial facilities; thus, the proposed project is not expected to result in converting farmland to non-agricultural use; conflict with existing zoning for agricultural use, or a Williamson Act Control.

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

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

[10] California Department of Conservation, California Important Farmland Finder, Accessed January 2023. https://maps.conservation.ca.gov/DLRP/CIFF/

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

Significance Criteria

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

Table 2-1

South Coast AQMD Air Quality Significance Thresholds

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

[a] Source: South Coast AQMD CEQA Handbook (South Coast AQMD, 1993)
[b] Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.
[c] Ambient air quality threshold based on South Coast AQMD Rule 403.

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

Revision: March 2023

Discussion
PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

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

The most recent regional blueprints for how the South Coast AQMD will achieve air quality standards and healthful air are outlined in the 2022 AQMP[11] which contains multiple goals of promoting reductions of criteria air pollutants, greenhouse gases, and toxics. In particular, the 2022 AQMP contains Control Measure FUG-01– Improved Leak Detection and Repair (LDAR), which explores the potential for newer leak detection technologies to improve current LDAR requirements thereby reducing emissions of VOC from fugitive leaks from process and storage equipment from a variety of sources including, but not limited to, oil and gas production, petroleum refining, storage and transfer, etc.

The proposed project is not expected to obstruct or conflict with the implementation of the 2022 AQMP because minimizing VOC emissions from implementing the proposed project is in accordance with the emission reduction goals in the 2022 AQMP, and in particular, Control Measure FUG-01. Thus, implementing the proposed project would not conflict with or obstruct implementation of the applicable air quality plan.

III. b) and e) Less Than Significant Impact. While the proposed project is designed to reduce fugitive VOC emissions from aboveground storage tanks, secondary air quality impacts are expected due to PAR 1178 physical activities that would occur from its implementation, in particular: assembly and installation of domes on external floating roof tanks, and installation of additional roof seals on internal floating roof tanks. Incorporating OGI as an additional component to existing LDAR practices and implementing other components of the proposed project are not expected to have construction impacts. Because the proposed project will not affect operation, no secondary adverse impacts to air quality or greenhouse gases are expected from operation, and this EA is limited to the analysis of construction impacts.

[11] South Coast AQMD, Final 2022 Air Quality Management Plan, December 2022. http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan

Construction Impacts

PAR 1178 provides long time frames for when domes are required to be installed on applicable storage tanks in accordance with subparagraph (d)(5)(B), as follows: one-third of applicable storage tanks by year's end 2031, half by year's end 2033, and all remaining tanks by year's end 2038. In addition, construction activities associated with installing domes are expected to occur concurrently in situations when requirements other than PAR 1178 necessitate emptying and degassing the tank. For example, PAR 1178 subparagraph (d)(5)(E) specifies that the timing of construction should be coordinated and coincide with when the storage tank is next emptied or degassed when installing additional roof seals on internal floating roof tanks. For these reasons, storage tank emptying and degassing activities are not considered unique to PAR 1178 and as such, the environmental impacts from these activities are excluded from the analysis of construction activities. In addition, no grading or site preparation activities are required for constructing domes. Thus, this construction analysis focuses on impacts from the combined efforts associated with: 1) doming external floating roof tanks which involves assembling the dome, lifting it, and installing the dome; and 2) installing additional roof seals on internal floating roof tanks as a one-step process.

Because of the long timeframes allowing for facilities to comply with PAR 1178, it is unlikely that a given facility will perform construction on more than one tank at a given time, or that multiple facilities will perform construction activities on the same day.

The following construction details include a collection of information based on recent conversations between South Coast AQMD rules staff with a supplier, and previous parameters regarding quantities and types of construction equipment considered in the modeling conducted in the December 2001 Final EA for Proposed Amended Rule 1178.[12] For worst case emissions estimates for the current proposal were based on the following criteria: 1) the modeled tank is assumed to be 260 feet in diameter (600,000 barrels of crude oil capacity, the largest in the PAR 1178 universe of equipment); 2) any type of construction equipment which was mentioned by the supplier or the previous CEQA document or both was used in this analysis,[13] and 3) for any differences in operating duration of the construction equipment as cited by sources, the longer use duration was applied in this analysis. Since no grading or site preparation is needed for doming activities, this construction analysis excludes these activities.

The following bullets summarize the assumptions relied upon for the construction analysis:

Doming an External Floating Roof Tank

- On-road Motor Vehicles:
  - 1 Material Delivery Truck driving 50 miles per day
  - 10 Worker Vehicles driving 40 miles per day
- Off-road Construction Equipment:
  - 1 Crane, 3 Welders, and 1 Compressor each operating for 10 hours per day, 6 days per week, for 12 to 6 weeks

[12] South Coast AQMD, Final Environmental Assessment for Proposed Amended Rule 1178 - Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities. http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/aqmd-projects---year-2001

[13] Welders were not incorporated in the December 2001 Final EA for Proposed Amended Rule 1178, and compressors were not mentioned by the supplier to South Coast AQMD rules staff in their communication but to be conservative, both welders and compressors are included in this construction analysis.

Installing Additional Roof Seals on an Internal Floating Roof Tank

- On-road Motor Vehicles:
  - 1 Material Delivery Truck driving 50 miles per day
  - 10 Worker Vehicles driving 40 miles per day
- Off-road Construction Equipment:
  - 1 Crane for 4 hours per day, 5 days per week, and 8 weeks
  - 1 Compressor for 8 hours per day, 5 days per week, and 8 weeks

Criteria pollutant emissions were calculated for off-road construction equipment used for retrofitting the storage tanks and on-road motor vehicles transporting workers and material deliveries during construction using the California Emissions Estimator Model® (CalEEMod), version 2022.1.1.3. The detailed output reports for the CalEEMod[14] runs, and a summary excel sheet with the peak daily construction impacts by construction activity type and season are included in Appendix B.

With only ~~54~~ 59 tanks at ~~eight~~ nine facilities undergoing construction to install new domes and ~~eight~~ 24 tanks at ~~seven~~ nine facilities undergoing construction to install additional roof seals coupled with the long time frame for implementation means that as a practical matter, it is unlikely that one facility will perform construction on more than one tank at a given time, and that multiple facilities will perform construction activities on the same day. Nonetheless, to illustrate the magnitude of what the air quality impacts would be from overlapping construction activities, Table 2-2 summarizes the peak daily emissions associated with doming one external floating roof tank, installing additional roof seals for one tank, and concurrent installation of eight domes and seven additional roof seals.

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

Construction Activity	VOC	NOx	CO	SOx	PM10	PM2.5
Doming 1 External Floating Roof Tank	0.91	8.41	11.50	0.02	0.67	0.40
Installing Additional Roof Seals for 1 Internal Floating Roof Tank	0.34	3.03	4.81	0.01	0.44	0.18
Doming 8 Tanks and Installing Additional Roof Seals for 7 Tanks	9.66	88.49	125.67	0.23	8.44	4.46
Significance Threshold for Construction	75	100	550	150	150	55
Significant?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

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

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

Cumulatively Considerable Impacts

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

The South Coast AQMD's guidance on addressing cumulative impacts for air quality is as follows: "As Lead Agency, the South Coast AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR." "Projects that exceed the project-specific significance thresholds are considered by the South Coast AQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."[15]

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

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

III. c) Less Than Significant Impact.

Toxic Air Contaminants (TACs) During Construction

Diesel powered vehicles and equipment would be utilized during construction activities. Diesel PM is considered a carcinogenic and chronic TAC. A construction activity would be completed within four months; thus, a Health Risk Assessment (HRA) was not conducted, which is consistent with the Office of Environmental Health Hazard Assessment (OEHHA) Guidance Manual (2015). The analysis in Section III b) and e) concluded that the quantity of pollutants that may be generated from implementing the proposed project would be less than significant during construction. Because the emissions from all activities that may occur as part of implementing the proposed project are at less than significant levels, neither would the emissions be substantial, regardless of whether sensitive receptors are located near the affected facilities. Therefore, PAR 1178 is not expected to generate significant adverse TAC impacts from construction or expose sensitive receptors to substantial pollutant concentrations. Since no significant air quality impacts were identified for TACs, no mitigation measures are necessary or required.

III. d) Less Than Significant Impact.

Odor Impacts

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

During construction, diesel-fueled equipment and vehicles would be operated. Diesel fuel is required to have a low sulfur content (e.g., 15 ppm by weight or less) in accordance with South Coast AQMD Rule 431.2 – Sulfur Content of Liquid Fuels;[16] thus, the fuel is expected to have minimal odor. The operation of construction equipment would occur within the boundaries of existing affected facilities. It would be expected that sufficient dispersion of diesel emissions over distance generally occurs such that odors associated with diesel emissions may not be discernable to off-site receptors, depending on the location of the equipment and its distance relative to the nearest off-site receptor. The diesel trucks and equipment that would be operated on-site as a part of construction activities would not be allowed to idle longer than five minutes per any one location in accordance with the CARB idling regulation,[17] so lingering odors from idling vehicles would not be expected. In addition, construction activities would be temporary. Thus, PAR 1178 is not expected to create significant adverse objectionable odors during construction. Since no significant air quality impacts were identified for odors, no mitigation measures for odors are necessary or required.

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

[17] CARB, Guide to Off-Road Vehicle & Equipment Regulations, https://ww2.arb.ca.gov/sites/default/files/offroadzone/pdfs/offroad_booklet.pdf.

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

Greenhouse Gas (GHG) Impacts

Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of GHG emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities, appears to be closely associated with global warming. State law defines GHG to include the following: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6) (Health and Safety Code Section 38505(g)). The most common GHG that results from human activity is CO2, followed by CH4 and N2O.

Traditionally, GHGs and other global warming pollutants are perceived as solely global in their impacts and that increasing emissions anywhere in the world contributes to climate change anywhere in the world. A study conducted on the health impacts of CO2 "domes" that form over urban areas cause increases in local temperatures and local criteria pollutants, which have adverse health effects.[18]

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

Since GHG impacts are defined on an annual, instead of a peak daily basis, the GHG emissions for construction were quantified by summing all of the GHGs occurring during construction for ~~54~~ 59 domes and ~~eight~~ 24 additional seal installations which should be completed by December 31, 2038 and then amortizing the total construction GHGs over 30 years.

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

[18] Jacobsen, Mark Z. Environmental Protection Agency Hearing on California Waiver: "Effects of Local CO2 Domes and of Global CO2 Changes on California's Air Pollution and Health," March 5, 2009. https://web.stanford.edu/group/efmh/jacobson/PDFfiles/0903EPACalif.pdf

cumulatively considerable. GHG impacts from the implementation of the proposed project were calculated at the project-specific level during construction activities.

PAR 1178 involves construction activities associated with installing domes and additional seals on existing storage tanks which rely on construction equipment that emit GHGs when in use. Once construction is completed, PAR 1178 does not have any requirements that would generate GHGs during operation of the storage tanks. Table 2-3 summarizes the GHG analysis which shows that the proposed project may result in the generation of ~~215~~ 229 MT per year of CO2eq from construction activities, which is less than the South Coast AQMD's air quality significance threshold for GHGs. Detailed calculations of project GHG emissions can be found in Appendix B.

Table 2-3
Summary of GHG Emissions from Affected Facilities

Construction Activity	CO2eq Emissions (MT/yr)
Doming 1 External Floating Roof Tank	116
Installing Additional Roof Seals for 1 Tank	25
Doming ~~54~~ 59 External Roof Tanks and Installing Additional Roof Seals for 824 Internal Floating Roof Tanks	~~216~~248
Significance Threshold	10,000
Significant?	**No**

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

As shown in Table 2-3, the South Coast AQMD air quality significance threshold for GHGs would not be exceeded. For this reason, implementing the proposed project would not be expected to generate significant adverse cumulative GHG air quality impacts. Further, as noted in Section III. a), implementation of the proposed project would not be expected to conflict with an applicable plan, policy or regulation adopted for the purpose of reducing criteria pollutants and the same is true for GHG emissions since the quantity of increased GHG emissions is at less than significant levels. Since significant air quality impacts were not identified for GHGs, no mitigation measures are necessary or required.

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

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

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

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

Discussion
PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

IV. a), b), c), & d) No Impact. Implementation of PAR 1178 would occur at existing affected facilities, which are located in industrial areas. Additionally, the physical improvements are expected to occur within the existing facility property boundaries which have been previously disturbed. Thus, PAR 1178 is not expected to adversely affect in any way habitats that support riparian habitat, federally protected wetlands, or migratory corridors. Similarly, special status plants, animals, or natural communities identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service are not expected to be found on or in close proximity to affected facilities. Therefore, PAR 1178 would have no direct or indirect impacts that could adversely affect plant or animal species or the habitats on which they rely. PAR 1178 does not require the acquisition of additional land or further conversions of riparian habitats or sensitive natural communities where endangered or sensitive species may be found. In addition, any construction from the implementation of PAR 1178 would take place at the existing facilities and would not occur on or near a wetland or in the path of migratory species.

IV. e) & f) No Impact. The 30 ~~27~~ facilities subject to PAR 1178 are located throughout Los Angeles and San Bernardino counties. According to the California Department of Fish and Wildlife, Natural Community Conservation Plans (NCCP) Plan Summaries,[19] there are no permitted NCCPs for Los Angeles and San Bernardino Counties, and the NCCPs in preparation do not involve areas which will be affected by the proposed project. Projects resulting in an air quality benefit: decreasing air pollutant emissions while not changing the type of pollutants emitted, will not conflict with any U.S. Department of Fish and Wildlife Habitat Conservation Plans (HCP). Thus, PAR 1178 would not be expected to conflict with any adopted NCCP, HCP, or any other relevant habitat conservation plan, and would not create divisions in any existing communities. The proposed project is also not expected to conflict with local policies or ordinances protecting biological resources or local, regional, or state conservation plans, because land use and

[19] California Department of Fish and Wildlife, NCCP Plan Summaries, Accessed May 2023. https://wildlife.ca.gov/conservation/planning/nccp/plans.

other planning considerations are determined by local governments and no land use or planning requirements would be altered by implementation of PAR 1178.

Conclusion

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

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

Significance Criteria

Impacts to cultural resources will be considered significant if:

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

Discussion

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

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

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

Buildings, structures, and other potential culturally significant resources that are less than 50 years old are generally excluded from listing in the National Register of Historic Places, unless they are shown to be exceptionally important. Buildings or structures that may be affected by PAR 1178 are used for industrial purposes and would generally not be considered to be historically significant, since they would not have any of the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values. Therefore, PAR 1178 is not expected to cause any impacts to significant historic cultural resources.

V. b), c), & d) No Impact. Construction-related activities associated with installing domes and additional roof seals on existing storage tanks are expected to be confined within the affected existing industrial facility boundaries and will occur aboveground. In addition, as mentioned in section V. a) the existing storage tanks subject to PAR 1178 are considered heavy industrial equipment and as such, are not unique resources or identified as having any cultural or tribal importance. Thus, PAR 1178 is not expected to require physical changes to the environment which

may disturb paleontological or archaeological resources. Furthermore, it is envisioned that these areas are already either devoid of significant cultural resources or whose cultural resources have been previously disturbed. Therefore, PAR 1178 has no potential to cause a substantial adverse change to a historical or archaeological resource, directly or indirectly to destroy a unique paleontological resource or site or unique geologic feature, or to disturb any human remains, including those interred outside formal cemeteries. Implementing PAR 1178 is, therefore, not anticipated to result in any activities or promote any programs that could have a significant adverse impact on cultural resources.

PAR 1178 is not expected to require physical changes to a site, feature, place, cultural landscape, sacred place or object with cultural value to a California Native American Tribe. Furthermore, PAR 1178 is not expected to result in a physical change to a resource determined to be eligible for inclusion or listed in the California Register of Historical Resources or included in a local register of historical resources. Similarly, PAR 1178 is not expected to result in a physical change to a resource determined by the South Coast AQMD to be significant to any tribe. For these reasons, PAR 1178 is not expected to cause any substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074.

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

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

Conclusion

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

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

Significance Criteria

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

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

Discussion
PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

VI. a), e) f) & g) No Impact. The proposed project is not expected to conflict with any adopted energy conservation plans or violate any energy conservation standards because existing facilities would be expected to continue implementing any existing energy conservation plans that are currently in place regardless of whether the proposed project is implemented. The effects of implementing PAR 1178 would apply to existing facilities. Any energy resources that may be necessary to dome external floating roof tanks, install additional roof seals on internal floating roof tanks, and incorporate additional OGI technology would be used to achieve reductions in VOC; and therefore, would not be using non-renewable resources in a wasteful manner. For these reasons, the proposed project is not expected to conflict with energy conservation plans or existing energy standards, or use non-renewable resources in a wasteful manner. In addition, the construction and operation of domes is not expected to rely on electric power, natural gas or telecommunication facilities, as such PAR 1178 will not cause the relocation or construction of new or expanded electric power, natural gas or telecommunication facilities. Therefore, no impacts are expected.

VI. b), c), & d) Less Than Significant Impact.

Fuel Usage during Construction
Implementation of the proposed project would result in the installation of domes, roof seals, and OGI technology. To accomplish these activities, use of energy in terms of gasoline and diesel fuel would be needed for on-road passenger vehicles and heavy duty trucks associated with delivering supplies and construction materials, and off-road construction equipment, respectively. While construction under the proposed project is expected to be spaced out across multiple years until December 31, 2038, to estimate worst-case energy impacts associated with construction activities, South Coast AQMD staff estimated the total gasoline and diesel fuel consumption for doming ~~54~~ 59 external floating roof tanks and installing additional roof seals for ~~eight~~ 24 tanks at ~~seven~~ nine facilities all occurring in one year. Each project is estimated to require 10 worker trips and one material delivery trip per day, with doming requiring one crane, three welders, and one air compressor, each for 10 hours per day and 96 days for completion (six days per week for 16 weeks); and installation of additional seals requiring one crane four hours per day and one air compressor five hours per day and 40 days for completion (5 days per week for 8 weeks).

On-road passenger vehicles were modelled as gasoline passenger cars (LDA) and light-duty trucks (LDT1 and LDT2) traveling 40 miles per day, and heavy duty trucks associated with delivering supplies and construction materials were modelled as diesel Tier 7 CA International Registration Plan Trucks (T7 CAIRP) travelling 50 miles per day. Fuel use was estimated using EMFAC2021 version 1.0.2 for calendar year 2026. Fuel use for offroad equipment was estimated using equipment specifications from CalEEMod version 2022.1.1.3 and OFFROAD2021 version 1.0.3. Table 2-4 summarizes the projected fuel use impacts associated with construction activities and

compares it to the gasoline and diesel consumption rates in the South Coast AQMD jurisdiction, for 2017. Detailed fuel use calculations can be found in Appendix B.

Table 2-4
Annual Total Projected Fuel Usage for Construction Activities

	Diesel	Gasoline
Projected Construction Energy Use (gal/yr)	~~163,830~~ 187,050	~~8,144~~ 9,802
Year 2017 South Coast AQMD Jurisdiction Estimated Fuel Demand (gal/yr)	775,000,000	7,086,000,000
Total Increase Above Baseline	~~0.02114~~ 0.02414%	~~0.000115~~ 0.000138%
Significance Threshold	1%	1%
Significant?	**No**	**No**

Based on the foregoing analyses, the construction-related activities associated with the implementation of the proposed project would not use energy in a wasteful manner, would not result in substantial depletion of existing energy resource supplies, or create a significant demand of energy when compared to existing supplies. Thus, there are no significant adverse energy impacts associated with the implementation of PAR 1178.

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

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

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

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

Discussion
PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

VII. a), b), c), d), e), f) No Impact. The proposed project involves constructing new domes and installing roof tank seals on existing storage tanks located in already developed industrial settings and these activities would occur aboveground and as such, would not require any grading or site preparation activities.. Therefore, the proposed project is not expected to adversely affect geophysical conditions in the South Coast AQMD.

