

ENGINEERING EVALUATION

Facility ID No. 14628
Tesoro Refining & Marketing Company LLC
150 Solano Way, Martinez CA 94553
Application No. 714187

Introduction

Tesoro Refining & Marketing Company LLC (Tesoro) has been operating a portable emergency standby fire pump engine (S-2029) at its refinery since 2017. S-2029 is registered under CARB's Portable Equipment Registration Program (PERP). However, the Air District requires a Permit to Operate (P/O) for PERP equipment that is a necessary part of a stationary source. Upon discovering that the fire pump required a permit, the Air District issued Notice of Violation (NOV) #A61962. In order to use S-2029 at multiple facilities, Tesoro has submitted Application No. 714187 for a multi-location Permit to Operate. S-2029 will be used for fire prevention and firefighting. Tesoro primarily intends to operate S-2029 at their main plant (Facility 14628). However, S-2029 is capable of operating during emergencies at the Amorco Wharf Terminal (Facility 14629) and the tank farm (Facility 21200).

Tesoro will maintain their PERP registration to allow them to operate at locations other than Facilities 14628, 14629, 21200. S-2029 will be limited to 50 hours/year for testing and maintenance. A health risk assessment (HRA) was prepared and shows that health risks are far below the Air District's risk limits. The application is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines section 15301.

Background

Tesoro, an indirect, wholly owned subsidiary of Marathon Petroleum Corporation (Marathon), has applied for a multi-location Permit to Operate for the following equipment:

S-2029 Portable Emergency Standby Fire Pump Engine
Make: Caterpillar, Model: C18, Model Year: 2014
800 bhp, 5.21 MMBtu/hr
Permit Condition No. 100521

The criteria pollutants are nitrogen oxides (NO_x), carbon monoxide (CO), precursor organic compounds (POC) from unburned diesel fuel, sulfur dioxide (SO₂), and particulate matter (PM₁₀ and PM_{2.5}). All of these pollutants are briefly discussed on the Air District's website at www.baaqmd.gov/en/about-air-quality/glossary.

S-2029 meets the Environmental Protection Agency and California Air Resources Board (EPA/CARB) Tier 4 Off-road standard. The engine will burn commercially available California low-sulfur diesel fuel. The sulfur content of the diesel fuel will not exceed 0.0015% sulfur by weight.

S-2029 started operating in March 2017 under CARB's Portable Equipment Registration Program (PERP). As noted above, Tesoro is required to obtain an Air District permit to operate for S-2029. Tesoro received Notice of Violation (NOV) A61962 in August 2024 for operating the PERP registered equipment without an Air District permit to operate.

Portable engines are subject to CARB's portable Airborne Toxic Control Measures (ATCM) for diesel particulate matter from portable engines rated at 50 horsepower and greater, offsets per Air District Regulations 2-2-302, 2-2-303, any operational limits based on project risks from Regulation 2-5, and multi-location operating parameters of Regulation 2-1-413 for equipment operating at multiple locations within the Air District. The multi-location permit will allow S-2029 to be used at Facility 14629 Amorco Wharf Terminal and Facility 21200 tank farm. Tesoro will maintain the PERP registration to provide mutual aid to other facilities during emergencies.

Although this project will emit toxic air contaminants that have the potential to cause or contribute to adverse health impacts, the Air District has evaluated the permit application, and the project is expected to comply with all applicable Air District, state, and federal air quality-related laws and regulations, including health protective limits for toxic air contaminant emissions.

Emissions Analysis and Calculations

This section lays out emissions related to S-2029. Table 1 below summarizes the annual and daily emissions. Table 2 summarizes the cumulative emissions increase which is used to determine offsets owed. The list below summarizes the facts and assumptions underlying the calculations.