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

Physical modifications as a result of the proposed project are limited to retrofitting existing aboveground storage tanks and require no grading activities or soil disturbance that would create any issues with erosion. For this reason, no unstable earth conditions or changes in geologic substructures are expected to result from implementing the proposed project and therefore, no impacts to the loss of topsoil or soil erosion will occur. Further, since soil at existing facilities will not be disturbed, it will not be made further susceptible to expansion or liquefaction. Further, the proposed project will not create any new conditions that would cause subsidence landslides, or alter unique geologic features at any of the facilities. Thus, the proposed project would not be expected to increase or exacerbate any existing risks associated with soils at any facility. Implementation of the proposed project would not involve re-locating facilities on a geologic unit or soil that is unstable or that would become unstable as a result of the project; therefore, it would not be expected to potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. No impacts are anticipated.

The proposed project would not require the installation of septic tanks or other alternative wastewater disposal systems. Therefore, no persons or property would be exposed to new impacts related to expansive soils or soils incapable of supporting water disposal. Thus, the implementation of the proposed project would not adversely affect soils associated with the installation of a new septic system or alternative wastewater disposal system or modification of an existing sewer.

The proposed project does not cause or require the construction of any new facilities. No previously undisturbed land that may contain a unique paleontological resource or site or unique geological feature would be affected. Therefore, the proposed project is not expected to directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

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

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

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

Discussion
PAR 1178 applies to 1,059 storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

VIII. a), b) & c) No Impact. While the proposed project will result in construction at affected facilities, doming external floating roof tanks, installing additional roof seals on internal floating roof tanks, and incorporating additional OGI technology will not require use or disposal of hazardous materials. Implementation of the proposed project is not expected to affect operations pertaining to hazardous materials, such as the processing of petroleum; thus, there will be no increase in nor creation of: a) significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; b) significant hazard to the public or the environment in the event of upset or accident conditions involving the release of hazardous materials from these storage tanks into the environment; or c) hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school if an existing facility happens to be located near an existing or proposed school.

VIII. d) No Impact. Government Code Section 65962.5 refers to hazardous waste handling practices at facilities subject to the Resources Conservation and Recovery Act (RCRA). Implementation of the proposed project is not expected to affect operations pertaining to hazardous materials, such as the processing of petroleum; thus, there will be no increase in or creation of a new significant hazard to the public or the environment if an existing facility happens to be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

VIII. e) Less than Significant Impact. Federal Aviation Administration regulation, 14 CFR Part 77 – Safe, Efficient Use and Preservation of the Navigable Airspace, provide information regarding the types of projects that may affect navigable airspace. Projects may adversely affect navigable airspace if they involve construction or alteration of structures greater than 200 feet above ground level within a specified distance from the nearest runway or objects within 20,000 feet of an airport or seaplane base with at least one runway more than 3,200 feet in length and the object would exceed a slope of 100:1 horizontally (100 feet horizontally for each one foot vertically from the nearest point of the runway). There are four facilities located within two miles

of an airport that may involve construction activities associated with installing domes and roof tank seals on existing storage tanks, but none are taller than 200 feet aboveground. However, these facilities have other heavy industrial equipment that will not be affected by PAR 1178 but that are much taller than the existing storage tanks. Thus, for the facilities located near a runway or an airport, the facility operators will already have safety protocols and procedures in place for alerting the Federal Aviation Administration of any potential changes involving equipment greater than 200 feet above ground level. Thus, implementation of PAR 1178 is not expected to interfere with navigable airspace or affect existing operations pertaining to hazardous materials, such as the processing of petroleum. Finally, PAR 1178 does not contain any requirements that would interfere with any applicable design code or regulation the Federal Aviation Administration may have in effect for safety reasons. Thus, there will be no significant increase in existing safety hazards or the creation of new safety hazards to peoples working or residing in the vicinity of public/private airports. See Appendix C for list of affected facilities located within two miles of an airport.

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

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

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

mitigation of an actual or threatened release of a hazardous material, and evacuation of the emergency area.

Emergency response plans are typically prepared in coordination with the local city or county emergency plans to ensure the safety of not only the public (surrounding local communities), but the facility employees as well. The proposed project would not impair the implementation of, or physically interfere with any adopted emergency response plans or emergency evacuation plans that may be in place at existing facilities.

VIII. g) No Impact. The Uniform Fire Code and Uniform Building Code set standards intended to minimize risks from flammable or otherwise hazardous materials. Local jurisdictions are required to adopt the uniform codes or comparable regulations. Local fire agencies require permits for the use or storage of hazardous materials and permit modifications for proposed increases in their use. Permit conditions depend on the type and quantity of the hazardous materials at the facility. Permit conditions may include, but are not limited to, specifications for sprinkler systems, electrical systems, ventilation, and containment. The fire departments make annual business inspections to ensure compliance with permit conditions and other appropriate regulations. Further, businesses are required to report increases in the storage or use of flammable and otherwise hazardous materials to local fire departments. Local fire departments ensure that adequate permit conditions are in place to protect against the potential risk of upset. The proposed project would not change the existing requirements and permit conditions for the proper handling of flammable materials.

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

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

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

Significance Criteria

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

Water Demand:

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

Water Quality:

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

Discussion
PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

IX. a), b), e), f), g) & h) No Impact. Implementation of PAR 1178 would require construction activities associated with installing domes on existing external floating roof tanks and installing additional roof seals on existing internal floating roof tanks. These activities might first require storage tanks to be emptied and degassed if other repairs are needed, but those steps already occur as part of regular tank inspections, and not because of PAR 1178.

PAR 1178 subparagraph (d)(5)(E) specifies that the timing of construction should be coordinated and coincide with when the storage tank is next emptied or degassed when installing additional roof seals on internal floating roof tanks. For these reasons, storage tank emptying and degassing activities are not considered unique to PAR 1178 and as such, the environmental impacts from these activities are excluded from the analysis of construction activities. It is important to note that dome suppliers and affected facilities say that a storage tank does not need to be emptied and degassed in order to install domes and roof seals, unless the tank shell is in need of reinforcement and repairs that involve welding. Further, if a storage tank is emptied and degassed, water is not required for this process so no increase in water demand is expected. In addition, PAR 1178 does not contain any requirements that would require the use of water during construction or operation. Further, since water is not needed to implement PAR 1178, no wastewater would be expected to be generated and. Since no wastewater is generated and no increase in water demand is created from the proposed project, the proposed project would not be expected to: 1) violate any water quality standards, waste discharge requirements of the applicable Regional Water Quality Control Board, or otherwise substantially degrade surface or ground water quality; 2) require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, facilities or new storm water drainage facilities; 3) substantially decrease groundwater supplies or interfere substantially with groundwater recharge or impede sustainable groundwater management of the basin; 4) conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan; 5) impact the water supply available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years; and 6) give cause for the wastewater treatment provider to question or evaluate whether adequate wastewater capacity exists in addition to the provider's existing commitments.

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

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

Significance Criteria

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

Discussion

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

X. a) & b) No Impact. The proposed project does not require the construction of new facilities, and the physical effects that would result from the proposed project would occur at existing facilities located in industrial areas and would occur within existing facility boundaries. For this reason, implementation of PAR 1178 is not expected to physically divide an established community. Therefore, no impacts are anticipated.

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

Conclusion

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

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

Significance Criteria

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

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

Discussion

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

XI. a) & b) No Impact. There are no provisions in the proposed project that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state, or of a locally-important mineral resource recovery site delineated on a local general plan, specific plant or other land use plant. Some examples of mineral resources are gravel, asphalt, bauxite, and gypsum, which are commonly used for construction activities or industrial processes. Implementation of the proposed project would result in the installation of domes and roof seals; all of which have no effect on the use of minerals, such as those described above. Therefore, no new demand on mineral resources is expected to occur and no significant adverse mineral resources impacts from implementing the proposed project are anticipated.

Conclusion

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

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

Significance Criteria

Noise impact will be considered significant if:

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

Discussion

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

XII. a) & b) Less than Significant Impact. The facilities subject to PAR 1178 are located in urbanized industrial areas. The existing noise environment at each of the facilities is typically dominated by noise from existing equipment on-site, vehicular traffic around the facilities, and trucks entering and existing facility premises. Large, potentially noise-intensive construction

equipment may be needed temporarily to dome external floating roof tanks and install additional roof seals on internal floating roof tanks. Operation of the construction equipment would be expected to comply with all existing noise control laws and ordinances. Since all of the facilities are located in heavy industrial areas, which have a higher background noise level when compared to other areas, the noise generated during construction would likely be indistinguishable from the background noise levels at the property line. Further, Occupational Safety and Health Administration (OSHA) and California-OSHA have established noise standards to protect worker health both indoors and outdoors. Furthermore, compliance with local noise ordinances typically limit the hours of construction to reduce the temporary noise impacts from construction to sensitive and offsite receptors. These potential noise increases would only be temporary until construction is completed and would be expected to be within the allowable noise levels established by the local noise ordinances for industrial areas; thus, impacts are expected to be less than significant.

XII. c) No Impact. As stated in Section VIII e), ~~four~~ five facilities identified in Appendix C are located within two miles of an airport. The existing noise environment at this facility is dominated by noise from existing equipment on-site, vehicular traffic around the facilities, and trucks entering and exiting facility premises. Thus, any new noise impacts from temporary construction activities would be likely to generate noise that is indistinguishable from the background levels at the property line. Thus, PAR 1178 is not expected to expose persons residing or working within two miles of a public airport or private airstrip to excessive noise levels.

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

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

Significance Criteria

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

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

Discussion

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

XIII. a) No Impact. The construction activities associated with the proposed project are not expected to involve the relocation of individuals, require new housing or commercial facilities, or change the distribution of the population. Approximately 10 construction workers per facility may be needed to perform construction activities to comply with PAR 1178, and these workers can be supplied from the existing labor pool in the local Southern California area. The proposed project is not expected to affect day-to-day operations. As such, PAR 1178 is not anticipated to cause change in population densities, population distribution, or induce significant growth in population.

XIII. b) No Impact. The proposed project would result in construction activities that are expected to occur within the confines of existing facilities, and would not be expected to substantially alter existing operations. Consequently, PAR 1178 is not expected to result in the creation of any industry that would affect population growth, directly or indirectly induce the construction of single- or multiple-family units, or require the displacement of persons or housing elsewhere within the South Coast AQMD's jurisdiction.

Conclusion

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

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

Significance Criteria

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

Discussion

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

XIV. a) & b) No Impact. Implementation of PAR 1178 would require construction activities associated with installing domes on existing external floating roof tanks and installing additional roof seals on existing internal floating roof tanks. If other repairs to the storage tanks need to be made, then these activities may require storage tanks to first be emptied and degassed, but those steps occur as part of regular tank inspection. As such, no special circumstances with handling sensitive materials during construction would be expected. For these reasons, new safety hazards are not expected to occur during construction, and implementation of PAR 1178 is not expected to substantially alter or increase the need or demand for additional public services (e.g., fire and

police departments and related emergency services, etc.) above current levels. No significant impact to these existing services is anticipated.

XIV. c), d), & e) No Impact. As explained in Section XIII. a), PAR 1178 is not anticipated to generate any significant effects, either direct or indirect, on the population or population distribution within South Coast AQMD's jurisdiction as no permanent additional workers are anticipated to be required for compliance. Because PAR 1178 is not expected to induce substantial population growth in any way, and because the local labor pool (e.g., workforce) would remain the same since PAR 1178 would not trigger changes to current usage practices, no additional schools would need to be constructed. The analysis assumes that 10 construction workers per facility may be needed but any construction activities would be temporary and be expected to be supplied from the existing labor pool in the local Southern California area. There would be no corresponding impacts to local schools or parks, and there would be no corresponding need for new or physically altered public facilities in order to maintain acceptable service ratios, response times, or other performance objectives. Therefore, no impacts would be expected to schools, parks or other public facilities.

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

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

Significance Criteria

Impacts to recreation will be considered significant if:

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

Discussion

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

XV. a) & b) No Impact. As previously explained in Section XIII – Population and Housing, the proposed project is not expected to affect population growth or distribution within the South Coast AQMD's jurisdiction because only about 10 construction workers per facility will be needed to dome external floating roof tanks, install additional roof seals on internal floating roof tanks, and incorporate additional OGI technology for compliance with the proposed project can be supplied by the existing labor pool in the local Southern California area. As such, the proposed project is not anticipated to generate any significant adverse effects, either indirectly or directly on population growth within the South Coast AQMD's jurisdiction or population distribution, and thus no additional demand for recreational facilities would be necessary or expected. No requirements in the proposed project would be expected to affect recreation in any way. Therefore, 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.

Conclusion

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

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

Significance Criteria

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

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

Discussion

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

XVI. a) & b) No Impact. While the proposed project will involve doming of external floating roof tanks, installation of additional roof seals on internal floating roof tanks, and incorporation of additional OGI technology, construction will not require removal or replacement of existing equipment. Therefore, no solid construction waste would be generated that would need to be disposed of in a landfill, and the proposed project is not expected to impact existing permitted landfill capacity.

Current operations at facilities are assumed to comply with all applicable local, state, or federal waste disposal regulations, and PAR 1178 does not contain any provisions that would weaken, alter, or interfere with current practices. Thus, implementation of the proposed project is not expected to interfere with any affected facility's ability to comply with applicable local, state, or federal waste disposal regulations in a manner that would cause a significant adverse solid and hazardous waste impact.

Conclusion

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

		Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVII.	**TRANSPORTATION.** Would the project:				
a)	Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☑	☐
b)	Conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b)?	☐	☐	☑	☐
c)	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☑
d)	Result in inadequate emergency access?	☐	☐	☐	☑

Significance Criteria

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

- A major roadway is closed to all through traffic, and no alternate route is available.
- The project conflicts with applicable policies, plans or programs establishing measures of effectiveness, thereby decreasing the performance or safety of any mode of transportation or contributes to changes in overall vehicle miles traveled.
- There is an increase in vehicle miles traveled that is substantial in relation to the existing travel activity.
- 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

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

XVII. a) & b) Less than Significant Impact. As previously discussed in Section III – Air Quality and Greenhouse Gas Emissions, compliance with PAR 1178 would require construction activities

to dome external floating roof tanks, install additional roof seals on internal floating roof tanks, and incorporate additional OGI technology. To accomplish these various activities, on-road passenger vehicles and heavy duty trucks would be dispatched to the affected facilities in order to deliver supplies and construction materials.

Table 2-5 presents the number of vehicle round trips that may occur on a peak day which involves doming eight external floating roof tanks and installing additional roof seals for seven internal floating roof tanks.

Table 2-5
Number of Round Trips in a Peak Day

Activity	Vehicle Trips
Doming 8 External Floating Roof Tanks	8 Delivery Trucks 80 Passenger Autos
Installing Additional Roof Seals for 7 Internal Floating Roof Tanks	7 Delivery Trucks 70 Passenger Autos
Total in a Peak Day	**165 Vehicle Trips**

In accordance with the promulgation of SB 743 which requires analyses of transportation impacts in CEQA documents to consider a project's vehicle miles traveled (VMT) in lieu of applying a LOS metric when determining significance for transportation impacts, CEQA Guidelines Section 15064.3(b)(4) gives a lead agency to use discretion to choose the most appropriate methodology to evaluate a project's VMT, allowing the metric to be expressed as a change in absolute terms, per capita, per household, or in any other measure.

On a peak day, these construction activities are estimated to result in 15 heavy duty delivery truck round trips and 150 passenger auto round trips, the former which is less than the threshold of 350 truck round trips per day. The proposed project is not expected to result in the need of 350 new employees; assumptions, such as that installing additional roof seals for one internal floating roof tank requires 10 workers similar to doming an external roof tank is to overestimate impacts for a peak day. The proposed project is not expected to cause a significant adverse transportation impact. Therefore, the proposed project would not conflict with or be inconsistent with CEQA Guidelines Section 15064.3(b). Further, because implementation of the proposed project would not alter any transportation plans, the proposed project would not conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

XVII. c) & d) No Impact. No existing roadways would need to be modified and no new roadways would need to be constructed as a result of the proposed project. Thus, there would be no change to current public roadway designs including a geometric design feature that could increase traffic hazards. Further, the proposed project is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the facilities. Construction-related activities are expected to be temporary and occur over a short-term and were concluded to have no impact for these environmental checklist questions and the California Department of Transportation (CalTrans) submitted a comment letter (see Appendix D, Comment Letter #3) which concurs with the conclusion of no impact. However, CalTrans recommends that facilities implement a traffic control plan to minimize disruptions to traffic and ensure adequate emergency access in the event of traffic lane closure during construction (i.e., incorporating channelizing devices preceded by

approved warning signs). In addition, a CalTrans transportation permit is required in the event that oversized transport vehicles traveling on state highways are needed to deliver construction equipment and materials to the affected facilities. Regardless of whether or not a CalTrans transportation permit is required, CalTrans recommends that large size truck trips be limited to off-peak commute periods. In any case, any facility undergoing construction to implement PAR 1178 requirements will be subject to CalTrans requirements.

Since construction activities and associated passenger vehicle trips and delivery truck trips would cease after construction is completed, the proposed project is not expected to alter the existing long-term circulation patterns within the areas of each affected facility during construction. Thus, no long-term impacts on the traffic circulation system are expected to occur.

Further, impacts to existing emergency access at the affected facilities would also not be affected because PAR 1178 does not contain any requirements specific to emergency access points and each facility would be expected to continue to maintain their existing emergency access. As a result, PAR 1178 is not expected to result in inadequate emergency access.

Conclusion
Based upon these considerations, significant adverse transportation impacts are not expected from implementing the proposed project. Since no significant transportation impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
XVIII. <u>WILDFIRE</u>. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☑
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☑
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☑
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☑
e) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildfires?	☐	☐	☐	☑

Significance Criteria

A project's ability to contribute to a wildfire will be considered significant if the project is located in or near state responsibility areas or lands classified as very high fire hazard severity zones, and any of the following conditions are met:

- The project would substantially impair an adopted emergency response plan or emergency evacuation plan.
- The project may exacerbate wildfire risks by exposing the project's occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors.
- The project may exacerbate wildfire risks or may result in temporary or ongoing impacts to the environment because the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) are required.
- The project would expose people or structures to significant risks such as downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

- The project would expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildfires.

Discussion
PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

XVIII. a), b), c), d) & e) No Impact. Implementation of the proposed project would neither require the construction of any new facilities nor result in the construction of any occupied buildings or structures beyond the current boundaries of each affected facility. Thus, PAR 1178 is not expected to substantially impair an adopted emergency response plan or emergency evacuation plan. Further, the existing facilities which are subject to PAR 1178 are located in industrial areas, and not near wildlands. In the event of a wildfire, no exacerbation of wildfire risks, and no consequential exposure of the project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, or other factors would be expected to occur. Similarly, the existing facilities which are subject to PAR 1178 are located in industrial areas and no new facilities are required to be constructed. Thus, PAR 1178 would neither expose people or structures to new significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes, nor would it expose people or structures, either directly or indirectly, to a new significant risk of loss, injury or death involving wildfires. Finally, because PAR 1178 does not require any construction beyond existing facility boundaries, the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment are not required.

Conclusion
Based upon these considerations, significant adverse wildfire risks are not expected from implementing the proposed project. Since no significant wildfire risks were identified, no mitigation measures are necessary or required.

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

Discussion

PAR 1178 applies to 1,093 ~~1,059~~ storage tanks located at 30 ~~27~~ facilities including refineries, bulk storage, loading, and oil production facilities. However, only ~~54~~ 59 tanks at ~~eight~~ nine facilities will need to be domed and ~~eight~~ 24 tanks at ~~seven~~ nine facilities will need additional roof seals installed. PAR 1178 is estimated to reduce VOC emissions by 0.82 ton per day. The components of PAR 1178 that would be expected to have physical effects are installing domes on external floating roof tanks and additional roof seals on internal floating roof tanks. Incorporating advanced leak detection technologies, and updating maintenance, recordkeeping, and reporting requirements are not expected to create any secondary adverse environmental impacts.

XIX. a) No Impact. As explained in Section IV - Biological Resources, PAR 1178 is not expected to significantly adversely affect plant or animal species, or the habitat on which they rely because any construction and operational activities are expected to occur entirely within the boundaries of existing developed facilities in areas that have been greatly disturbed and that currently do not

support any species of concern or the habitat on which they rely. For these reasons, PAR 1178 is not expected to reduce or eliminate any plant or animal species or destroy prehistoric records of the past.

XIX. b) Less Than Significant Impact. Based on the foregoing analyses, PAR 1178 would not result in significant adverse project-specific environmental impacts. Potential adverse impacts from implementing PAR 1178 would not be "cumulatively considerable" as defined by CEQA Guidelines Section 15064(h)(1) for any environmental topic because there are no, or only minor incremental project-specific impacts that were concluded to be less than significant. Per CEQA Guidelines Section 15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulative considerable. South Coast AQMD cumulative significant thresholds are the same as project-specific significance thresholds.

Therefore, there is no potential for significant adverse cumulative or cumulatively considerable impacts to be generated by PAR 1178 for any environmental topic area.

XIX. c) Less Than Significant Impact. Based on the foregoing analyses, PAR 1178 is not expected to cause adverse effects on human beings for any environmental topic, either directly or indirectly because: 1) aesthetics impacts were determined to be less than significant as analyzed in Section I – Aesthetics; 2) the air quality and GHG impacts were determined to be less than the significance thresholds as analyzed in Section III – Air Quality and Greenhouse Gases; 3) energy impacts were determined to be less than significant as analyzed in Section VI – Energy; 4) the noise impacts were determined to be less than significant as analyzed in Section XII – Noise; and 5) transportation and traffic impacts were determined to be less than the significant as analyzed in Section XVII – Transportation. In addition, the analysis concluded that there would be no significant environmental impacts for the remaining environmental impact topic areas: agriculture and forestry resources, biological resources, cultural and tribal cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, solid and hazardous waste, transportation, and wildfire.

Conclusion

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

APPENDICES

Appendix A: Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities

Appendix B: Modeling Files, Assumptions, and Calculations

Appendix C: List of Affected Facilities

Appendix D: Comment Letters Received on the Draft EA and Responses to Comments

APPENDIX A

Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities

In order to save space and avoid repetition, please refer to the latest version of PAR 1178 located elsewhere in the Governing Board Agenda for the public hearing scheduled on September 1, 2023. The version of PAR 1178 that was circulated with the Draft EA for a 30-day public review and comment period from July 19, 2023 to August 18, 2023 was identified as the "Preliminary Draft Rule PAR 1178, revision date June 13, 2023," which is available from the South Coast AQMD's website at: http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1178/initial-draft-rule-language.pdf. An original hard copy of the Draft EA, which included the draft version of PAR 1178 listed above, can be obtained through the South Coast AQMD Public Information Center by phone at (909) 396-2001 or by email at PICrequests@aqmd.gov.

APPENDIX B

Modeling Files, Assumptions, and Calculations

The calculations originally presented in pages B-1 and B-59 of the Draft EA have been updated to include the installation of domes and additional seals for storage tanks located at three additional facilities. This appendix also includes the original pages with accompanying header-footer designations from the Draft EA with the updated calculations for the respective topics as follows:

- Peak Daily Construction Impacts by Construction Activity and Season (pp. B-1 to B-2);
- CalEEMod Modeling for Installation of Dome (pp. B-3 to B-21);
- CalEEMod Modeling for Installation of Additional Seals (pp. B-22 to B-59); and
- Fuel Use for Construction (pp. B-60 to B-61).

Peak Daily Construction Impacts by Construction Activity and Season (lb/day for Criteria Pollutants, MT/yr for GHG)

Doming 1 External Floating Roof Tank

	ROG	NOx	CO	SO_2	PM10T	PM2.5T	CO_2e
Winter	0.90	8.41	11.20	0.02	0.67	0.40	
Summer	0.91	8.40	11.50	0.02	0.67	0.40	
Max	0.91	8.41	11.50	0.02	0.67	0.40	116

Installing Additional Roof Seals for 1 Internal Floating Roof Tank

	ROG	NOx	CO	SO_2	PM10T	PM2.5T	CO_2e
Winter	0.33	3.03	4.55	0.01	0.44	0.18	24
Summer	0.34	3.01	4.81	0.01	0.44	0.18	25
Max	0.34	3.03	4.81	0.01	0.44	0.18	25

Doming 8 External Floating Roof Tanks and Installing Additional Roof Seals for 7 Internal Floating Roof Tanks

	ROG	NOx	CO	SO_2	PM10T	PM2.5T
Max	9.66	88.49	125.67	0.23	8.44	4.46

Doming 59 External Floating Roof Tanks and Installing Additional Roof Seals for 24 Internal Floating Roof Tanks

CO_2e
248

Peak Daily Construction Impacts by Construction Activity and Season (lb/day for Criteria Pollutants, MT/yr for GHG)

Doming 1 External Floating Roof Tank

	ROG	NOx	CO	SO_2	PM10T	PM2.5T	CO_2e
Winter	0.90	8.41	11.20	0.02	0.67	0.40	
Summer	0.91	8.40	11.50	0.02	0.67	0.40	
Max	0.91	8.41	11.50	0.02	0.67	0.40	116

Installing Additional Roof Seals for 1 Internal Floating Roof Tank

	ROG	NOx	CO	SO_2	PM10T	PM2.5T	CO_2e
Winter	0.33	3.03	4.55	0.01	0.44	0.18	24
Summer	0.34	3.01	4.81	0.01	0.44	0.18	25
Max	0.34	3.03	4.81	0.01	0.44	0.18	25

Doming 8 External Floating Roof Tanks and Installing Additional Roof Seals for 7 Internal Floating Roof Tanks

	ROG	NOx	CO	SO_2	PM10T	PM2.5T
Max	9.66	88.49	125.67	0.23	8.44	4.46

Doming 54 External Floating Roof Tanks and Installing Additional Roof Seals for 8 Internal Floating Roof Tanks

CO_2e
216

PAR 1178 - Dome Detailed Report

Table of Contents

Draft Environmental Assessment Appendix B
Final Environmental Assessment Appendix B

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	PAR 1178 - Dome
Construction Start Date	1/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	Air District
Windspeed (m/s)	3.50
Precipitation (days)	16.0
Location	33.78242008132466, -118.2666105636882
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4641
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	32.0	1000sqft	0.73	32,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.09	0.91	8.40	11.5	0.02	0.34	0.33	0.67	0.32	0.08	0.40	—	2,630	2,630	0.11	0.05	1.38	2,650
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.09	0.90	8.41	11.2	0.02	0.34	0.33	0.67	0.32	0.08	0.40	—	2,612	2,612	0.10	0.05	0.04	2,631
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.29	0.24	2.24	3.00	0.01	0.09	0.09	0.18	0.08	0.02	0.10	—	695	695	0.03	0.01	0.16	700
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.04	0.41	0.55	< 0.005	0.02	0.02	0.03	0.02	< 0.005	0.02	—	115	115	< 0.005	< 0.005	0.03	116

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2026	1.09	0.91	8.40	11.5	0.02	0.34	0.33	0.67	0.32	0.08	0.40	—	2,630	2,630	0.11	0.05	1.38	2,650
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.09	0.90	8.41	11.2	0.02	0.34	0.33	0.67	0.32	0.08	0.40	—	2,612	2,612	0.10	0.05	0.04	2,631
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.29	0.24	2.24	3.00	0.01	0.09	0.09	0.18	0.08	0.02	0.10	—	695	695	0.03	0.01	0.16	700
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.05	0.04	0.41	0.55	< 0.005	0.02	0.02	0.03	0.02	< 0.005	0.02	—	115	115	< 0.005	< 0.005	0.03	116

3. Construction Emissions Details

3.1. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.02	0.86	8.14	10.1	0.02	0.34	—	0.34	0.31	—	0.31	—	2,172	2,172	0.09	0.02	—	2,180
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.02	0.86	8.14	10.1	0.02	0.34	—	0.34	0.31	—	0.31	—	2,172	2,172	0.09	0.02	—	2,180
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	0.23	2.16	2.69	0.01	0.09	—	0.09	0.08	—	0.08	—	577	577	0.02	< 0.005	—	579
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.39	0.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	95.6	95.6	< 0.005	< 0.005	—	95.9
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.08	1.31	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	290	290	0.01	0.01	0.99	294
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	167	167	0.01	0.03	0.38	176
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.09	1.05	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	273	273	< 0.005	0.01	0.03	276
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	167	167	0.01	0.03	0.01	175
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.02	0.29	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	73.7	73.7	< 0.005	< 0.005	0.11	74.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.4	44.4	< 0.005	0.01	0.04	46.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.2	12.2	< 0.005	< 0.005	0.02	12.3

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.35	7.35	< 0.005	< 0.005	0.01	7.72

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Building Construction	Building Construction	1/1/2026	4/23/2026	6.00	97.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Average	1.00	10.0	367	0.29
Building Construction	Welders	Diesel	Average	3.00	10.0	82.0	0.20
Building Construction	Air Compressors	Diesel	Average	1.00	10.0	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	10.0	40.0	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	1.00	50.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.07	annual days of extreme heat
Extreme Precipitation	4.20	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	17.6

AQ-PM	67.2
AQ-DPM	99.3
Drinking Water	42.4
Lead Risk Housing	91.8
Pesticides	0.00
Toxic Releases	97.1
Traffic	23.6
Effect Indicators	—
CleanUp Sites	71.7
Groundwater	76.2
Haz Waste Facilities/Generators	62.6
Impaired Water Bodies	0.00
Solid Waste	52.9
Sensitive Population	—
Asthma	83.0
Cardio-vascular	92.8
Low Birth Weights	72.9
Socioeconomic Factor Indicators	—
Education	99.6
Housing	58.2
Linguistic	97.3
Poverty	97.4
Unemployment	91.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract

Economic	—
Above Poverty	3.734120364
Employed	20.67239831
Median HI	8.109842166
Education	—
Bachelor's or higher	1.706659823
High school enrollment	20.74939048
Preschool enrollment	24.62466316
Transportation	—
Auto Access	9.085076351
Active commuting	86.1157449
Social	—
2-parent households	52.29051713
Voting	11.8311305
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	53.26575132
Supermarket access	94.25125112
Tree canopy	9.559861414
Housing	—
Homeownership	5.427948159
Housing habitability	2.361093289
Low-inc homeowner severe housing cost burden	14.65417683
Low-inc renter severe housing cost burden	73.7071731
Uncrowded housing	0.192480431
Health Outcomes	—

Insured adults	3.002694726
Arthritis	74.6
Asthma ER Admissions	21.3
High Blood Pressure	64.8
Cancer (excluding skin)	96.9
Asthma	13.4
Coronary Heart Disease	40.3
Chronic Obstructive Pulmonary Disease	22.0
Diagnosed Diabetes	11.9
Life Expectancy at Birth	10.9
Cognitively Disabled	46.5
Physically Disabled	63.7
Heart Attack ER Admissions	21.1
Mental Health Not Good	2.6
Chronic Kidney Disease	20.1
Obesity	3.6
Pedestrian Injuries	98.5
Physical Health Not Good	2.9
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	69.8
Current Smoker	4.4
No Leisure Time for Physical Activity	4.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	30.5

Elderly	97.8
English Speaking	3.7
Foreign-born	92.7
Outdoor Workers	6.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	3.2
Traffic Density	49.8
Traffic Access	87.4
Other Indices	—
Hardship	99.2
Other Decision Support	—
2016 Voting	0.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	95.0
Healthy Places Index Score for Project Location (b)	6.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	Wilmington Long Beach Carson

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Source: Conversation Between PAR 1178 Rules Staff with Supplier
Construction: Off-Road Equipment	Source: (1 Crane, 3 Welders) Conversation Between PAR 1178 Rules Staff with Supplier, and (1 Crane, 1 Compressor) Dec 2001 Final EA for PAR 1178
Construction: Trips and VMT	Source: (6-10 Workers) Conversation Between PAR 1178 Rules Staff with Supplier, and (2 Crew/Tool Trucks Driving 40 Miles, 1 Material Delivery Truck Driving 50 Miles) Dec 2001 Final EA for PAR 1178
Characteristics: Project Details	Rule 1178 in the South Coast AQMD Jurisdiction

PAR 1178 - Seals Detailed Report

Table of Contents

Draft Environmental Assessment Appendix B
Final Environmental Assessment Appendix B

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	PAR 1178 - Seals
Construction Start Date	6/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	Air District
Windspeed (m/s)	3.50
Precipitation (days)	16.0
Location	33.782633950840065, -118.26814130827408
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4640
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	32.0	1000sqft	0.73	32,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.41	0.34	3.01	4.81	0.01	0.11	0.33	0.44	0.10	0.08	0.18	—	1,243	1,243	0.05	0.04	1.38	1,258
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.04	0.37	0.57	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	152	152	0.01	0.01	0.07	153
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.07	0.10	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.1	25.1	< 0.005	< 0.005	0.01	25.4

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.41	0.34	3.01	4.81	0.01	0.11	0.33	0.44	0.10	0.08	0.18	—	1,243	1,243	0.05	0.04	1.38	1,258
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.05	0.04	0.37	0.57	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	152	152	0.01	0.01	0.07	153
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.01	0.01	0.07	0.10	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.1	25.1	< 0.005	< 0.005	0.01	25.4

3. Construction Emissions Details

3.1. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.29	2.76	3.44	0.01	0.11	—	0.11	0.10	—	0.10	—	785	785	0.03	0.01	—	788
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.34	0.42	< 0.005	0.01	—	0.01	0.01	—	0.01	—	96.8	96.8	< 0.005	< 0.005	—	97.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.0	16.0	< 0.005	< 0.005	—	16.1

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.08	1.31	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	290	290	0.01	0.01	0.99	294
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.18	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	167	167	0.01	0.03	0.38	176
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	34.2	34.2	< 0.005	< 0.005	0.05	34.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.6	20.6	< 0.005	< 0.005	0.02	21.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.66	5.66	< 0.005	< 0.005	0.01	5.73
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.41	3.41	< 0.005	< 0.005	< 0.005	3.58

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Building Construction	Building Construction	6/1/2026	8/1/2026	5.00	45.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Air Compressors	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	10.0	40.0	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	1.00	50.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.07	annual days of extreme heat
Extreme Precipitation	4.20	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2

Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	20.8
AQ-PM	67.2
AQ-DPM	59.7
Drinking Water	42.4
Lead Risk Housing	94.8
Pesticides	44.1
Toxic Releases	98.0
Traffic	32.5
Effect Indicators	—
CleanUp Sites	28.7
Groundwater	79.1

Haz Waste Facilities/Generators	43.7
Impaired Water Bodies	0.00
Solid Waste	37.6
Sensitive Population	—
Asthma	83.0
Cardio-vascular	92.8
Low Birth Weights	35.6
Socioeconomic Factor Indicators	—
Education	88.7
Housing	64.5
Linguistic	80.2
Poverty	71.7
Unemployment	74.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	28.7052483
Employed	80.73912486
Median HI	28.56409598
Education	—
Bachelor's or higher	11.58732196
High school enrollment	100
Preschool enrollment	70.15270114
Transportation	—
Auto Access	19.9373797

Active commuting	71.46156807
Social	—
2-parent households	29.78313871
Voting	18.19581676
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	92.85255999
Supermarket access	94.25125112
Tree canopy	32.76016938
Housing	—
Homeownership	26.45964327
Housing habitability	13.98691133
Low-inc homeowner severe housing cost burden	62.17117926
Low-inc renter severe housing cost burden	30.28358784
Uncrowded housing	5.889901193
Health Outcomes	—
Insured adults	9.008084178
Arthritis	88.1
Asthma ER Admissions	21.3
High Blood Pressure	81.4
Cancer (excluding skin)	93.3
Asthma	55.1
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	74.0
Diagnosed Diabetes	29.7
Life Expectancy at Birth	77.0

Cognitively Disabled	70.6
Physically Disabled	57.4
Heart Attack ER Admissions	21.1
Mental Health Not Good	27.8
Chronic Kidney Disease	35.4
Obesity	19.4
Pedestrian Injuries	94.5
Physical Health Not Good	27.0
Stroke	70.4
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	39.2
No Leisure Time for Physical Activity	26.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	15.5
Elderly	91.2
English Speaking	12.1
Foreign-born	75.5
Outdoor Workers	37.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	11.6
Traffic Density	71.5
Traffic Access	87.4
Other Indices	—
Hardship	88.2

Other Decision Support	—
2016 Voting	11.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	85.0
Healthy Places Index Score for Project Location (b)	34.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	Wilmington Long Beach Carson

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	Rule 1178 in the South Coast AQMD Jurisdiction
Construction: Construction Phases	Source: Dec 2001 Final EA for PAR 1178
Construction: Off-Road Equipment	Source: (No Welders) Conversation Between PAR 1178 Rules Staff with Supplier, and (1 Crane, 1 Compressor) Dec 2001 Final EA for PAR 1178

Construction: Trips and VMT	Source: (2 Crew/Tool Trucks Driving 40 Miles, 1 Material Delivery Truck Driving 50 Miles) Dec 2001 Final EA for PAR 1178

PAR 1178 - Seals Detailed Report

Table of Contents

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	PAR 1178 - Seals
Construction Start Date	1/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	Air District
Windspeed (m/s)	3.50
Precipitation (days)	16.0
Location	33.782633950840065, -118.26814130827408
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4640
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	32.0	1000sqft	0.73	32,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.41	0.33	3.03	4.55	0.01	0.11	0.33	0.44	0.10	0.08	0.18	—	1,225	1,225	0.04	0.04	0.04	1,239
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.05	0.04	0.35	0.53	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	142	142	< 0.005	< 0.005	0.07	143
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	0.01	0.06	0.10	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.4	23.4	< 0.005	< 0.005	0.01	23.7

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.41	0.33	3.03	4.55	0.01	0.11	0.33	0.44	0.10	0.08	0.18	—	1,225	1,225	0.04	0.04	0.04	1,239

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.05	0.04	0.35	0.53	< 0.005	0.01	0.04	0.05	0.01	0.01	0.02	—	142	142	< 0.005	< 0.005	0.07	143
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.01	0.01	0.06	0.10	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.4	23.4	< 0.005	< 0.005	0.01	23.7

3. Construction Emissions Details

3.1. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34	0.29	2.76	3.44	0.01	0.11	—	0.11	0.10	—	0.10	—	785	785	0.03	0.01	—	788
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.32	0.40	< 0.005	0.01	—	0.01	0.01	—	0.01	—	90.4	90.4	< 0.005	< 0.005	—	90.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	15.0	15.0	< 0.005	< 0.005	—	15.0

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.09	1.05	0.00	0.00	0.28	0.28	0.00	0.07	0.07	—	273	273	< 0.005	0.01	0.03	276
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.19	0.06	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	167	167	0.01	0.03	0.01	175
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	31.9	31.9	< 0.005	< 0.005	0.05	32.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.2	19.2	< 0.005	< 0.005	0.02	20.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.28	5.28	< 0.005	< 0.005	0.01	5.35
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.18	3.18	< 0.005	< 0.005	< 0.005	3.34

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Building Construction	Building Construction	1/1/2026	3/1/2026	5.00	42.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Air Compressors	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	—	—	—	—
Building Construction	Worker	10.0	40.0	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	1.00	50.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	690	0.05	0.01

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	5.07	annual days of extreme heat
Extreme Precipitation	4.20	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2

Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	20.8
AQ-PM	67.2
AQ-DPM	59.7
Drinking Water	42.4
Lead Risk Housing	94.8
Pesticides	44.1
Toxic Releases	98.0
Traffic	32.5
Effect Indicators	—
CleanUp Sites	28.7
Groundwater	74.1

Haz Waste Facilities/Generators	43.7
Impaired Water Bodies	0.00
Solid Waste	37.6
Sensitive Population	—
Asthma	83.0
Cardio-vascular	92.8
Low Birth Weights	35.6
Socioeconomic Factor Indicators	—
Education	88.7
Housing	64.5
Linguistic	80.2
Poverty	71.7
Unemployment	74.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	28.7052483
Employed	80.73912486
Median HI	28.56409598
Education	—
Bachelor's or higher	11.58732196
High school enrollment	100
Preschool enrollment	70.15270114
Transportation	—
Auto Access	19.9373797

Active commuting	71.46156807
Social	—
2-parent households	29.78313871
Voting	18.19581676
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	92.85255999
Supermarket access	94.25125112
Tree canopy	32.76016938
Housing	—
Homeownership	26.45964327
Housing habitability	13.98691133
Low-inc homeowner severe housing cost burden	62.17117926
Low-inc renter severe housing cost burden	30.28358784
Uncrowded housing	5.889901193
Health Outcomes	—
Insured adults	9.008084178
Arthritis	88.1
Asthma ER Admissions	21.3
High Blood Pressure	81.4
Cancer (excluding skin)	93.3
Asthma	55.1
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	74.0
Diagnosed Diabetes	29.7
Life Expectancy at Birth	76.0

Cognitively Disabled	70.6
Physically Disabled	57.4
Heart Attack ER Admissions	21.1
Mental Health Not Good	27.8
Chronic Kidney Disease	35.4
Obesity	19.4
Pedestrian Injuries	94.5
Physical Health Not Good	27.0
Stroke	70.4
Health Risk Behaviors	—
Binge Drinking	32.5
Current Smoker	39.2
No Leisure Time for Physical Activity	26.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	15.5
Elderly	91.2
English Speaking	12.1
Foreign-born	75.5
Outdoor Workers	37.1
Climate Change Adaptive Capacity	—
Impervious Surface Cover	11.6
Traffic Density	71.5
Traffic Access	87.4
Other Indices	—
Hardship	81.2

Other Decision Support	—
2016 Voting	11.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	85.0
Healthy Places Index Score for Project Location (b)	34.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	Wilmington Long Beach Carson

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Characteristics: Project Details	Rule 1178 in the South Coast AQMD Jurisdiction
Construction: Construction Phases	Source: Dec 2001 Final EA for PAR 1178
Construction: Off-Road Equipment	Source: (No Welders) Conversation Between PAR 1178 Rules Staff with Supplier, and (1 Crane, 1 Compressor) Dec 2001 Final EA for PAR 1178

Construction: Trips and VMT	Source: (2 Crew/Tool Trucks Driving 40 Miles, 1 Material Delivery Truck Driving 50 Miles) Dec 2001 Final EA for PAR 1178

On-Road Vehicles, VMT + Fuel Usage (As Published in the Draft EA)

Activity	Description	Trip Distance (miles)	Number Trips/yr	VMT	Fuel Type	MPG	Fuel Use (Gal/yr)
Doming 59 External Floating Roof Tanks	Equipment Delivery - Heavy-Heavy Duty Vendor Trucks	50	5664	283200	Diesel	6.4	44,453
	Equipment Installation - Passenger Auto	40	5664	226560	Gas	27.0	8,381
Installing Additional Seals for 24 Internal Floating Roof Tanks	Equipment Delivery - Heavy-Heavy Duty Vendor Trucks	50	960	48000	Diesel	6.4	7,534
	Equipment Installation - Passenger Auto	40	960	38400	Gas	27.0	1,421

Fuel Usage = VMT / MPG

Offroad Equipment Fuel Usage

Activity	Equipment	Number of Equipment	Usage Hours/day	Horse power	Load Factor	Fuel Rate (Gal/hr)	Fuel Use (Gal/day)
Doming 59 External Floating Roof Tanks	Cranes	59	10	367	0.29	3.4	589.1
	Welders	177	10	82	0.2	1.5	515.2
	Air Compressors	59	10	84	0.37	1.1	242.1
Installing Additional Seals for 24 Internal Floating Roof Tanks	Cranes	24	4	367	0.29	3.4	95.9
	Air Compressors	24	5	84	0.37	1.1	49.2
Total Diesel Fuel Usage from Offroad Equipment (Gal/yr)							135062.3

Fuel Usage = Hours/day * Days * Load Factor * Fuel Rate

Notes: Horsepower and Load Factor from CalEEMod version 2022.1.1.3

Fuel Type	Construction
Diesel Fuel Usage (Gallons)	187,050
Gas Fuel Usage (Gallons)	9,802

Annual Total Projected Fuel Usage for Construction Activities		
	Diesel	**Gasoline**
Projected Operational Energy Use (gal/yr)[a]	187,050	9,802
Year 2017 South Coast AQMD Jurisdiction Estimated Fuel Demand (gal/yr)	775,000,000	7,086,000,000
Total Increase Above Baseline	0.02414%	0.000138%
Significance Threshold	1%	1%
Significant?	**No**	**No**

Notes:

[a] Estimated peak fuel usage from construction activities. Diesel usage estimates are based on the vendor trips and offroad equipment. Gasoline usage estimates are derived from worker trips.

On-Road Vehicles, VMT + Fuel Usage (As Published in the Draft EA)

Activity	Description	Trip Distance (miles)	Number Trips/yr	VMT	Fuel Type	MPG	Fuel Use (Gal/yr)
Doming 54 External Floating Roof Tanks	Equipment Delivery - Heavy-Heavy Duty Vendor Trucks	50	5184	259200	Diesel	6.4	40,686
	Equipment Installation - Passenger Auto	40	5184	207360	Gas	27.0	7,671
Installing Additional Seals for 8 Internal Flaoting Roof Tanks	Equipment Delivery - Heavy-Heavy Duty Vendor Trucks	50	320	16000	Diesel	6.4	2,511
	Equipment Installation - Passenger Auto	40	320	12800	Gas	27.0	474

Fuel Usage = VMT / MPG

Offroad Equipment Fuel Usage

Activity	Equipment	Number of Equipment	Usage Hours/day	Horse power	Load Factor	Fuel Rate (Gal/hr)	Fuel Use (Gal/day)
Doming 54 External Floating Roof Tanks	Cranes	54	10	367	0.29	3.4	539.2
	Welders	162	10	82	0.2	1.5	471.6
	Air Compressors	54	10	84	0.37	1.1	221.5
Installing Additional Seals for 8 Internal Flaoting Roof Tanks	Cranes	8	4	367	0.29	3.4	32.0
	Air Compressors	8	8	84	0.37	1.1	26.3
Total Diesel Fuel Usage from Offroad Equipment (Gal/yr)							120632.9

Fuel Usage = Hours/day * Days * Load Factor * Fuel Rate

Notes: Horsepower and Load Factor from CalEEMod version 2022.1.1.3

Fuel Type	Construction
Diesel Fuel Usage (Gallons)	163,830
Gas Fuel Usage (Gallons)	8,144

Annual Total Projected Fuel Usage for Construction Activities		
	Diesel	**Gasoline**
Projected Operational Energy Use (gal/yr)[a]	163,830	8,144
Year 2017 South Coast AQMD Jurisdiction Estimated Fuel Demand (gal/yr)	775,000,000	7,086,000,000
Total Increase Above Baseline	0.02114%	0.000115%
Significance Threshold	1%	1%
Significant?	**No**	**No**

Notes:

[a] Estimated peak fuel usage from construction activities. Diesel usage estimates are based on the vendor trips and offroad equipment. Gasoline usage estimates are derived from worker trips.

APPENDIX C

List of Affected Facilities

Since the release of the Draft EA, the following three facilities were added to this appendix:

- Facility ID 174694: Tesoro Logistics, Carson Crude Terminal
- Facility ID 174705: Tesoro Logistics, Colton Terminal
- Facility ID 174711: Tesoro Logistics, Hathaway Terminal

Facility ID	Facility Name	Address	Located within Two Miles of an Airport?
116931	Equilon Enterprises LLC DBA Shell Oil Products US	2457 Redondo Ave, Signal Hill	Yes
117560	Equilon Enterprises LLC Shell Oil Products	Berth 167-169, Suite Mormon Island, Wilmington 90744	No
171107	Phillips 66 Co/LA Refinery Wilmington Pl	1660 W Anaheim St, Wilmington 90744	No
171109	Phillips 66 Los Angeles Refinery Carson Plant	1520 E Sepulveda Blvd, Carson 90745	No
171326	Phillips 66 Pipeline LLC - bulk loading	13500 S Broadway, Los Angeles 90061	No
171327	Phillips 66 Pipeline LLC	2650 Lomita Blvd, Torrance 90505	No
174655	Tesroro Refining & Marketing Company LLC	2350 E 223rd St, Carson 90810	No
174694	Tesoro Logistics, Carson Crude Terminal	24696 S Wilmington Ave, Carson 90745	No
174704	Tesoro Logistics, East Hynes Terminal	5905 Paramount Blvd, Long Beach 90805	No
174705	Tesoro Logistics, Colton Terminal	2395 Riverside Ave, Bloomington 92316	No
174710	Tesoro Logistics, Vinvale Terminal	8601 Garfield Ave, South Gate 90280	No
174711	Tesoro Logistics, Hathaway Terminal	2350 Obispo Ave, Signal Hill 90755	Yes
176377	Tesoro Logistics, Marine Terminal 2	1350 Pier B St, Long Beach 90813	No
181667	Torrance Refining Company LLC	3700 W 190th St, Torrance 90504	No
182752	Torrance Logistics Company LLC	2619 & 2709 E 37th St, Vernon 90058	No
187165	Altair Paramount, LLC	14700-08 Downey Ave, Paramount 90723	No
800022	Calnev Pipe Line LLC	2051 E Slover Ave, Bloomington 92316	No
800026	Ultramar Inc Wilmington Refinery	2402 E Anaheim St, Wilmington 90744	No
800030	Chevron Products Company	324 W El Segundo Blvd, El Segundo 90245	Yes
800057	Kinder Morgan Liquids Terminal	2000 E Sepulveda Blvd, Carson 90810	No
800079	Petro Diamond Terminal Company	1920 Lugger Berth 83 Way, Long Beach 90813	No
800129	SFPP LP Colton Terminal	2359 Riverside Ave, Bloomington 92316	No
800198	Ultramar Inc Wilmington Marine Terminal	961 La Paloma Ave, Wilmington 90744	No
800278	SFPP LP Watson Station	20410 S Wilmington Ave, Carson 90810	No
800369	Equilon Enter. LLC, Shell Oil Prod. U.S.	8100 Haskell Ave, Van Nuys 91406	Yes
800372	Equilon Enterprises LLC	20945 S Wilmington, Carson 90810	No
800393	Valero Energy Corporation	1651 Alameda St, Wilmington 90744	No
800436	Tesoro Refining and Marketing Company LLC	2101 E Pacific Coast Hwy, Wilmington 90744	No
101977	Signal Hill Petroleum	1215 E 29th St, Signal Hill, CA 90755	Yes
800330	THUMBS Long Beach	1105 Harbor Scenic Dr, Suite PIERS J1-J6, Long Beach, CA 90802	No

Facility ID	Facility Name	Address	Located within Two Miles of an Airport?
116931	Equilon Enterprises LLC DBA Shell Oil Products US	2457 Redondo Ave, Signal Hill	Yes
117560	Equilon Enterprises LLC Shell Oil Products	Berth 167-169, Suite Mormon Island, Wilmington 90744	No
171107	Phillips 66 Co/LA Refinery Wilmington Pl	1660 W Anaheim St, Wilmington 90744	No
171109	Phillips 66 Los Angeles Refinery Carson Plant	1520 E Sepulveda Blvd, Carson 90745	No
171326	Phillips 66 Pipeline LLC - bulk loading	13500 S Broadway, Los Angeles 90061	No
171327	Phillips 66 Pipeline LLC	2650 Lomita Blvd, Torrance 90505	No
174655	Tesroro Refining & Marketing Company LLC	2350 E 223rd St, Carson 90810	No
174704	Tesoro Logistics East Hynes Terminal	5905 Paramount Blvd, Long Beach 90805	No
174710	Tesoro Logistics Vinvale Terminal	8601 Garfield Ave, South Gate 90280	No
176377	Tesoro Logistics, Marine Terminal 2	1350 Pier B St, Long Beach 90813	No
181667	Torrance Refining Company LLC	3700 W 190th St, Torrance 90504	No
182752	Torrance Logistics Company LLC	2619 & 2709 E 37th St, Vernon 90058	No
187165	Altair Paramount, LLC	14700-08 Downey Ave, Paramount 90723	No
800022	Calnev Pipe Line LLC	2051 E Slover Ave, Bloomington 92316	No
800026	Ultramar Inc Wilmington Refinery	2402 E Anaheim St, Wilmington 90744	No
800030	Chevron Products Company	324 W El Segundo Blvd, El Segundo 90245	Yes
800057	Kinder Morgan Liquids Terminal	2000 E Sepulveda Blvd, Carson 90810	No
800079	Petro Diamond Terminal Company	1920 Lugger Berth 83 Way, Long Beach 90813	No
800129	SFPP LP Colton Terminal	2359 Riverside Ave, Bloomington 92316	No
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800393	Valero Energy Corporation	1651 Alameda St, Wilmington 90744	No
800436	Tesoro Refining and Marketing Company LLC	2101 E Pacific Coast Hwy, Wilmington 90744	No
101977	Signal Hill Petroleum	1215 E 29th St, Signal Hill, CA 90755	Yes
800330	THUMBS Long Beach	1105 Harbor Scenic Dr, Suite PIERS J1-J6, Long Beach, CA 90802	No

APPENDIX D

Comment Letters Received on the Draft EA and Responses to Comments

APPENDIX D: COMMENT LETTERS RECEIVED ON THE DRAFT EA AND RESPONSES TO COMMENTS

TABLE OF CONTENTS

OVERVIEW

This appendix to the Final EA has been prepared in accordance with the California Environmental Quality Act (CEQA) and the South Coast Air Quality Management District's (South Coast AQMD) Certified Regulatory Program Guidelines. Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l), and South Coast AQMD's Certified Regulatory Program (codified under Rule 110) require that the final action on PAR 1178 include written responses to issues raised during the public process. South Coast AQMD Rule 110 (the rule which codifies and implements the South Coast AQMD's certified regulatory program) does not impose any greater requirements for summarizing and responding to comments than is required for an environmental impact report under CEQA.

CEQA PROCESS OF THE DRAFT EA

The Draft EA was released for a 30-day public review and comment period that started on July 19, 2023 and ended on August 18, 2023 at 5:00 p.m. A Notice of Completion (NOC) and the Draft EA were filed with the Governor's Office of Planning and Research (OPR) (State Clearinghouse (SCH) #2023070354) and posted on the State Clearinghouse's CEQAnet Web Portal at: https://ceqanet.opr.ca.gov/2023070354. In addition, the NOC was filed and posted with the county clerks of Los Angeles, Orange, Riverside, and San Bernardino counties. The NOC was distributed using electronic mail to various government agencies and other interested agencies, organizations, and individuals (collectively referred to as the public). The NOC was also provided to all California Native American Tribes (Tribes) that requested to be on the Native American Heritage Commission's (NAHC) notification list per Public Resources Code Section 21080.3.1(b)(1). The NAHC notification list provides a 30-day period during which a Tribe may respond to the formal notice, in writing, requesting consultation on the Draft EA. Additionally, the NOC was published in the Los Angeles Times on July 19, 2023. The NOC and the Draft EA were posted on South Coast AQMD's website at: http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects. An email announcing the availability of the NOC and the Draft EA was also sent to interested parties on July 19, 2023.

LIST OF COMMENTERS

Four comment letters were received by South Coast AQMD during the public review and comment period on the Draft EA. This appendix contains responses to comments received in relation to the analysis in the Draft EA. Responses to comments received in relation to the proposed amended rule language (PAR 1178) can be found in Appendix A of the Final Staff Report.

For the purposes of identifying and responding to comments on the Draft EA, the comment letters have been organized according to the date received and assigned a number; individual comments within each letter have been bracketed and assigned a comment number. The following is a list of comment letters received in relation to the Draft EA along with the date each letter was received.

Comment Letter Number	Commenter	Comment Letter Received Date	Page No.
Comment Letters Received During the Public Review Period			
1	Department of Transportation, District 7 – Office of Regional Planning	August 3, 2023	D-3
2	Santa Ynez Band of Chumash Indians	August 14, 2023	D-7
3	Tesoro Refining & Marketing Company LLC	August 17, 2023	D-9
4	Tesoro Refining & Marketing Company LLC	August 18, 2023	D-12

Pursuant to CEQA Guidelines Section 15088(a) and South Coast AQMD Rule 110(d), South Coast AQMD has evaluated and provided written responses to comments received during the Draft EA public comment period.

CEQA REQUIREMENTS REGARDING COMMENTS AND RESPONSES

CEQA Guidelines Section 15204(b) outlines parameters for submitting comments and reminds persons and public agencies that the focus of review and comment of the Draft EA should be "on the proposed finding that the project will not have a significant effect on the environment." If persons and public agencies believe that the proposed project may have a significant effect, the commenter should: 1) identify the specific effect; 2) explain why they believe the effect would occur; and 3) explain why they believe the effect would be significant. Comments are most helpful when they are as specific as possible. At the same time, reviewers of the Draft EA should be aware that CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters. CEQA Guidelines Section 15204(c) further advises, "Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments. Pursuant to CEQA Guidelines Section 15064, an effect shall not be considered significant in the absence of substantial evidence." CEQA Guidelines Section 15204(e) also states, "This section shall not be used to restrict the ability of reviewers to comment on the general adequacy of a document or of the lead agency to reject comments not focused as recommended by this section."

Pursuant to CEQA Guidelines Section 15088(a) and South Coast AQMD Rule 110(d), South Coast AQMD has evaluated and provided written responses to comments received during the Draft EA public comment period. The level of detail contained in each response corresponds to the level of detail provided in the comment (i.e., responses to general comments may be general). In addition, updates to the CEQA analysis have been made due to public comments as well as minor modifications for consistency.