Basis:

- Annual emissions: Reliability-related activity 50 hours for S-2029
- Max daily emissions: 24-hour operation
- NO_x, POC, PM₁₀, and PM_{2.5} emissions from EPA Engine Family ECPXL18.1HXF for S-2029
- CO emission factor was not available from EPA/CARB, so BACT values will be used to conservatively estimate CO emissions
- Conservative Assumption: All PM emissions are PM_{2.5}
- SO₂ emission factor from AP-42 Table 3.4-1, SO₂ (15 ppm) = 0.00809*0.0015 lb SO₂/bhp-hr * 454 gr/lb= 0.006 g/bhp-hr

Table 1. Annual and Daily Emissions from EPA/CARB Certified Data from S-2029

Pollutant	Emission Factor (g/bhp-hr)	Max Daily Emissions (lb/day)	Annual Emissions (lb/year)	Annual Emissions (ton/year)
NO _x	2.16	91.3	190.3	0.095
POC	0.02	0.8	1.8	0.0009
CO	2.6	110.0	229.1	0.115
PM ₁₀	0.03	1.3	2.6	0.0013
PM _{2.5}	0.03	1.3	2.6	0.0013
SO ₂	0.006	0.2	0.5	0.0002

Plant Cumulative Increase

Table 2 summarizes the cumulative increase in criteria pollutant emissions from this application.

Table 2. Plant Cumulative Emissions Increase, Post 4/5/91

Pollutant	Application Emissions Increase (tons/year)
NO _x	0.095
POC	0.0009
CO	0.115
PM ₁₀	0.0013
PM _{2.5}	0.0013
SO ₂	0.0002

Health Risk Assessment (HRA)

An HRA evaluates the potential health risks to humans from exposure to toxic air contaminants (TACs). A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness or that may pose a hazard to human health. As shown in Table 1, PM₁₀ emissions from this application are 2.6 lb/year. For the purposes of the health risk assessment, all PM₁₀ emissions are conservatively considered to be diesel particulate emissions. Thus, the diesel particulate emissions from the project are greater than the toxic trigger level of 0.26 lb/year found in Regulation 2, Rule 5, Table 2-5-1. Therefore, an HRA was required for this application.

Pursuant to Regulation 2-5-216, the HRA must include applications submitted within the last 5 years that included new or modified sources of TACs unless the current application was neither 1) a reasonably foreseeable consequence of a previous project, or (2) a critical element or integral part of a previous project. Though there were seven applications within a five year period, only one application is considered related to this application. Per definition of 2-5-216, S-2029 is neither (1) a reasonably foreseeable consequence of the other 6 projects, nor (2) a critical element or integral part of the other six projects.

The six applications below were not included in the project HRA.

Application #26602: Slop Oil System Operation Change Piping
 Application #30758: PSC Vapor Control System (Portable Sludge Dewatering)
 Application #31305: Thermal Oxidizer to Process Loading Rack
 Application #30827: Emergency Diesel Engine Generator for Surge Pond #2 Pump
 Application #29638: Soil Vapor Extraction Remediation at Amorco Terminal
 Application #28916: Groundwater Remediation Change in Operation

This project has one related application within a five-year period which is Application #30768 for the Renewable Fuels Project. To be conservative, it is assumed that testing and maintenance of S-2029 occurs while sources included in the Renewable Fuels Project are operating.

This application does not qualify for HRA streamlining because the fire pump engine is used throughout the refinery and does not sit in a fixed location. Therefore, as a conservative assumption, the entire facility boundary line will be used as the determining factor in identifying the closest receptor location. As a highly conservative estimate, the closest receptor was estimated to be less than 32 feet south from the entrance to the facility/property boundary line which required the fire pump engine to be subject to a refined HRA. It is unlikely that the fire pump will be used so close to the facility's boundary.

HRA Results

This analysis estimates the incremental health risk resulting from toxic air contaminant (TAC) emissions from non-emergency operation of S-2029 at the refinery in combination with the Renewable Fuels Project. Results from this HRA indicate that the maximum project cancer risk is 0.53 in a million, and the maximum project chronic hazard index (HI) is 0.0025.

Table 3. HRA Results

Maximally Exposed Receptor	Maximum Cancer Risk	Maximum Chronic Hazard Index	Maximum Acute Hazard Index
Resident	0.53 chances in a million	0.0025	--
Off-site worker	0.040 chances in a million	0.0022	--
Point Max Impact	--	--	0.19

These risk levels comply with the Air District's risk limits. Regulation 2-5-302 prohibits projects from exceeding a cancer risk limit of 6.0 in a million, a chronic hazard index of 1.0, an acute hazard index of 1.0. Since the proposed engine, operating at 50 hours/year for reliability related testing, has an estimated project cancer risk that does not exceed 6.0 in a million, and the acute and chronic hazard indices do not exceed 1.0, this project complies with the District's Regulation 2-5-302 project risk requirements. No additional operating hour restrictions were necessary for this project.

Best Available Control Technology (BACT/TBACT)

In accordance with Regulation 2-2-301, BACT is triggered for any new or modified source with the potential to emit 10 pounds or more per highest day of POC, NPOC, NO_x, CO, SO₂, PM₁₀ or PM_{2.5}. As shown in Table 1, NO_x and CO emissions exceed 10 pounds per day and thus trigger BACT requirements for S-2029.

However, Section 209(e) of the Federal Clean Air Act and Appendix A to Subpart A of 40 CFR 89 do not allow states “or political subdivisions” to impose emission control on non-road engines. The exception is standards and other requirements imposed by the State of California that are necessary to attain air pollution standards. The portable engine ATCM and PERP regulations are examples of these standards. Therefore, S-2029 is not subject to BACT and TBACT. In addition, S-2029 does not trigger TBACT because the estimated source risk does not exceed a cancer risk of 1.0 in a million and a chronic HI of 0.20.

Offsets

Offset must be provided for any new or modified source at a facility that will have the potential to emit more than 10 tons per year of NO_x or POC, as specified in Regulation 2-2-302; 100 tons per year or more of PM_{2.5}, PM₁₀ or sulfur dioxide, as specified in Regulation 2-2-303. Tesoro is a major facility; therefore, offsets are required for the unoffset cumulative increase for all criteria pollutants.

Table 4. Offsets Required for S-2029

Pollutant	Offset Ratio	Un-Offset Cumulative Increase (TPY)	Offset Amount (TPY)	Banking Certificate No.	Available ERC's (TPY)	Remaining ERC's (TPY)
NO _x	1.15:1	0.095	0.109	1144	66.391	66.282
POC	1.15:1	0.0009	0.001	1567	3.632	3.631
PM ₁₀	1:1	0.0013	0.001	1144	5.881	5.880
PM _{2.5}	1:1	0.0013	0.001	1741	2.577	2.576
SO ₂	1:1	0.0002	0.000	-	0.664	0.664

Pursuant to Regulation 2-2-302, the facility shall provide offsets at a 1.15:1 ratio of the un-offset cumulative increase in NO_x and POC emissions at the facility. Banking Certificate 1144 will be used to offset 0.109 tpy of NO_x emissions. Banking Certificate 1567 will be used to offset 0.001 tpy of POC emissions.

Pursuant to Regulation 2-2-303.1, the applicant shall provide offsets at a 1:1 ratio of the un-offset cumulative increase in PM₁₀, PM_{2.5}, or sulfur dioxide emissions at the facility. Banking Certificate 1741 will be used to offset 0.001 tpy of PM_{2.5} emissions. Banking Certificate 1144 will be used to offset 0.001 tpy of PM₁₀ emissions. SO₂ emissions are 0.0002 tpy, i.e., less than half a pound per year. Such minute increases are tracked until a 0.001 ton/year (2 lb/year) cumulative increase threshold is passed, at which point offsets must be provided.

Statement of Compliance

The owner/operator of S-2029 is subject to and will comply with all applicable requirements. Key requirements are listed below:

ATCM for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater, Title 17, California Code of Regulations, Section 93116, 11/30/2018

Per Title 17 CCR §93116.1, all portable engines having a maximum rated horsepower of 50 bhp and greater and fueled with diesel are subject to CARB's ATCM, which functions to reduce diesel particulate matter. 40 CFR 89.2 defines a non-road engine as "that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform". S-2029 is moved throughout Facility 14628, 14629, and 21200's property boundaries via trailer. S-2029 is moved monthly for training and testing and operates similarly to a fire truck during emergencies where a fire hose will be supplying water to the inlet and the discharge will supply firewater. Since S-2029 must meet Tier 4 emission standards for newly manufactured nonroad engines, it will comply with CARB's ATCM.