COMMENT LETTER #1 – Department of Transportation, District 7 – Office of Regional Planning, August 3, 2023 (p. 1 of 3)

From: Zhong, Evelyn@DOT
To: Kevin Ni
Subject: [EXTERNAL] Caltrans District 7 Comment Letter - Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilitie – South Coast Air Quality Management District- SCH# 2023070354- GTS #07-MULTIPLE-2023-00368
Date: Thursday, August 3, 2023 6:13:57 PM
Attachments: 07-MULTIPLE-2023-00368 Proposed Amended Rule 1178 Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities.pdf

Greetings,

Please see the attached Caltrans comment letter for the following project:

Proposed Amended Rule 1178 – Further
Reductions of VOC Emissions from Storage
Tanks at Petroleum Facilities
–South Coast Air Quality Management District (EA)
SCH# 2023070354
GTS #07-MULTIPLE-2023-00368

Best,

Evelyn Zhong
Transportation Planning Student Assistant
Caltrans District 7, Division of Planning
100 S. Main Street, MS-16
Los Angeles, CA 90012

COMMENT LETTER #1 – Department of Transportation, District 7 – Office of Regional Planning, August 3, 2023 (p. 2 of 3)

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY Gavin Newsom, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7- OFFICE OF REGIONAL PLANNING
100 S. MAIN STREET, SUITE 100
LOS ANGELES, CA 90012
PHONE (213) 897-0067
FAX (213) 897-1337
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

August 1, 2023

Kevin Ni
Acting Program Supervisor
South Coast AQMD
21865 Copley Dr
Diamond Bar, CA 91765

RE: Proposed Amended Rule 1178 –
Further Reductions of VOC Emissions
from Storage Tanks at Petroleum Facilities–
EA (Environmental Assessment)
SCH # 2023070354
GTS #07-MULTIPLE-2023-00368
Vic. LA Multiple

Dear Kevin Ni,

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. Proposed Amended Rule (PAR) 1178 establishes more stringent leak detection and repair and control requirements for storage tanks located at petroleum facilities that have emitted more than 20 tons of VOC in any reporting year since the rule's adoption in 2001. The measure applies to 1,059 storage tanks located at 27 facilities including refineries, bulk storage, loading, and oil production facilities. However, only 54 tanks at eight facilities will need to be domed and eight tanks at seven facilities will need additional roof seals installed. 1-1

After reviewing the draft environmental assessment, Caltrans has the following comments:

On-road passenger vehicles and heavy-duty trucks would be dispatched to the affected facilities to deliver supplies and construction materials. Table 2-5 of the initial study estimates that 165 vehicle trips will occur on a peak day of construction. Construction activities are estimated to result in 15 heavy duty delivery truck round trips which is less than the threshold of 350 truck round trips per day. While the project can be expected to increase vehicle miles traveled (VMT) regionally, construction activities, associated passenger vehicle trips, and delivery truck trips would cease after construction is completed. Existing long-term circulation patterns within the areas of each affected facility would not be substantially changed. 1-2

Caltrans recommends implementing a traffic control plan to minimize disruptions to traffic and ensure adequate emergency access in the event of traffic lane closure during construction. Effective measures incorporate channelizing devices preceded by approved warning signs to 1)

"Provide a safe and reliable transportation network that serves all people and respects the environment"

COMMENT LETTER #1 – Department of Transportation, District 7 – Office of Regional Planning, August 1, 2023 (p. 3 of 3)

divert traffic in advance of a temporary traffic control zone and 2) define traffic lanes through the work zone to protect motorists, bicyclists, or pedestrians.

Any transportation of heavy construction equipment and/or materials which requires use of oversized-transport vehicles on State highways will need a Caltrans transportation permit. Caltrans recommends large size truck trips be limited to off-peak commute periods.

If you have any questions, please contact project coordinator Anthony Higgins, at anthony.higgins@dot.ca.gov and refer to GTS #07-MULTIPLE-2023-00368.

1-2 cont'd

Sincerely,

Miya Edmonson

MIYA EDMONSON
LDR Branch Chief

cc: State Clearinghouse

"Provide a safe and reliable transportation network that serves all people and respects the environment"

RESPONSE TO COMMENT LETTER #1 – Department of Transportation, District 7 – Office of Regional Planning, August 1, 2023

Response 1-1
Comment 1-1 contains introductory remarks and a brief summary of the proposed project without raising any issues relative to the environmental analysis in the Draft EA. Therefore, no response is required by CEQA. [CEQA Guidelines Section 15088(a)].

Response 1-2
Comment 1-2 contains a summary of the transportation analysis in the Draft EA, and concurs with the conclusions in the Draft EA that the proposed project will result in temporary construction-related traffic but is not expected to result in significant long-term circulation impacts. These conclusions are discussed in the Final EA (see pp. 2-55 through 2-57).

Comment 1-2 also contains a recommendation for affected facilities to implement a traffic control plan during construction to minimize traffic disruptions and ensure adequate emergency access. The transportation analysis in the Final EA has been updated to include this recommendation.

Finally, Comment 1-2 notes that a CalTrans transportation permit is required in the event that oversized transport vehicles traveling on state highways are needed to deliver construction equipment and materials to the affected facilities. While PAR 1178 does not contain any requirements that would interfere with traffic patterns and CalTrans permit requirements, the transportation analysis in the Final EA has been updated to mention this requirement.

COMMENT LETTER #2 – Santa Ynez Band of Chumash Indians, August 14, 2023

SANTA YNEZ CHUMASH TRIBAL ELDER'S COUNCIL
TO PROTECT AND PRESERVE TRIBAL ANCESTRY, TRADITIONS AND CULTURE

Santa Ynez Band of Chumash Indians
Tribal Elders' Council
P.O. Box 517 ◆ Santa Ynez ◆ CA ◆ 93460
Phone: (805)688-7997 ◆ Fax: (805)688-9578 ◆

August 14, 2023

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4178

Att.: Kevin Ni

Re: Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilites

Dear Mr. Ni:

Thank you for contacting the Tribal Elders' Council for the Santa Ynez Band of Chumash Indians.

At this time, the Elders' Council requests no further consultation on this project; however, we understand that as part of NHPA Section 106, we must be notified of the project.

Thank you for remembering that at one time our ancestors walked this sacred land.

2-1

Sincerely Yours,

Crystal Mendoza

Crystal Mendoza
Administrative Assistant | Cultural Resources
Santa Ynez Band of Chumash Indians | Tribal Hall
(805) 325-5537
cmendoza@chumash.gov

RESPONSE TO COMMENT LETTER #2 – Santa Ynez Band of Chumash Indians, August 14, 2023

Response 2-1
Comment 2-1 acknowledges contacting the Tribal Elders' Council for the Santa Ynez Band of Chumash Indians regarding PAR 1178, but requests no further consultation on this proposed project.

The South Coast AQMD provided a formal notice of the proposed project to all California Native American Tribes that either requested to be on the Native American Heritage Commission's (NAHC) notification list or South Coast AQMD's mailing list per Public Resources Code Section 21080.3.1(b)(1) and a notice of the proposed project was provided to the commenter. These notices provide an opportunity for California Native American Tribes to request a consultation with the South Coast AQMD if potentially significant adverse impacts to Tribal cultural resources are identified. The Final EA for the proposed project did not identify any potentially significant adverse impacts to Tribal cultural resources and the commenter requests no further consultation. Further, the South Coast AQMD did not receive any consultation requests from any California Native American Tribes, including the commenter, relative to the proposed project. Since this comment does not raise any issues relative to Tribal cultural resources during the comment period for the Draft EA, no further response is necessary under CEQA.

COMMENT LETTER #3 – Tesoro Refining & Marketing Company LLC, August 17, 2023 (p. 1 of 2)

Tesoro Refining & Marketing Company LLC
A subsidiary of Marathon Petroleum Corporation
Los Angeles Refinery
2350 E. 223rd Street
Carson, California 90810
310-816-8100

August 17, 2023

VIA Certified Mail and eMail (*kni@aqmd.gov*)
Return Receipt Requested

Kevin Ni
Acting Program Supervisor, CEQA
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on Draft Environmental Assessment for South Coast Air Quality Management District Proposed Amended Rule 1178

Dear Mr. Ni:

Tesoro Refining & Marketing Company LLC (Tesoro) submits the following comments on the South Coast Air Quality Management District's (SCAQMD) draft Environmental Assessment (Draft EA) that was released on July 18, 2023[1]. The Draft EA was developed pursuant to the California Environmental Quality Act (CEQA) and evaluates all the potential adverse environmental impacts that could result from implementing Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (PAR 1178). Throughout the rulemaking process, Tesoro has continued to be an active participant in the PAR 1178 working group meetings and discussions with SCAQMD staff. Tesoro has assembled the activities that it may undertake to comply with PAR 1178 and submits the details below to be included in SCAQMD's evaluation of PAR 1178 under CEQA. 3-1

Tesoro had previously requested that SCAQMD CEQA Staff include in its Draft EA analysis the conversion of two (2) fixed roof tanks to domed external floating roof (EFR) tanks as a potential method for reducing VOC emissions at Tesoro's Los Angeles Refinery d/b/a Marathon Los Angeles Refinery (LAR).[2] A follow-up discussion was held with SCAQMD CEQA and Rule-writing Staff on August 16, 2023 to discuss inclusion of these two (2) tanks in SCAQMD's CEQA analysis for PAR 1178. During our discussion, CEQA Staff confirmed that the technology of converting fixed roof tanks to external floating roof tanks had been previously evaluated under a prior Rule 1178 CEQA analysis, and that converting external floating roof tanks to domed external floating roof tanks has been evaluated in the PAR 1178 Draft EA. Therefore, the potential future conversion(s) of LAR's two (2) fixed roof tanks to domed EFR tanks has thereby already been reviewed under CEQA. This letter is to confirm SCAQMD's conclusion that LAR's two (2) tanks do not need to be included in the current PAR 1178 Draft EA since these two (2) tanks have already undergone CEQA analysis. 3-2

We appreciate the opportunity to provide comments to support the SCAQMD PAR 1178 CEQA evaluation.

[1] *See* -Draft Environmental Assessment for Proposed Amended Rule-1178.pdf (aqmd.gov)
[2] *See PAR 1178 (d)(4)(B) on Page 100 of 179 in* -Draft Environmental Assessment for Proposed Amended Rule-1178.pdf (aqmd.gov)

COMMENT LETTER #3 – Tesoro Refining & Marketing Company LLC, August 17, 2023 (p. 2 of 2)

Sincerely,

Charalabos Patsatzis
Vice President – Marathon Los Angeles Refinery

cc: ***SCAQMD***
Michael Krause – Assistant Deputy Executive Officer
Michael Morris – Planning and Rules Manager
Barbara Radlein – Acting Planning & Rules Manager, CEQA
Rudy Chacon – Program Supervisor
Melissa Gamoning – Air Quality Specialist

ecc: 2023-08-17 MPC CEQA Letter on SCAQMD PAR 1178
Jamie Bartolome, MPC RE
Ruth Cade, MPC RE
Amber Larsen, MPC RE
Luis Martinez, MPC LAR
Robert Nguyen, MPC LAR
Vanessa Vail, MPC LAW

RESPONSE TO COMMENT LETTER #3 – Tesoro Refining & Marketing Company LLC, August 17, 2023

Response 3-1
Comment 3-1 contains introductory remarks about the Draft EA that were prepared for PAR 1178 and notes the commenter's participation in public meetings and contribution to the rule development process without raising any specific issues relative to the environmental analysis in the Draft EA. Therefore, no response is required by CEQA. [CEQA Guidelines Section 15088(a)].

Comment 3-1 also includes a general request for additional information to be included in the CEQA analysis for PAR 1178 which is provided in more detail in Comment 3-2. Please see Response 3-2.

Response 3-2
Comment 3-2 contains a request for an analysis of environmental impacts associated with converting two fixed roof tanks to domed external floating roof tanks to be included in the Draft EA for PAR 1178 and summarizes a conversation between Tesoro representatives and South Coast AQMD staff discussing this request at a meeting held on August 16, 2023.

Comment 3-2 also summarizes the outcome of the conversation during which South Coast AQMD staff indicated that the environmental impacts from converting fixed roof tanks to external floating roof tanks were previously analyzed in the certified Final EA for the adoption of Rule 1178 by the South Coast AQMD Governing Board on December 21, 2001 (referred to herein as the December 2001 Final EA).[1]

South Coast AQMD staff confirms that the December 2001 Final EA (see p. 4-10) analyzed the conversion of fixed roof tanks to external floating roof tanks (as well as the conversion to internal floating roof tanks, or the installation of vapor recovery systems venting fixed roof tanks).

For this reason, the Draft EA for PAR 1178 that was released for public review and comment on July 19, 2023, does not contain an analysis of environmental impacts from converting fixed roof tanks to external floating roof tanks. Since PAR 1178 contains a proposal that would result in the installation of domes on external floating roof tanks, the Draft EA for PAR 1178 that was released for public review and comment on July 19, 2023 analyzes the environmental impacts for installing domes on external floating roof tanks. Thus, the Draft EA for PAR 1178 does not need to be revised to include an additional analysis on converting fixed roof tanks to external floating roof tanks.

[1] South Coast AQMD, Final Environmental Assessment for Proposed Amended Rule 1178 - Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities, http://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/aqmd-projects---year-2001.

COMMENT LETTER #4 – Tesoro Refining & Marketing Company LLC, August 18, 2023 (p. 1 of 3)

Kevin Ni

From:	Bartolome, Jamie L. <JLBartolome@Marathonpetroleum.com>
Sent:	Friday, August 18, 2023 3:00 PM
To:	Kevin Ni
Cc:	Michael Krause; Michael Morris; Barbara Radlein; Rodolfo Chacon; Melissa Gamoning; Hayes, Timothy W.; Mathews, Shan S.; Robinson, Kelly; Smith, Gregory (Law) G.
Subject:	[EXTERNAL]Comment Letter on Draft Environmental Assessment for Proposed Amended Rule 1178
Attachments:	Tesoro Logistics CEQA Comment Letter.pdf

Dear Kevin,

Tesoro Logistics Operations LLC respectfully submits the attached Comment Letter on the Draft Environmental Assessment for SCAQMD Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities. We appreciate the opportunity to provide comments. Please let me know if you have any questions.

Sincerely,

Jamie Bartolome

Marathon Petroleum Corporation | Environmental
2350 E. 223rd Street, Carson, California 90810
310.847.5722 Office

1

COMMENT LETTER #4 – Tesoro Refining & Marketing Company LLC, August 18, 2023 (p. 2 of 3)

MPLX

Tesoro Logistics Operations, LLC

Mailing Address:
1300 Pier B Street
Long Beach, CA 90813

August 17, 2023

VIA Certified Mail and eMail (*kni@aqmd.gov*)
Return Receipt Requested

Kevin Ni
Acting Program Supervisor, CEQA
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on Draft Environmental Assessment for South Coast Air Quality Management District Proposed Amended Rule 1178

Dear Mr. Ni:

Tesoro Logistics Operations LLC ("Tesoro Logistics") submits the following comments on the South Coast Air Quality Management District's (SCAQMD) draft Environmental Assessment (Draft EA) that was released on July 18, 2023[1]. The Draft EA was developed pursuant to the California Environmental Quality Act (CEQA) and evaluates all the potential adverse environmental impacts that could result from implementing Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities (PAR 1178). Throughout the rulemaking process, Tesoro Logistics has continued to be an active participant in the PAR 1178 working group meetings and discussions with SCAQMD staff. Tesoro Logistics has assembled the activities that it may undertake at its facilities to comply with PAR 1178 and submits the details below to be included in SCAQMD's evaluation of PAR 1178 under CEQA.

4-1

Correct Appendix C in the Draft EA to include twenty-one (21) tanks located at Tesoro Logistics Operations LLC's three terminals.

Beginning on page C-1 in Appendix C (List of Affected Facilities) of the Draft EA, the list of affected facilities should be corrected to include the following three facilities:

List of Affected Facilities

Facility ID	Facility Name	Address	Tank(s)	Control Technology
174694	Tesoro Logistics Carson Crude Terminal	24696 S. Wilmington Ave, Carson 90745	5 External Floating Roof tanks storing Organic Liquid with a true vapor pressure of 3 psia or greater	Domes
174711	Tesoro Logistics Hathaway Terminal	2350 Obispo Ave, Signal Hill 90755	14 Internal Floating Roof tanks storing Organic Liquid with	Secondary seal

4-2

[1] *See* -Draft Environmental Assessment for Proposed Amended Rule-1178.pdf (aqmd.gov)

COMMENT LETTER #3 – Tesoro Refining & Marketing Company LLC, August 18, 2023 (p. 3 of 3)

			true vapor pressure of 0.1 psia or greater	
174705	Tesoro Logistics Colton Terminal	2395 S. Riverside Ave, Bloomington 92316	2 Internal Floating Roof tanks storing Organic Liquid with true vapor pressure of 0.1 psia or greater	Secondary seal

Since the Carson Crude Terminal currently emits less than 20 tons per year (TPY) VOC, the terminal is not subject to Rule 1178 based on its current operation. (*See* page 16 of 54, Statement of Basis Analysis, under Application Numbers 598464 to 598469 for Facility ID 174694 (dated August 21, 2019)). For your reference, the SCAQMD issued Permits to Construct in 2021 for up to six (6) additional new crude storage tanks at the Carson Crude Terminal. After construction and operation of these 6 tanks, the terminal's annual VOC emissions are projected to exceed Rule 1178's 20 TPY threshold as identified by SCAQMD in the Statement of Basis. Therefore, since Carson Crude Terminal will be subject to the applicable requirements of Rule 1178 after completion of the 6 storage tanks (thereby expected to exceed the 20 TPY threshold), Tesoro Logistics requests that Carson Crude Terminal be included in SCAQMD's CEQA analysis for PAR 1178. Tesoro Logistics' Hathaway and Colton Terminals are currently subject to Rule 1178 and exceed the Rule's 20 TPY VOC threshold based on current operating conditions. 4-2

Based on the information above, Tesoro Logistics requests that SCAQMD correct its discussion of PAR 1178 applicability of the Draft EA to include these twenty- one (21) tanks located at Tesoro Logistics' three (3) bulk storage terminals (Carson Crude Terminal, Hathaway Terminal, and Colton Terminal).

We appreciate the opportunity to provide comments to support the SCAQMD PAR 1178 CEQA evaluation. Please direct any questions or comments to Jamie Bartolome by email at JLBartolome@Marathonpetroleum.com.

Sincerely,

Timothy Hayes
Region Manager – Tesoro Logistics Operations LLC

cc: ***SCAQMD***
Michael Krause – Assistant Deputy Executive Officer
Michael Morris – Planning and Rules Manager
Barbara Radlein – Acting Planning & Rules Manager, CEQA
Rudy Chacon – Program Supervisor
Melissa Gamoning – Air Quality Specialist

ecc: 2023-08-17 MPC CEQA Letter on SCAQMD PAR 1178
Jamie Bartolome, MPC RE
Shan Mathews, MPLX
Robert Nguyen, MPC LAR
Kelly Robinson, MPLX
Greg Smith, MPLX Law

RESPONSE TO COMMENT LETTER #4 – Tesoro Refining & Marketing Company LLC, August 18, 2023

Response 4-1
Comment 4-1 contains introductory remarks about the Draft EA that were prepared for PAR 1178 and notes the commenter's participation in public meetings and contribution to the rule development process without raising any specific issues relative to the environmental analysis in the Draft EA. Therefore, no response is required by CEQA. [CEQA Guidelines Section 15088(a)].

Comment 4-1 also includes a general request for additional information to be included in the CEQA analysis for PAR 1178 which is provided in more detail in Comment 4-2. Please see Response 4-2.

Response 4-2
Comment 4-2 contains a request for the EA to be updated to analyze the environmental impacts associated with: 1) installing domes on five existing external floating roof tanks at the Tesoro Logistics Carson Crude Terminal (Facility ID 174694) which is not currently but will be subject to PAR 1178 once the six previously permitted, but not yet constructed new storage tanks (which will be equipped with domes) are built and become fully operational; 2) installing 14 secondary seals on 14 existing internal floating roof tanks located at the Tesoro Logistics Hathaway Terminal (Facility ID 174711); and 3) installing two secondary seals on two existing internal floating roof tanks located at the Tesoro Logistics Colton Terminal (Facility ID 174705).

The Final EA has been updated to include this additional information in the analysis. Comment 4-2 states: "After construction and operation of these 6 tanks, the terminal's annual VOC emissions are projected to exceed Rule 1178's 20 TPY threshold…" In actuality, the Tesoro Logistics Carson Crude Terminal will be subject to PAR 1178 once the annual VOC emissions exceed 20 tons per year regardless of the construction and operational status of new tanks. In addition, the construction and operation activities for the six new storage tanks were previously analyzed in the Final Environmental Impact Report for the Tesoro Los Angeles Refinery Integration and Compliance Project (LARIC) which was certified on May 12, 2017.[2]

[2] South Coast AQMD, May 2017, Final Environmental Impact Report for the Tesoro Los Angeles Refinery Integration and Compliance Project. http://www.aqmd.gov/home/research/documents-reports/lead-agency-permit-projects/lead-agency-ceqa-documents---permit-projects-2017.