District Rules

Regulation 6-1-303 (Ringelmann No. 2 Limitation)

Regulation 6-1-303 stipulates that a person shall not emit for a period or aggregate periods of more than three minutes in any hour, a visible emission that is as dark or darker than No. 2 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree, or be equal to or greater than 40 percent opacity, from an internal combustion engines of less than 25 liters (1500 in³) displacement. S-2029 has a displacement of 18.1 liters. Non-road portable engines are not subject to Air District regulations that contain emission limits per Federal Clean Air Act Section 209(e). However, if S-2029 were subject to Regulation 6-1-303, it would meet the requirements of Regulation 6-1-303.

Regulation 6-1-305 (Visible Particles)

Regulation 6-1-305 specifies that no person shall emit particles from any operation in sufficient number to cause annoyance to any other person where the particles are large enough to be visible as individual particles at the emission point, or of such size and nature as to be visible individually as incandescent particles. Non-road portable engines are not subject to Air District regulations that contain emission limits per Federal Clean Air Act Section 209(e). However, if S-2029 were subject to Regulation 6-1-305, it would meet the requirements of Regulation 6-1-305.

Regulation 6-1-310 (Total Suspended Particulate (TSP) Concentration Limits)

Sections 6-1-310.1 limits TSP emissions to 0.15 grains/dscf of exhaust gas volume or less depending on the exhaust gas rate (see Table 6-1-310.2 for the corresponding TSP concentration limit). As shown in the emission calculations in the table below, the certified particulate emission rate from S-2029 is 0.03 grams per bhp-hour, which results in an outlet

grain loading of 0.00027 gr/dscf. Since the emission rate is less than the 0.0425 gr/dscf limit in Section 6-1-310, S-2029 will comply with Regulation 6-1-310.1's TSP concentration limit. Non-road portable engines are not subject to Air District regulations that contain emission limits per Federal Clean Air Act Section 209(e). However, if S-2029 were subject to Regulation 6-1-310.1, it would meet the requirements of Regulation 6-1-310.1.

Table 5. Section 6-1-310 Emissions Calculations

Engine Maximum Exhaust Flow Rate*	4582	acfm	=	1484.33	dscf/min	=	89059.51	dscf/hr
Engine Maximum Exhaust Temperature	971	F						
Water (H2O) Content (%)	12.5							
PM10 abatement for Engine	0							
Engine PM10 emissions**	0.05	lb/hr	=	210.24	kg/yr	=	24.00	gr/hr
Are Engine PM10 Emissions > 1000 kg/yr?	NO							
Applicable Regulation 6-1-310 section?	6-1-310.1							
TSP Concentration for Engine	0.00027	gr/dscf						
Corresponding Regulation 6-1 TSP Limit	0.0425	gr/dscf						
PM10 emissions < Corresponding Reg 6-1 TSP Limit?	YES							

* dscfm = acfm x (460 R + 70 F)/(460 R + Engine Maximum Exhaust Temperature in F) x (1- water (H2O Content))

Regulation 9-1-301 (Limitations on Ground Level Concentrations of SO₂)

Regulation 9-1-301 prohibits SO₂ emissions in quantities that result in ground level concentrations in excess of 0.5 ppm continuously for 3 consecutive minutes or 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours. However, the limitation does not apply to ground level concentrations occurring on the property from which such emission occurs, provided the property, from the emission point to the point where the excess occurs, is physically secured against public access by the person responsible for the emission. Though Tesoro's facility is only physically accessible to employees and authorized visitors, the PERP registration allows S-2029 to operate outside of facility 14628's property boundary lines. Non-road portable engines are not subject to Air District regulations that contain emission limits per Federal Clean Air Act Section 209(e). However, if S-2029 were subject to Regulation 9-1-301, it would meet the requirements of Regulation 9-1-301.

Regulation 9-8 (NO_x and CO from Stationary Internal Combustion Engines)

Regulation 9, Rule 8 only applies to stationary engines and this engine is portable. Thus, S-2029 is not subject to Regulation 9, Rule 8.

California Environmental Quality Act (CEQA)

This permit application is categorically exempt from the CEQA. CEQA Guidelines, Section 15301 exempts projects that involve negligible or no expansion of use. The portable emergency fire water pump will operate in a renewable fuels facility as well as an associated wharf terminal and tank farm. It will not expand the facilities' normal operations and will result in no increase or only a negligible increase in use at the facilities. It will only be used in the event of an emergency to prevent or mitigate fires and for limited periods for maintenance and testing. Further, based on the review of the permit application

materials, including Appendix H, environmental information form, the project will not have any significant environmental impacts. The Air District does not expect there to be successive projects similar to this one at this same place, since this engine will satisfy the need for fire prevention throughout multiple facilities. The Air District will file a Notice of Exemption with the Contra Costa County Clerk and the State CEQA Clearinghouse.

New Source Performance Standards (NSPS)

NSPS does not apply to non-road (portable) engines.

National Emissions Standards for Hazardous Air Pollutants (NESHAP)

NESHAP does not apply to non-road (portable) engines.

Prevention of Significant Deterioration (PSD)

PSD does not apply as defined in Regulation 2-2-224.

Public Notification (Regulation 2-1-412)

Facilities 14628 (150 Solano Way, Martinez, CA 94553), 14629 (1750 Marina Vista Way, Amorco, Martinez, CA 94553), and 21200 (1750 Marina Vista Way, Amorco, Martinez, CA 94553), owned by Tesoro, are located within an Overburdened Community, as defined in Regulation 2-1-243, and require an HRA. Therefore, this project is subject to the public notification requirements of Regulation 2-1-412.

S-2029 primarily operates at Facility 14628. However, the public notice will be sent to all addresses within 1,000' of facilities 14628, 14629, and 21200.

Permit Conditions

Permit Condition #100521 for S-2029

This permit authorizes operation of Source S-2029 at Facilities 14628, 14629, and 21200 only. Source S-2029 may be operated at another location only in accordance with another valid legal authorization, such as a valid PERP registration.

1. The owner/operator of S-2029 Portable Emergency Diesel Engine has been given a permit for a portable source and is subject to Regulation 2-1-413, the CARB Portable Engine ATCM, and requirements of the CARB PERP registration.

[Basis: CARB ATCM for Portable Diesel Engines, BAAQMD 2-1-413.7, PERP]

2. The owner/operator of S-2029 shall not exceed the following limits per year for reliability-related activities:

- 50 Hours of Diesel fuel (Diesel fuel)

[Basis: Cumulative Increase, Regulation 2-5, Title 17, California Code of Regulations, Section 93116, ATCM for Diesel Portable Engines]

3. The owner/operator of S-2029 shall not store or operate the source at one facility (14628, 14629, and/or 21200) for more than 12 consecutive months, following the date of initial operation. Any backup or standby engine, which replaces S-2029 at the same location and is intended to perform the same function will be counted toward this time limitation. The owner/operator shall not move the equipment and then return it to the same location in an attempt to circumvent the portable equipment time requirement.
[Basis: CARB ATCM for Portable Diesel Engines, BAAQMD 2-1-413.7]
4. The owner/operator of S-2029 shall report any violation of Part 3 to the Director of the Compliance and Enforcement Division no later than ten business days after the incident.
[Basis: Cumulative Increase, Regulation 2-1-403]
5. The owner/operator of S-2029 shall emit no more than 10 tons per year of any regulated air pollutant, including POC, CO, NO_x, PM_{2.5}, PM₁₀, NPOC or SO₂.
[Basis: Regulation 2-1-413.1]
6. The owner/operator of S-2029 shall operate the portable emergency standby engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours), that measures the hours of operation for the engine, is installed, operated, and properly maintained.
[Basis: Title 17, California Code of Regulations, Section 93116, ATCM for Portable Diesel Engines]
7. The owner/operator of S-2029 shall operate the engine only for the following purposes:
 - a. To mitigate emergencies or emergency events as defined by Section 93116.2(a)(12) and (13) of the CARB ATCM,
 - b. For emission testing to demonstrate compliance with Air District, state or federal emission limit, or
 - c. For reliability-related activities (maintenance and other testing, but excluding emission testing).
[Basis: Title 17, California Code of Regulations, Section 93116, ATCM for Portable Diesel Engines]
8. The owner/operator of S-2029 shall ensure that the portable emergency engine only fires on CARB diesel fuel.
[Basis: Cumulative increase, Toxics; Section 93116.3(a) of the ATCM for Portable Diesel Engines]
9. The owner/operator of S-2029 shall ensure that emissions from S-2029 do not cause a public nuisance under Regulation 1-301.
[Basis: Regulation 1-301]