ATTACHMENT I

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Socioeconomic Impact Assessment For
Proposed Amended Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities

September 2023

Deputy Executive Officer
Planning, Rule Development, and Implementation
Sarah L. Rees, Ph.D.

Assistant Deputy Executive Officer
Planning, Rule Development, and Implementation
Ian MacMillan

Planning and Rules Manager
Planning, Rule Development, and Implementation
I. Elaine Shen, Ph.D.

Authors:	James McCreary–Air Quality Specialist Daniel Penoyer–Air Quality Specialist
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Reviewed By:	Xian-Liang (Tony) Tian, Ph.D.–Program Supervisor Shah Dabirian, Ph.D.–Consultant Rodolfo Chacon–Program Supervisor Michael Morris–Planning and Rules Manager Brian Tomasovic–Principal Deputy Counsel

ATTACHMENT I

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD

Chair: VANESSA DELGADO
Senator (Ret.)
Senate Rules Committee Appointee

Vice Chair: MICHAEL A. CACCIOTTI
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Cities of Los Angeles County/Eastern Region

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V. MANUEL PEREZ
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Councilmember, Fourth District
City of Los Angeles Representative

CARLOS RODRIGUEZ
Councilmember, Yorba Linda
Cities of Orange County

JOSE LUIS SOLACHE
Councilmember, Lynwood
Cities of Los Angeles County/Western Region

EXECUTIVE OFFICER:

WAYNE NASTRI

EXECUTIVE SUMMARY

A socioeconomic impact assessment has been conducted to assess the impacts of Proposed Amended Rule 1178 (PAR 1178). A summary of the analysis and findings is presented below.

Key Elements of the Proposed Amendments	PAR 1178 will address volatile organic compound (VOC) emissions from storage tanks located at petroleum facilities and would require doming, vapor recovery units, secondary seals, and optical gas imaging (OGI) inspections. PAR 1178 is estimated to reduce VOC emissions by 0.82 tons per day (tpd).
Affected Facilities and Industries	PAR 1178 would affect 27 facilities in the four-county area. These facilities belong to sectors of petroleum refineries, petroleum bulk stations and terminals, crude oil production, and asphalt manufacturing. Of these 27 affected facilities, 24 facilities are located in Los Angeles County, 3 in San Bernardino County. There are no affected facilities located in Orange and Riverside counties. Regarding specific sectors, 8 out of the 27 facilities refine petroleum, 16 facilities store petroleum in bulk terminals, 2 facilities produce or extract crude oil, and 1 facility manufactures asphalt mixtures and blocks. Subsequent to the release of the socioeconomic impact assessment, three additional facilities were identified as subject to Rule 1178.
Assumptions for the Analysis	The main requirements of the proposed amended rule that have cost impacts for affected facilities would include doming of storage tanks, installation of secondary seals, and OGI inspections. PAR 1178 requires the installation of a dome on all external floating roof tanks containing organic liquid with a total vapor pressure greater than or equal to 3 psia and containing more than 97% by volume crude oil. Staff identified 54 such tanks that will require a dome to be installed. The impacted facilities are already required, per Title 49 of the Code of Federal Regulations, to conduct an internal periodic inspection of each storage tank according to the American Petroleum Institute 653 (API 653) standard. Specific years by which domes must be installed were chosen to balance operational impacts and timely emission reductions. For tanks with a doming installation year before the year in which an API 653 inspection is required, additional costs are included with the doming installation. These costs include cleaning and degassing costs. Additionally, storage leasing costs were included for tanks located at facilities without excess tank storage capacity on-site, requiring the use of off-site third-party storage leasing. Permitting costs are included for both dome installations and secondary seal

<table>
<tr><td></td><td>installations. OGI inspection costs include individual tank scans and overview scans that encompass the entire tank farm at a facility.

The cost analysis uses a forecast period from 2024 to 2087 in order to annualize all the dome installation and material costs in equipment lifetime.</td></tr>
<tr><td>Compliance Costs</td><td>The total present worth of compliance cost of PAR 1178 is estimated at $328.26 million and $152.91 million with 1% and 4% discount rate, respectively. The average annual compliance costs of PAR 1178 are estimated to range from $5.86 million to $7.04 million, for a 1% and 4% interest rate, respectively. The table below presents the summary of the average annual cost of PAR 1178 by cost category.

<table>
<tr><th></th><th colspan="2">Annual Average (2024-2087)</th></tr>
<tr><th>Cost Categories</th><th>1% Interest Rate</th><th>4% Interest Rate</th></tr>
<tr><td>Capital Costs</td><td></td><td></td></tr>
<tr><td>Domed Roof – Materials</td><td>$554,835</td><td>$983,143</td></tr>
<tr><td>Domed Roof – Installation</td><td>$533,077</td><td>$944,588</td></tr>
<tr><td>Domed Roof – Permitting</td><td>$6,870</td><td>$6,870</td></tr>
<tr><td>Domed Roof - Fire Suppression</td><td>$111,894</td><td>$198,272</td></tr>
<tr><td>Domed Roof - Cleaning and Degassing</td><td>$272,254</td><td>$482,421</td></tr>
<tr><td>Domed Roof - Storage Leasing</td><td>$44,214</td><td>$78,344</td></tr>
<tr><td>Secondary Seal – Installation</td><td>$14,139</td><td>$18,232</td></tr>
<tr><td>Secondary Seal - Replace Rubber</td><td>$2,442</td><td>$2,770</td></tr>
<tr><td>Secondary Seal – Permitting</td><td>$1,032</td><td>$1,032</td></tr>
<tr><td>Recurring Costs</td><td></td><td></td></tr>
<tr><td>Weekly OGI Inspection</td><td>$4,212,000</td><td>$4,212,000</td></tr>
<tr><td>Domed Roof - Operating & Maintenance</td><td>$107,388</td><td>$107,388</td></tr>
<tr><td>Total</td><td>$5,860,145</td><td>$7,035,061</td></tr>
</table>

It is estimated that Weekly OGI Inspections and Domed Roofs will comprise approximately 60% and 38% of the total annual cost of PAR 1178, respectively. The petroleum and coal products manufacturing industry (NAICS 324) is expected to incur about 54% of total average annual cost.

The small business analysis shows that out of the 27 affected facilities, none meet the definition of a small business under South Coast AQMD’s Rule 102. One company was identified that is designated as a small business according to the South Coast AQMD’s Small Business Assistance Office (SBAO) definition. Lastly, under the 1990 Clean Air Act Amendments (CAAA) definition, none of the affected facilities will meet the criteria of a small business.</td></tr>
<tr><td>Job Impacts</td><td>Direct costs and corresponding revenues of the proposed project are used as inputs to the REMI PI+ model to assess job impacts and secondary/induced impacts for all the industries in the four-county economy on an annual basis</td></tr>
</table>

	through 2080. The forecast period used in the REMI analysis is the period 2024-2080, as 2080 is the latest forecast year allowed by the model. When the compliance cost is annualized using a 4% interest rate, it is projected that no net jobs will be added or forgone from the economy on average over the period from 2024 to 2080. This finding is mainly attributable to the capital-intensive nature of the affected businesses, characterized by a substantial proportion of equipment/machinery relative to labor. Under PAR 1178, the affected facilities are expected to allocate doming compliance expenditures into three expense tranches. This additional spending would result in annual gains of approximately 220, 111, and 306 jobs for the years 2031, 2033, and 2038, respectively, when doming is required for specific tanks. The job impacts are minor for other years. The most negative job impacts are expected to occur in 2039 with 46 net jobs forgone.
Competitiveness and Price Impacts	The overall impacts of PAR 1178 on the production costs and delivered prices in the region are not expected to be significant. According to the REMI Model, PAR 1178 is projected to have a maximum single-year increase in the cost of production for the petroleum and coal products manufacturing industry in the South Coast region by less than 0.01%, and a maximum increase in delivered prices of less than 0.01%. The single-year maximum cost and price increases are expected to take place in 2039. Based on the staff analysis, PAR 1178 would potentially result in an estimated gas price increase of 0.00063 cents per gallon.

INTRODUCTION

PAR 1178 will address volatile organic compound (VOC) emissions from storage tanks at petroleum facilities that have emitted more than 20 tons of VOC in any reporting year since the rule's adoption in 2001. PAR 1178 would require doming of external floating roof tanks storing liquid which is more than 97% by volume crude oil, raise the VOC removal efficiency requirement for vapor recovery units, require secondary seals on all internal floating roof tanks, increase stringency of gap requirements for secondary seals, and require optical gas imaging (OGI) inspections for all tanks. PAR 1178 is estimated to reduce VOC emissions by approximately 0.82 tons per day.

PAR 1178 requires the installation of a dome on all external floating roof tanks containing organic liquid with a total vapor pressure greater than or equal to 3 psia and containing more than 97% by volume crude oil. Staff identified 54 such tanks that will be required to have a dome installed.

Each storage tank is already required, per Title 49 of the Code of Federal Regulations, to conduct an internal periodic inspection according to the American Petroleum Institute 653 (API 653) standard every 10-30 years depending on the tank's condition, service, location, and previous records. This inspection requires an extensive preparation process that involves removing the tank from service and draining, cleaning, and degassing the vapors inside the tank. Given the costs and operational impacts of this inspection process, the specific years by which domes must be installed (2031, 2033, and 2038) were chosen to balance operational impacts with timely emission reductions. For one facility, the facility has the option to complete doming by 2041 to avoid having multiple tanks unavailable at the same time. Staff's objective was to overlap API 653 inspections with dome installations as much as possible.

For tanks with a doming installation year before the year in which an API 653 inspection is required, additional costs are included with the doming installation. These costs include cleaning and degassing costs. Additionally, storage leasing costs were included for tanks located at facilities without excess tank storage capacity on-site, requiring the use of off-site third-party storage leasing.

LEGISLATIVE MANDATES

The legal mandates directly related to the assessment of the proposed rule include South Coast AQMD Governing Board resolutions and various sections of the California Health & Safety Code.

South Coast AQMD Governing Board Resolutions

On March 17, 1989, the South Coast AQMD Governing Board adopted a resolution that calls for an economic analysis of regulatory impacts that includes the following elements:

- Affected industries
- Range of probable costs
- Cost-effectiveness of control alternatives
- Public health benefits

Health and Safety Code Requirements

The state legislature adopted legislation which reinforces and expands the Governing Board resolutions for socioeconomic impact assessments. California Health and Safety Code section 40440.8, which became effective on January 1, 1991, requires a socioeconomic impact assessment be performed for any proposed rule, rule amendment, or rule repeal which "will significantly affect air quality or emissions limitations."

Specifically, the scope of the socioeconomic impact assessment should include the following:

- Type of affected industries;
- Impact on employment and the regional economy;
- Range of probable costs, including those to industry;
- Availability and cost-effectiveness of alternatives to the rule;
- Emission reduction potential; and
- Necessity of adopting, amending, or repealing the rule in order to attain state and federal ambient air quality standards.

Health and Safety Code section 40728.5, which became effective on January 1, 1992, requires the South Coast AQMD Governing Board to actively consider the socioeconomic impacts of regulations and make a good faith effort to minimize adverse socioeconomic impacts. It also expands socioeconomic impact assessments to include small business impacts. Specifically, it includes the following:

- Type of industries or business affected, including small businesses; and
- Range of probable costs, including costs to industry or business, including small business.

Finally, Health and Safety Code section 40920.6, which became effective on January 1, 1996, requires incremental cost-effectiveness be performed for a proposed rule or amendment which imposes Best Available Retrofit Control Technology or “all feasible measures” requirements relating to ozone, CO, SOx, NOx, VOCs, and their precursors.

AFFECTED FACILITIES

PAR 1178 would affect 27 facilities in the four-county area. Of these 27 affected facilities, 24 facilities are located in Los Angeles County and 3 facilities are located in San Bernardino County. There are no affected facilities located in Orange and Riverside counties. In terms of specific industrial sectors, 8 out of the 27 facilities refine petroleum, 16 facilities store petroleum in bulk terminals, 2 facilities produce or extract crude oil, and 1 facility manufactures asphalt mixtures and blocks. Accordingly, 16 out of the 27 affected facilities are classified under North American Industrial Classification System (NAICS) 424710 – Petroleum Bulk Stations and Terminals, 8 are classified under NAICS 324110 – Petroleum Refineries, 2 are classified under NAICS 211111 – Crude Petroleum and Natural Gas Extraction, and the remaining one facility is classified under NAICS 324121 – Asphalt Paving Mixture and Block Manufacturing.

Table 1 presents the PAR 1178 affected facilities with their NAICS codes and corresponding industrial sectors.

Table 1
Affected Facilities by NAICS Codes

Facility Name	NAICS	Industry
Equilon Enterprises LLC DBA Shell Oil Products US	424710	Petroleum and petroleum products bulk stations and terminals
Equilon Enterprises LLC Shell Oil Products	424710	Petroleum and petroleum products bulk stations and terminals
Phillips 66 Co/LA Refinery Wilmington Pl	324110	Crude petroleum refineries
Phillips 66 Los Angeles Refinery Carson Plant	324110	Crude petroleum refineries
Phillips 66 Pipeline LLC - bulk loading	424710	Petroleum and petroleum products bulk stations and terminals
Phillips 66 Pipeline LLC	424710	Petroleum and petroleum products bulk stations and terminals
Tesoro Refining & Marketing Company LLC	324110	Crude petroleum refineries
Tesoro Logistics East Hynes Terminal	424710	Petroleum and petroleum products bulk stations and terminals
Tesoro Logistics Vinvale Terminal	424710	Petroleum and petroleum products bulk stations and terminals
Tesoro Logistics, Marine Terminal 2	424710	Petroleum and petroleum products bulk stations and terminals
Torrance Refining Company LLC	324110	Crude petroleum refineries
Torrance Logistics Company LLC	424710	Petroleum and petroleum products bulk stations and terminals
Altair Paramount, LLC	324110	Crude petroleum refineries
Calnev Pipe Line LLC	424710	Petroleum and petroleum products bulk stations and terminals
Ultramar Inc Wilmington Refinery	324110	Crude petroleum refineries
Chevron Products Company	324110	Crude petroleum refineries
Kinder Morgan Liquids Terminal	424710	Petroleum and petroleum products bulk stations and terminals
Petro Diamond Terminal Company	424710	Petroleum and petroleum products bulk stations and terminals
SFPP LP Colton Terminal	424710	Petroleum and petroleum products bulk stations and terminals
Ultramar Inc Wilmington Marine Terminal	424710	Petroleum and petroleum products bulk stations and terminals
SFPP LP Watson Station	424710	Petroleum and petroleum products bulk stations and terminals
Equilon Enter. LLC, Shell Oil Prod. U.S.	424710	Petroleum and petroleum products bulk stations and terminals
Equilon Enterprises LLC	424710	Petroleum and petroleum products bulk stations and terminals
Valero Energy Corporation	324121	Asphalt Paving Mixture and Block Manufacturing
Tesoro Refining and Marketing Company LLC	324110	Crude petroleum refineries
Signal Hill Petroleum	211111	Crude Oil Production
Thums Long Beach	211111	Crude Oil Production

Small Business

The South Coast AQMD defines a "small business" in Rule 102 for purposes of fees as one which employs 10 or fewer persons and which earns less than $500,000 in gross annual receipts. The South Coast AQMD also defines “small business” for the purpose of qualifying for access to services from the South Coast AQMD’s Small Business Assistance Office (SBAO) as a business with an annual receipt of $5 million or less, or with 100 or fewer employees. In addition to the South Coast AQMD's definitions of a small business, the federal Small Business Administration (SBA) and the federal 1990 Clean Air Act Amendments (1990 CAAA) also provide definitions of a small business.

The 1990 CAAA classifies a business as a "small business stationary source" if it: (1) employs 100 or fewer employees, (2) does not emit more than 10 tons per year of either VOC or NOx, and (3) is a small business as defined by SBA. Based on firm revenue and employee count, the SBA definitions of small businesses vary by six-digit NAICS codes.[1] For example, according to SBA definition, a business with less than 1,500 employees in the sector of Petroleum Refineries is classified as small business, while the employee threshold for a small business in Wholesale Trade (NAICS 424710) is only 225.

Staff mainly relies on the Dun & Bradstreet data to conduct small business analyses. Since subsidiaries under the same parent company are interest-dependent, staff uses revenue and employee count of each facility’s parent company to determine its status of small business. Data for publicly traded companies are derived from the Security Exchange Commission (SEC) filings. In certain cases that the revenue/employee data are unreliable, other external data sources such as Manta, Hoover, and LinkedIn are used. Staff determines data reliability via use of a data quality confidence code in the Dun & Bradstreet data as well as via staff’s discretion. The small business analysis shows that out of the 27 affected facilities, none meets the definition of a small business under South Coast AQMD’s Rule 102. One company was designated as a small business according to the SBAO definition. Lastly, under the 1990 CAAA definition, none of the affected facilities meet the criteria of a small business.[2]

Table 2 displays the estimated average annual compliance cost of each facility, the annual revenue of each facility’s parent company, and the annual compliance cost as a percent of the revenue of each parent. The ratio of annual compliance costs to the gross annual revenues are expected to be less than one-tenth of one percent for all but two of the affected companies. The two affected companies with a higher annual compliance cost as a percentage of annual revenue are relatively small independent companies, with a maximum annual compliance cost of 1.38% of annual revenue.

[1] https://www.sba.gov/sites/default/files/files/Size_Standards_Table.pdf.
[2] Based on facility-level data on NOx and VOC emissions for calendar years 2022.

Table 2
Projected Ratio of Annual Compliance Costs
to the Gross Annual Revenues of Parent Companies

Parent Company Designation	Total Annual Compliance Cost	Total Annual Revenue ($MM)	% of Revenue
Parent Company 1	**$815,218**	**$ 169,990**	**0.00%**
Facility D	$156,000	-	
Facility E	$322,650		
Facility F	$156,000		
Facility G	$180,568		
Parent Company 2	**$1,083,453**	**$ 178,240**	**0.00%**
Facility H	$254,377	-	
Facility I	$243,078		
Facility J	$156,000		
Facility K	$273,998		
Facility AC	$156,000		
Parent Company 3	**$462,589**	**$ 46,830**	**0.00%**
Facility L	$306,589	-	
Facility N	$156,000		
Parent Company 4	**$645,814**	**$ 171,190**	**0.00%**
Facility Q	$324,252	-	
Facility AA	$165,562		
Facility V	$156,000		
Parent Company 5*	**$660,381**	**$ 237,110**	**0.00%**
Parent Company 6*	**$158,257**	**$ 11**	**1.38%**
Parent Company 7	**$625,327**	**$ 19,200**	**0.00%**
Facility P	$156,000	-	
Facility S	$156,000		
Facility U	$157,327		
Facility X	$156,000		
Parent Company 8	**$624,000**	**$ 381,310**	**0.00%**
Facility A	$156,000	-	
Facility B	$156,000		
Facility Y	$156,000		
Facility Z	$156,000		
Parent Company 9*	**$156,000**	**$ 154,129**	**0.00%**
Parent Company 10*	**$156,000**	**$ 66**	**0.26%**
Parent Company 11*	**$156,000**	**$ 3,220**	**0.01%**

* Parent company has only one affected facility

COMPLIANCE COST

PAR 1178 will address VOC emissions from storage tanks located at petroleum facilities storing organic liquid and would require doming, OGI monitoring, and stricter requirements for secondary tank seals, emission control systems, and reporting and recordkeeping.

The main requirements of the proposed amended rule that have the highest cost impacts for affected facilities include doming and OGI inspections. All the costs discussed in this section are expressed in 2023 dollars. Additionally, while this analysis assumes all direct compliance costs are borne by affected facilities, it is possible that some costs will be passed through to end consumers of refined products. A separate assessment of the potential impacts of PAR 1178 on regional gasoline prices is included in the later part of this report.