10. The owner/operator of S-2029 shall comply with the risk requirements of Regulation 2, Rule 5.
[Basis: Regulations 2-1-413.2 and 2-5-302]

11. The owner/operator of S-2029 shall not operate S-2029 within 1,000 feet of the outer boundary of any K-12 school site under the Air District multilocation permit without satisfying the public notice requirements.

This permit does not preclude the owner/operator of S-2029 from operating S-2029 within 1,000 feet of the outer boundary of any K-12 school site pursuant to another valid legal authorization such as a valid PERP registration.

[Basis: Regulation 2-1-413.3, PERP]

12. Within 10 days of moving S-2029, the owner/operator shall notify the Compliance and Enforcement Division by email to compliance@baaqmd.gov (Attention: Director of Compliance and Enforcement) of the new location in which it intends to operate. The notification shall include:

- a. Permit number.
- b. Brief description of the nature of the operation.
- c. Estimated duration of the operation at the new location.
- d. Name and telephone number of a contact person at the new location.

[Basis: Regulation 2-1-403]

13. Within 30 days after the end of the calendar year, the owner/operator of S-2029 shall provide the Director of the Compliance and Enforcement Division a year-end summary with the following information:

- a. The location(s) and dates at which the equipment was operated.
- b. The total amount of diesel fuel consumed in this operation for the previous 12 months (in gallons).
- c. The total hours of operation.

[Basis: Regulation 2-1-403]

14. Effective January 1, 2020, the owner/operator of S-2029 Portable Diesel Engine shall comply with one of the following:

- a. S-2029 Portable Emergency Diesel Engine complies with Tier 4 emissions for newly manufactured nonroad engines.

[Basis: Section 93116.3(b)(3) of ATCM for Portable Diesel Engines]

15. To determine compliance with the above conditions, the owner/operator of S-2029 shall maintain the following records and provide all of the data necessary to evaluate compliance with the above conditions.

- a. Daily hours of operation at each location.
- b. Monthly consumption of diesel fuel (in gallons).
- c. Hours of operation and amount of diesel fuel in parts a) and b) shall be totaled on a rolling consecutive 12-month basis.
- d. The owner/operator shall record all records in an Air District-approved log.

The owner/operator shall retain the records with the equipment for 60 months, from the date of entry, and make them available for inspection by Air District staff upon request. These record-keeping requirements shall not replace the record-keeping requirements contained in any applicable Air District Regulations.

[Basis: Cumulative Increase, Regulation 2-5]

End of Conditions

Title V Permit

This facility is a major facility that operates pursuant to, and in compliance with, a federal operating permit, aka Title V permit, pursuant to Regulation 2, Rule 6, Major Facility Review. Regulation 2-6-114 exempts non-road engines, defined by 40 CFR Part 89, from the requirements of Regulation 2-6.

Recommendation

The Air District has reviewed the material contained in the permit application for the proposed project and has made a preliminary determination that the project is expected to comply with all applicable requirements of Air District, state, and federal air quality-related regulations. The proposed source is subject to the public notification requirements of Regulation 2-1-412. After the Air District reviews and considers the public comments, it will make a final determination on the permit.

I recommend that the Air District initiate a public notice for facilities 14628, 14629, and 21200 and consider any comments received prior to taking any final action on issuance of a Permit to Operate for the following equipment:

**S-2029 Portable Emergency Standby Fire Pump Engine
 Make: Caterpillar, Model: C18, Model Year: 2014
 800 bhp, 5.21 MMBtu/hr
 Permit Condition No. 100521**

Prepared By: _____
 Bao Trinh, Senior Air Quality Engineer

Date: 10/21/25

Attachment:

Appendix A – Facility Plot Plan

Appendix A: Facility Plot Plan