Many of the costs estimated in this analysis are dependent on site-specific factors and on business decisions made by facilities subject to PAR 1178. Staff strove to represent costs as realistically as possible, given that many factors would ultimately dictate what price a business will pay to implement a control. The estimated cost for each line item was either represented by an industry average, quotes obtained by staff, or a reasonable range of costs, based on the information and data available. The procedure and assumptions for each cost estimate are discussed below.

The total cost includes all compliance costs over a 64-year period, from 2024 to 2087. As presented in Table 3, the total present worth value of compliance cost of PAR 1178 is estimated at $328.26 million and $152.91 million, depending on the assumed discount rate (1% or 4%, respectively).[3] The average annual compliance costs of PAR 1178 are estimated to range from $5.86 million to $7.04 million, depending on the interest rate (1% or 4%, respectively). Table 3 below presents total and average annual compliance cost of PAR 1178 by requirement categories.

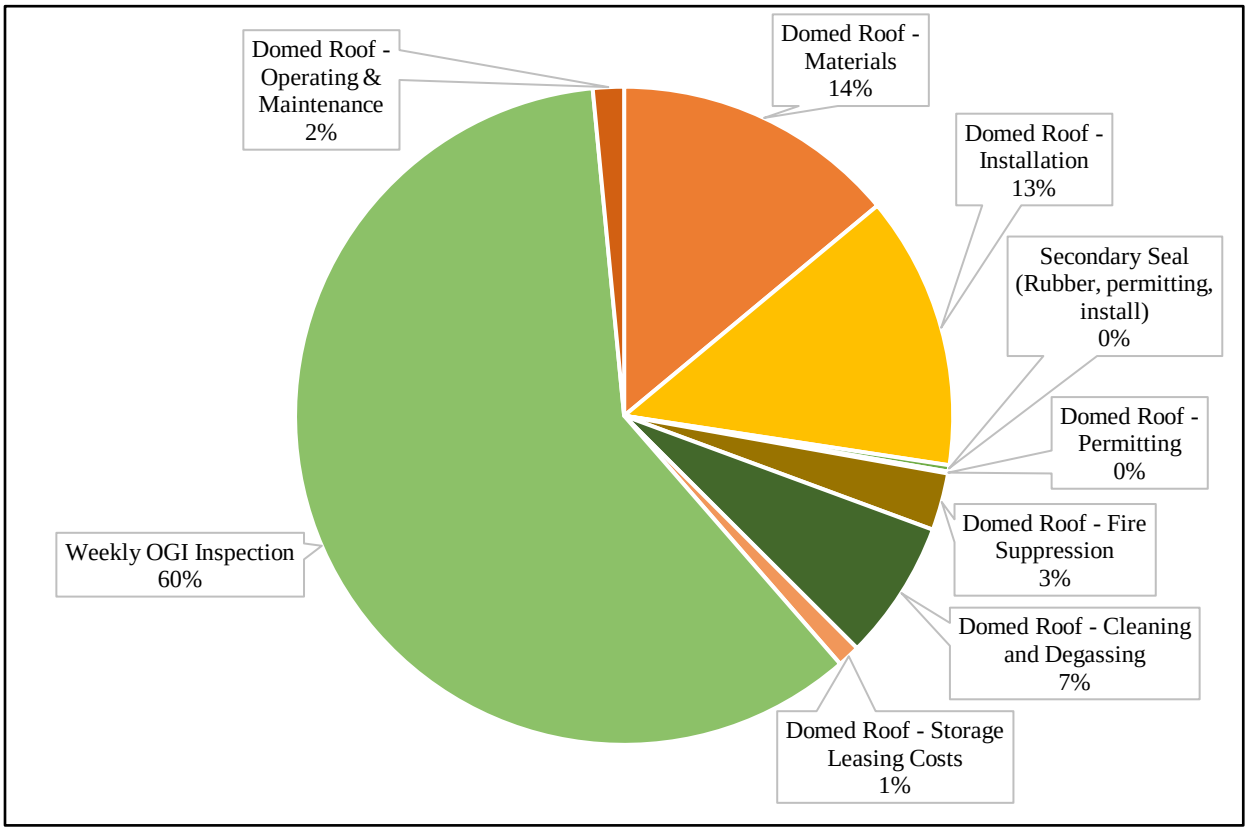
[3] In 1987, South Coast AQMD staff began to calculate cost-effectiveness of control measures and rules using the Discounted Cash Flow method with a discount rate of 4 percent. Although not formally documented, the discount rate is based on the 1987 real interest rate on 10-year Treasury Notes and Bonds, which was 3.8 percent. The maturity of 10 years was chosen because a typical control equipment life is 10 years; however, a longer equipment life would not have corresponded to a much higher rate -- the 1987 real interest rate on 30-year Treasury Notes and Bonds was 4.4 percent. Since 1987, the 4 percent discount rate has been used by South Coast AQMD staff for all cost-effectiveness calculations, including BACT analysis, for the purpose of consistency. The incremental cost reported in this assessment was thus annualized using a real interest rate of four percent as the discount rate. As a sensitivity test, a real interest rate of one percent will also be used, which is closer to the prevailing real interest rate.

Table 3
Total Present Worth and Average Annual Estimated Costs of the PAR 1178

	Present Worth Value (Discounted to Year 2024)		Annual Average (2024-2087)	
Cost Categories	**1% Discount Rate**	**4% Discount Rate**	**1% Interest Rate**	**4% Interest Rate**
Capital Costs				
Domed Roof - Materials	$44,778,470	$18,578,144	$554,835	$983,143
Domed Roof - Installation	$43,022,451	$17,849,589	$533,077	$944,588
Domed Roof - Permitting	$395,926	$292,571	$6,870	$6,870
Domed Roof - Fire Suppression	$9,040,074	$3,762,507	$111,894	$198,272
Domed Roof - Cleaning and Degassing	$21,741,546	$8,733,582	$272,254	$482,421
Domed Roof - Storage Leasing	$3,554,146	$1,458,606	$44,214	$78,344
Secondary Seal - Installation	$825,758	$342,728	$14,139	$18,232
Secondary Seal - Replace Rubber	$121,473	$44,588	$2,442	$2,770
Secondary Seal - Permitting	$60,377	$46,394	$1,032	$1,032
Recurring Costs				
Weekly OGI Inspection	$200,381,278	$100,613,271	$4,212,000	$4,212,000
Domed Roof - Operating & Maintenance	$4,339,670	$1,186,676	$107,388	$107,388
Total	**$328,261,170**	**$152,908,656**	**$5,860,145**	**$7,035,061**

Figure 1 presents the estimated annual compliance costs of PAR 1178 by the requirement categories. Weekly OGI Inspection recurring costs and doming-related capital costs account for roughly 60% and 38%, respectively, of the total annual cost of PAR 1178.

Figure 1
Annual Estimated Costs of the PAR 1178 by Expense Categories



For the purpose of presenting the annual cost by industry, six-digit NAICS codes are aggregated to more general two-to-three-digit NAICS codes. For example, six-digit NAICS codes 324110 (Petroleum Refineries) and 324121 (Asphalt Paving Mixture and Block Manufacturing) are accounted for in the three-digit NAICS code 324 (Petroleum and Coal Products Manufacturing). Table 4 presents annual and average annual costs of PAR 1178 by the affected industry. As presented in Table 4, the petroleum and coal products manufacturing sector (NAICS 324) is expected to incur about 54% of total annual cost.

Table 4
Average Annual Estimated Costs of the PAR 1178 by Two-to-Three-Digit NAICS

Industry (NAICS)	2024	2030	2035	2040	2060	Average Over All Years (2024-2087)
Wholesale trade (42)	$2,496,000	$2,496,000	$2,821,030	$3,070,381	$3,123,282	$2,974,935
Petroleum and coal products manufacturing (324)	$1,404,000	$1,404,000	$2,752,328	$4,289,899	$4,443,446	$3,748,126
Oil and gas extraction (211)	$312,000	$312,000	$312,000	$312,000	$312,000	$312,000
Total	**$4,212,000**	**$4,212,000**	**$5,885,358**	**$7,672,280**	**$7,878,728**	**$7,035,061**

Table 5 presents average annual cost of the PAR 1178 by the affected facilities. It shows that the estimated annual compliance costs for 19 out of the 27 affected facilities are less than $200,000, while only one affected facility is expected to incur an annual cost of more than one million dollars.

Table 5
Projected Annual Compliance Costs by Affected Facilities (2023 Dollars)
Average Annual (2024-2087)

Facility Designation	Average Annual Cost
Facility A	$156,000
Facility B	$156,000
Facility D	$156,000
Facility E	$509,016
Facility F	$156,000
Facility G	$206,642
Facility H	$361,655
Facility I	$335,420
Facility J	$156,000
Facility K	$403,125
Facility L	$474,503
Facility N	$156,000
Facility O	$159,044
Facility P	$156,000
Facility Q	$519,990
Facility R	$1,242,507
Facility S	$156,000
Facility T	$156,000
Facility U	$157,758
Facility V	$156,000
Facility X	$156,000
Facility Y	$156,000
Facility Z	$156,000
Facility AA	$168,984
Facility AC	$156,000
Facility AE	$156,000
Facility AF	$156,000
Total Facilities	**$7,034,643**

COMPLIANCE COSTS

Dome Installations

A dome is defined in PAR 1178 as an installed roof on external floating roof tanks, designed to reduce emissions from tanks by eliminating wind moving over the external floating roof.

Prior to PAR 1178, companies operating external floating roof tanks containing organic liquid with a total vapor pressure greater than or equal to 3 psia were required to install a dome on the tank. If such a tank was permitted to contain more than 97% by volume crude oil, that tank was exempt from doming. PAR 1178 removes this exemption and requires the installation of a dome on all external floating roof tanks containing organic liquid with a total vapor pressure greater than or equal to 3 psia and containing more than 97% by volume crude oil. Fifty-four such tanks were identified by staff that will be required a dome to be installed.

One-Time and Capital Costs

Stakeholders noted that doming would require draining, cleaning, and degassing the tank prior to the installation of a dome for construction and safety considerations. Tanks are also drained, cleaned, and degassed as part of the tank's API 653 internal inspection, which takes place every 10-30 years independently of PAR 1178, depending on the specifications of the tank. To reduce incurred costs, PAR 1178 aligned the doming schedule of 36 of the 54 tanks to coincide with the specific tank's API 653 internal inspection, when the tank is already drained, cleaned, and degassed. For all facilities but one, this schedule alignment will require doming installations to take place as early as 2031 and no later than 2038. Of the 54 tanks, 18 are not scheduled for API 653 internal inspection prior to the expected full compliance date and are the only tanks which incur costs associated with draining, cleaning, and degassing accounted for in the rule costs. According to conversations with stakeholders, draining, cleaning, and degassing costs are expected to range from $378,448 to $1,377,575 per tank, and the total unamortized capital cost is estimated to be $13,795,836.

According to quotes obtained from suppliers, the costs for the installation of a dome itself vary significantly depending on the diameter of the tank. Also, the installation cost would increase dramatically with increasing tank diameter as the dome diameter must match the diameter of the tank being domed. These costs range from $100,000 to $1,750,000 for each tank ranging in size from 30 to 275 feet in diameter. The total unamortized capital cost across all affected facilities and attributed to doming materials and installation is estimated to be $55,127,494.

Staff assumed that all tanks with a dome installation will require a fire suppression system. Fire suppression is expected to cost an estimated $105,000 per tank according to quotes obtained by staff. The total unamortized capital cost across all affected facilities and attributed to fire suppression systems for 54 tanks is estimated to be $5,670,000.

One of the 27 affected facilities will not have excess capacity to divert inflows of crude oil to other tanks due to product type constraints. Staff assumed that this facility would incur storage leasing costs during the period of dome construction and assumed a cost of $0.50 per barrel, based on staff's conversations with stakeholders. The total unamortized capital cost for this specific facility and attributed to storage leasing is estimated to be $2,240,422.

PAR 1178 would require each facility to submit a permit application for each doming installation. According to the fee schedules specified in Rule 301, one permit for each tank would cost $7,002.

Facilities will also need to revise their Title V facility permit, their RECLAIM facility permit, or both depending on the facility. These costs include $1,482 for RECLAIM facility permit revisions, $1,857 for Title V facility permit revisions, or $3,339 for RECLAIM and Title V facility permit revisions. Facilities with multiple tank installations in a single year will only need to submit one facility permit revision application for all tanks. For example, if a facility is both a RECLAIM and Title V facility and has three tanks to be domed in 2031, the total permit fees would be $7,002 for each of the three tanks ($21,006 total) plus a RECLAIM and Title V facility permit revision fee of $3,339, for a grand total of $24,345. Separately, if a different facility is a RECLAIM facility and not also a Title V facility and has only one tank to be domed in 2033, the total fee would be $7,002 for the tank plus a RECLAIM facility permit revision fee of $1,482, for a grand total of $8,484. The total one-time cost attributed to permitting of dome installations is estimated to be $439,710 across all affected facilities.

Capital and one-time costs for doming include the doming installation, cleaning and degassing, fire suppression, storage leasing, and permitting.

Recurring Costs

According to feedback from industry stakeholders, domes require minor and infrequent maintenance activities, such as resealing of seams. Lifetime cost estimates obtained by staff range from $100,000 for a 74-foot diameter tank to $250,000 for a 260-foot diameter tank. The total cost of these recurring expenses for all affected tanks is $6,872,830 over a lifetime of 50 years. The maintenance activities are not expected to take place immediately. The timing of O&M cost depends on weather conditions and other variables. On average, these costs would not be incurred until 20 years into each tank's useful life. Taking that into account, staff annualized the total costs of these recurring expenses over the remaining 30-year useful life of the tank to account for uncertainty in the actual timing.

Secondary Seals

Secondary seals are required to be installed along an internal floating roof's circumference to prevent VOC leaks. These seals are complementary to primary seals, which are installed on floating roofs. PAR 1178 requires the installation of secondary seals on internal floating roof tanks storing material with a total vapor pressure of greater than 0.1 psia. Staff identified eight such tanks currently without secondary seals.

Capital Costs

Capital costs for secondary seals include the secondary seal equipment and installation, rubber component replacement, and permitting. No recurring expenses were assumed for secondary seals. Secondary seal costs are based on the linear footage of the internal floating roof's circumference. Installing each secondary seal will involve the following costs: equipment and installation, rubber component replacement, and permit application submittal for secondary seal installation. No breakdown of equipment versus installation costs was provided by the vendors of these

components; only an aggregate cost was provided for each secondary seal. There are no permitting costs associated with rubber component replacements.

Secondary seals include a stainless steel component with a useful life of 20 years. The cost for a secondary seal installation varies depending on the circumference of the tank, with circumferences ranging from 33.5 feet to 64 feet for the eight identified tanks, and installation costs ranging from $20,680 to $45,760 per tank, according to quotes from vendors. Thus, the total unamortized capital cost across all affected tanks and due to secondary seal installation is estimated at $899,580.

Secondary seals also include a rubber component with a useful life of 10 years. According to conversations with vendors, the cost for a rubber component replacement also varies depending on the circumference of the tank, ranging from $3,948 to $8,736. The total unamortized capital cost across all affected tanks and attributed to rubber component replacement is estimated to be $179,423.

Permitting Cost

Permitting costs are based on Rule 301's fee schedule, at a cost of $7,002 per installation. Facilities will also need to revise their Title V facility permit, their RECLAIM facility permit, or both depending on the facility. These costs include $1,482 for RECLAIM facility permit revisions, $1,857 for Title V facility permit revisions, or $3,339 for RECLAIM and Title V facility permit revisions. Facilities with multiple secondary seal installations in a single year will only need to submit one facility permit revision application for all tanks. For example, if a facility is a Title V facility and not also a RECLAIM facility and has three secondary seal installations in 2033, the total permit fees would be $7,002 for each of the three seals ($21,006 total) plus a Title V facility permit revision fee of $1,857, for a grand total of $22,863. Separately, if a different facility is both a RECLAIM and Title V facility and has only one secondary seal to be installed in 2033, the total fee would be $7,002 for the seal and $3,339 for the RECLAIM and Title V facility permit revision, for a grand total of $10,341. Staff also accounted for facilities that may have both domes and secondary seal installations and for those facilities and years, only one facility permit revision fee was included. The total one-time cost across all affected facilities and attributed to permitting of secondary seal installations is estimated at $66,033.

OGI Monitoring

PAR 1178 will require weekly scans using a handheld OGI camera in order to survey all the tanks at a facility. Additionally, the affected facilities will be required to conduct semi-annual component inspections using a handheld OGI camera, specifically for tanks with a floating roof. Handheld OGI cameras are widely used by both leak detection service providers and facilities as a screening device to detect VOC leaks from the equipment.

Since the proportion of the tanks subject to PAR 1178 is small, staff assumed that both semi-annual component inspections and tank farm scans can simultaneously take place during the weekly inspections. Leak detection service providers charge their inspections on a per-day basis. The cost

for each inspection day is $3,000, which is modeled as a recurring cost in the cost analysis. Staff expects this cost will be incurred every week for all 27 facilities subject to PAR 1178. Thus, the total cost of those recurring expenses is estimated at $269,568,000 over the period of 2024-2087.

MACROECONOMIC IMPACTS ON THE REGIONAL ECONOMY

The Regional Economic Models, Inc (REMI) PI+ v3 model was used to assess the socioeconomic impacts of the proposed rule.[4,5] The model links the economic activities in the counties of Los Angeles, Orange, Riverside, and San Bernardino, and it is comprised of five interrelated blocks: (1) output and demand, (2) labor and capital, (3) population and labor force, (4) wages, prices, and costs, and (5) market shares.[6]

It should be noted that the REMI model is not designed to assess impacts on individual operations. The model was used to assess the impacts of the proposed project on various industries that make up the local economy. Cost impacts on individual operations were assessed outside of the REMI model and were aggregated to the 70-sector NAICS code level to be used as inputs into the REMI model.

Impact of Proposed Amendments

The assessment herein is performed relative to a baseline ("business as usual") forecast where the proposed amendments would not be implemented. It is assumed that the 27 affected facilities would finance the capital and installation costs of control equipment at a 4% interest rate, and that these one-time costs are amortized and incurred over the equipment life. In the PAR 1178 policy scenario, affected facilities would incur an average annual compliance cost of approximately $5.86 million when costs are annualized using a 1% interest rate, or $7.04 million when evaluated using a 4% interest rate.

Direct costs of the proposed project are used as inputs to the REMI model. REMI uses this input to assess secondary and induced impacts for all the industries in the four-county economy on an annual basis over the 2024-2080 period. For this time period, 2024 is the first year that the amended rule will incur compliance costs to the affected facilities, while 2080 is the last year that REMI can

[4] Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (70-sector model). Version 3. 2023.

[5] REMI v3 has been updated based on The U.S. Economic Outlook for 2021-2023 from the University of Michigan's Research Seminar in Quantitative Economics (RSQE) release on May 21, 2021, The Long-Term Economic Projections from CBO (supplementing CBO's March 2021 report The 2021 Long-Term Budget Outlook), and updated BEA data for 2020 (revised on May 27, 2021).

[6] Within each county, producers are made up of 156 private non-farm industries and sectors, three government sectors, and a farm sector. Trade flows are captured between sectors as well as across the four counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component has 160 ages/gender/race/ethnicity cohorts and captures population changes in births, deaths, and migration. (For details, please refer to REMI online documentation at http://www.remi.com/products/pi.).

implement in the analysis. Job impacts are minor and relatively stable after the year 2045 through the end of the REMI forecast in 2080 and staff does not expect any substantial deviations from this trend up to the year 2087. Direct effects of the proposed amendments include (1) additional costs that the facilities would incur by installing domes, secondary seals control equipment, and conducting OGI inspections, (2) additional sales by local vendors of equipment or services which are needed to meet the proposed requirements, and (3) increased regulatory activities by South Coast AQMD from the granting/renewal of permits.

While the compliance expenditures that are incurred by affected facilities would increase their cost of doing business, the purchase of equipment and services would increase the sales and subsequent spending of businesses in various sectors, some of which may be located in the South Coast AQMD region. Table 6 lists the industry sectors modeled in REMI that would incur either direct cost or direct benefit from the compliance expenditures.

Table 6
Industries Incurring *vs.* Benefitting from Compliance Costs/Spending

Source of Compliance Costs	REMI Industries Incurring Compliance Costs	REMI Industries Benefitting from Compliance Spending
Doming of Tanks	Petroleum and coal products Manufacturing (NAICS 324); Wholesale trade (NAICS 42)	*Capital:* Construction (NAICS 23); Fabricated metal product manufacturing (NAICS 332); Waste management and remediation services (NAICS 562); Wholesale trade (NAICS 42); *Recurring:* Construction (NAICS 23)
Secondary Seals	Petroleum and coal products manufacturing (NAICS 324); Wholesale trade (NAICS 42)	*Capital:* Construction (NAICS 23) *Recurring*: None
OGI Inspection	Petroleum and coal products manufacturing (NAICS 324); Wholesale trade (NAICS 42); Crude Petroleum and Natural Gas Extraction (NAICS 211)	*Capital:* None *Recurring:* Professional, scientific, and technical services (NAICS 54)
Permitting	Petroleum and coal products Manufacturing (NAICS 324); Wholesale trade (NAICS 42)	*Capital:* State and Local Government (NAICS 92)

Regional Job Impacts

When the compliance cost is annualized using a 4% real interest rate, REMI projects that on average, no net forgone jobs would occur from 2024 to 2080, relative to the baseline scenario.

While most years are forecasted to have a small number of forgone jobs, substantial job increases are expected in the years 2031, 2033, and 2038, when most capital spending is earned by suppliers. These increases in jobs are primarily attributed to two factors: the timing of capital and recurring costs, and the different industries that benefit from compliance spending.

Timing of Capital and Recurring Costs

Although Weekly OGI Inspection recurring costs represent 60% of total annual average compliance costs, these costs are incurred evenly throughout the period from 2024 through 2087 (approximately $4.2 million per year). The service providers of Weekly OGI Inspections realize these compliance costs as revenue evenly throughout the forecast period.

Domed Roof capital costs, though representing a smaller 38% of total annual average compliance costs, are incurred in three distinct tranches in 2031, 2033, and 2038 ($24.49 million, $13.02 million, and $40.13 million, respectively). On the other hand, dome installers and manufacturers realize this revenue in the same three years generating corresponding job gains.

Different Industries that Benefit from Compliance Spending

The Domed Roof capital costs benefit the construction (NAICS 23), fabricated metal products manufacturing (NAICS 332), Waste management and remediation services (NAICS 562), and Wholesale trade (NAICS 42) industries. The recurring weekly OGI inspection costs benefit the professional, scientific, and technical services (NAICS 54) industry and the ongoing O&M costs benefit the construction industry (NAICS 23). Each of these industries have differing baseline transactional volumes and revenue multipliers as well as differing interrelationships with other industries in the connected regional economy.

Job Impacts

Over the course of the forecast period, the compliance expenditures made by affected facilities for doming and OGI inspections are on average expected to have negligible job impacts. Most years are forecasted to have small number of forgone jobs, ranging from one to five per year. The few forgone jobs are mainly attributable to the capital-intensive nature of the affected businesses, characterized by a substantial proportion of equipment/machinery relative to labor. In 2031, 2033, and 2038, the three years where the construction and metal fabrication industries earn substantial doming-related revenues, the model projects 220, 111, and 306 jobs, respectively, would be added to the regional economy. These higher, but less frequent positive job impacts generally offset the smaller, but more frequent occurrences of negative job impacts resulting in no net jobs being added or lost on average to the regional economy over the forecast period from 2024 to 2080.

The model predicts small numbers of forgone jobs in the years following dome construction. As such, any spillover effects from these forgone jobs into industries such as manufacturing, retail, and food and beverage hospitality should be quite small. As presented in Table 7, job impacts vary by sector, but are minor relative to the overall regional economy. It is important to note that "All Industries", as presented in Table 7, includes remaining industries not detailed in Table 7.

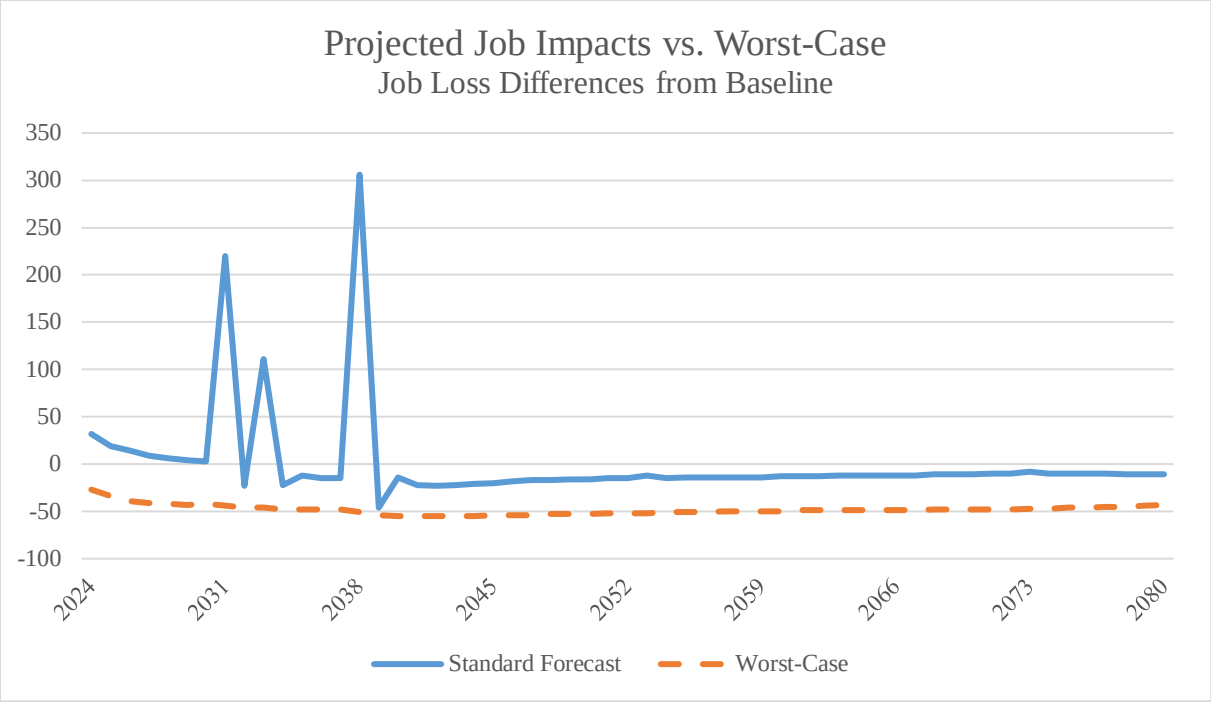
Table 7
Projected Job Impacts of PAR 1178 for Select Industries by Year

Industry (NAICS)	2024	2031	2038	2045	2050	Annual Average (2024-2080)	Baseline Number of Jobs (Average, 2024-2080)	Percent Relative to Baseline
Wholesale trade (42)	-1	2	3	-5	-4	-3	420,362	0.00%
Retail Trade (44-45)	-1	7	10	-3	-3	-2	847,727	0.00%
Petroleum and coal products manufacturing (324)	0	0	-1	-1	-1	-1	5,772	-0.01%
Administrative and Support Services (561)	2	10	14	-2	-2	-1	929,571	0.00%
Crude Petroleum and Natural Gas Extraction (211)	0	0	0	0	0	0	2,362	0.00%
State and Local Government (92)	0	0	0	0	0	0	988,223	0.00%
Construction (23)	0	73	97	-5	-3	1	568,213	0.00%
Fabricated metal product manufacturing (332)	0	25	32	0	0	1	102,875	0.00%
Waste management and remediation services (562)	0	8	29	0	0	1	27,840	0.00%
Professional, scientific, and technical services (54)	23	28	29	13	13	14	1,115,012	0.00%
All Industries	**32**	**220**	**306**	**-20**	**-16**	**0**	**12,406,540**	**0.00%**

Figure 2 presents a projected time series of job impacts over the 2024–2080 forecast period. Based on Abt Associate's 2014 recommendation to enhance socioeconomic analysis by conducting

scenario analysis on major assumptions, staff has analyzed an alternative worst-case scenario where the affected facilities would not purchase any control equipment or services from providers within the South Coast AQMD four-county region and instead purchase control equipment and services from outside the region. In short, this scenario models the impacts of only the costs of compliance with PAR 1178, and none of the revenues realized by associated service providers. This is a hypothetical scenario designed to test the sensitivity of REMI's embedded assumptions about how compliance costs and revenues would be distributed inside and outside the region. In practice, OGI inspections are likely to be conducted by local companies due to the quantity of tanks and the ongoing requirement of OGI inspections. Moreover, doming construction jobs are likely to be performed by local construction companies. This worst-case scenario would result in an annual average of approximately 47 jobs forgone. The 47 jobs forgone represent 0.0004% of the average baseline jobs in the regional economy.

Figure 2: Projected Regional Job Impact, 2024-2080



Impact on Regional Fuel Prices

The Final Socioeconomic Impact Assessment for Rule 1109.1 adopted in November 2021 assessed the potential socioeconomic impacts of rule compliance by the affected refineries[7]. This report included a study by a third-party subject matter expert who estimated that about 30% of variable costs (i.e., annual operational costs) incurred by the refineries within the South Coast AQMD jurisdiction could be passed on to consumers and local industries through increased regional

[7] http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-Nov5-034.pdf, PDF page 846.

gasoline prices. Rule 1109.1 was estimated to result in an average annual increase in regional gasoline price by 0.0042[8] cents per gallon, assuming 30% of all O&M costs, net of annual cost-savings, would be pass-through. Based on the same method and using the ratio of PAR 1178 total annual O&M costs to Rule 1109.1 total annual O&M costs in 2023 dollars ($4.3MM / $29.1MM = 0.15), the impact of PAR 1178 on regional gasoline prices would be 0.00063 cents per gallon (= 0.0042 cents * 0.15 = 0.00063 cents).

To reach full compliance by 2041, firms would need to install domes on 4 tanks per year on average. According to construction quotes obtained by staff, dome installation should not take longer than 4 months. Given the long-dated compliance deadlines, alignment with existing API inspection schedules, and reasonably short downtime required for dome installation, the impacts to local refining capacity should be minor. In addition, any supply shortfalls into the local market can be rapidly filled by increases in the supply of refined products from other markets outside of Southern California, as well as reductions in exports to markets outside of California.

As a specific illustration of this point, it is instructive to consider the response of the market to the Torrance refinery fire in February 2015. Immediately after the refinery fire, prices rose substantially, and inventories were drawn down.[9] But, after several weeks, refineries outside the region adjusted their production, began to produce refined products compliant with California standards, and began to deliver these products through the San Pedro Bay Ports. This lag, between the event and the response by firms in the market, reflects the time required by firms to adjust in response to unexpected market conditions and is one of the reasons why unexpected events (like a refinery fire) might have a large impact on prices. However, if the outage has been scheduled and anticipated by the industry as would be the case for PAR 1178, it's reasonable to expect that the firms would adjust production in advance resulting in greater price stability.

Staff also reviewed the impact to total facility production caused by doming. While a dome is being installed on a tank, the tank would not be in use and there would be a period of approximately 42 days where total facility throughput would be impacted from the tank's inability to process product. Staff reviewed Annual Emissions Reporting (AER) data on the average and maximum throughputs for all PAR 1178 affected tanks for years 2015, 2016, 2017, 2019, 2021, and 2022 and calculated the facility-wide average and maximum throughputs for each tank. The maximum throughput for a given tank across all years was assumed to be a conservative estimate of the operational maximum throughput capacity of that tank.

Staff then aggregated each tank's maximum and average throughput to the facility level. To estimate each facility's average capacity utilization, average throughput was divided by maximum throughput. As an example, if an affected facility has a maximum facility AER throughput of 10,000,000 barrels per year, and an average facility AER throughput of 7,000,000 barrels per year, the capacity utilization is 70%.

[8] Adjusted to 2023 dollars (0.0035 cents in 2021 dollars).
[9] http://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1109.1/1109-1-draft-socioeconomic-impact-assessment-090721-merged.pdf?sfvrsn=10 (page 67).

Capacity utilization figures for affected facilities ranged from 17% to 86%. All capacity utilization values were less than 100%, implying that these facilities have excess capacity based on AER data and can distribute the lost throughput from dome construction amongst other existing tanks that are not offline.

Staff calculated the total facility level throughput that cannot be processed as a result of doming in the years of 2031, 2033, and 2038. These lost capacity values were then compared to the available excess capacity for each facility to calculate whether there was remaining excess capacity, even after accounting for the lost capacity from doming downtime. For all doming years, this remaining excess capacity is a positive value, indicating that the available excess capacity is more than sufficient to distribute lost capacity from doming tanks amongst other on-site tanks.

Please refer to the Table 8 below for a summary of this analysis and the lost capacity analysis in the first year of doming.

Table 8
Excess Capacity Analysis

						Year 1 (2023)		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Facility	# of Total Tanks	Average Annual Throughput (bbls/yr)	Estimated Maximum Capacity (bbls/yr)	Capacity Utilization (c/d=e)	Available Excess Capacity (bbls/yr) (d-c=f)	# of Tanks Domed	Total Lost Capacity from Doming (bbls/yr)	Remaining Excess Capacity (bbls/yr) (f-h=i)
A	8	22,557,853	35,901,972	63%	13,344,119	3	973,387	12,370,732
B	12	1,653,040,233	9,498,855,855	17%	7,845,815,622	4	63,404,283	7,782,411,339
C	2	6,493,559	17,404,499	37%	10,910,940	1	373,602	10,537,338
D	6	50,808,258	58,837,652	86%	8,029,394	2	1,948,810	6,080,584
E	7	3,736,756	6,123,826	61%	2,387,070	3	184,278	2,202,791
F	7	17,080,368	22,844,105	75%	5,763,737	3	842,319	4,921,418
G	8	13,661,029	21,575,141	63%	7,914,112	3	589,483	7,324,630
H**	4	22,284,060	29,639,216	75%	7,355,156	2	1,282,097	6,073,060

* It is assumed that the facility average annual throughput and estimated maximum capacity would remain unchanged through 2031 for the purpose of this analysis
** Facility H is expected to be the only facility leasing storage off-site due to product type constraints preventing the use of excess capacity associated with its four on-site tanks

Competitiveness

The Final Socioeconomic Impact Assessment for Rule 1109.1 also discussed the competitive dynamics in the petroleum refining industry in Southern California. According to the report, most regional fuel demand is supplied by local producers which are covered under PAR 1178. Since the rule impacts all affected facilities similarly, there should be no impact to the relative competitive standing of affected facilities.

The overall impacts of the PAR 1178 on the production costs and delivered prices in the region is not expected to be significant. According to the REMI Model, PAR 1178 is projected to increase the cost of production of the petroleum and coal products manufacturing industry in the South Coast region of 0.0097%, and a maximum increase in delivered prices of 0.0089% in 2039 when all the requirements are satisfied. Based on the staff analysis, PAR 1178 would only result in an estimated gas price increase of 0.00063 cents per gallon. Therefore, implementation of the PAR 1178 is not expected to have a significant impact on the competitiveness of the refinery industry and the local economy of the South Coast region.

REFERENCES

Regional Economic Modeling Inc. (REMI). Policy Insight® for the South Coast Area (70-sector model). Version 3, 2023.

SBA Small Business and Standard Size. https://www.sba.gov/sites/default/files/files/Size_Standards_Table.pdf.

South Coast AQMD. Final Socioeconomic Assessment of PAR 1109.1. http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-Nov5-034.pdf?sfvrsn=6 Page 846.

South Coast AQMD. Proposed Amended Rule 1178 Preliminary Draft Staff Report, August 2023.

ATTACHMENT J

Proposed Amended Rule 1178 Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities

Board Meeting

September 1, 2023

Background

- Adopted in 2001 and regulates VOC emissions from storage tanks located at petroleum facilities that have emitted more than 20 tons VOC per year
  - Contains more stringent control requirements than Rule 463 that also regulates VOC emissions from tanks
- Recently amended on May 5, 2023 to address a SIP deficiency
- Proposed Amended Rule 1178 (PAR 1178) affects 30 facilities and nearly 1,100 tanks

PAR 1178

Assembly Bill 617

- PAR 1178 initiated in response to Wilmington, Carson, West Long Beach Community Emission Reduction Plan
- Identified strategies to reduce emissions from refineries including improved leak detection and additional controls

2022 Air Quality Management Plan

- PAR 1178 partially implements FUG-01 of the 2022 Final AQMP
- Seeks to reduce VOC emissions from leaks with advanced leak detection technologies

Best Available Retrofit Control Technology (BARCT)

- PAR 1178 implements BARCT for storage tanks located at large petroleum facilities

Leak Detection with Optical Gas Imaging

- First South Coast AQMD rule to implement optical gas imaging (OGI)
- Current inspections require analyzer held near interface of leak
  - Inspections quarterly or semi-annually

- OGI cameras scan VOC vapors to find larger leaks more efficiently
- Frequent OGI inspections will identify large sources of emissions from leaks quickly and result in faster repair timelines, thus reducing emissions
- Provides a comprehensive leak detection and repair program when paired with current inspections

- Proposing weekly OGI inspections for tank farms and semi-annual OGI component inspections for floating roof tanks
  - Begin July 1, 2024

Proposed Doming Requirements

- Domes reduce emissions by mitigating a “wind effect” that pulls vapors through floating roof seals
- Proposing doming for *all* crude oil tanks
  - Currently exempt from doming
- Begin in 2026 with full implementation by 2038
  - Unique facility granted extra time due to size and amount of crude processed

Proposed Controls for Secondary Seals and Gaps

- Require secondary seals on all floating roof tanks
  - Currently not required for all tanks
  - Install when tank is next emptied
- More stringent gap requirements for all rim seals
  - Begin upon date of adoption

Other Proposed Requirements

Emission Control Systems

- 98% emission control for fixed roof tanks
- Begin date of adoption

Reporting and Recordkeeping

- Leak notifications
- Written and digital records of OGI inspections

True Vapor Pressure Testing

- Periodic testing to confirm vapor pressure of tank contents

Rule Development

- Staff worked with stakeholders including facilities, environmental groups, technology suppliers, and tank service providers to develop PAR 1178
  - Eight working group meetings
  - One public workshop held as part of public process
  - Multiple site visits
  - Individual meetings with stakeholders to address specific concerns
- One key issue regarding doming implementation schedule
  - Staff worked closely with stakeholder to develop alternative schedule feasible for facilities
- Staff is not aware of any remaining key issues

Cost-Effectiveness and Emission Reductions

- PAR 1178 expected to result in VOC emission reductions of 0.82 tons per day
- Overall cost-effectiveness of PAR 1178 is $27,800 per ton of VOC reduced

Proposed Requirement	Cost-Effectiveness ($/ton)	Reductions (tpd)
Weekly tank farm/semi-annual component OGI inspections	$25,400	0.45
Doming crude oil tanks	$36,800	0.28
98% control efficiency for fixed roof tanks	$0 per ton (already meeting proposed requirement)	0.07
Adding secondary seals	$22,800	0.01
Stringent gap requirements	$0 per ton (already meeting proposed requirement)	0.01

Staff Recommendations

Recommendation is to adopt Resolution:

- Certifying the Final Environmental Assessment for PAR 1178
- Amending Proposed Amended Rule 1178