March 31, 2021

Mr. Bryce Bird
Utah Division of Air Quality
195 North 1950 West
P.O. Box 144820
Salt Lake City, Utah 84114-4820

Delivered via COVID-19 Online Submittal Protocol

Re: Reasonably Available Control Technology (RACT) Assessment for Tesoro Refining & Marketing Company LLC – Salt Lake City Refinery and Tesoro Logistics Operations LLC – Remote Tank Farm and Truck Loading Rack

Dear Mr. Bird:

Tesoro Refining & Marketing Company LLC (Tesoro) – Salt Lake City Refinery and Tesoro Logistics Operations LLC (TLO) – Remote Tank Farm and Truck Loading Rack submit the attached Reasonably Available Control Technology (RACT) assessment per the Utah Department of Environmental Quality Division of Air Quality (UDAQ) request received November 5, 2020. The facilities within Tesoro (Refinery) and the Tesoro Logistics Operations LLC (TLO) are a single major source. However, because UDAQ determined the Best Available Control Technology (BACT) analysis previously conducted on the Refinery as part of the $PM_{2.5}$ Serious SIP will satisfy the moderate ozone SIP RACT requirements, Tesoro has only included TLO Truck Loading Rack and Remote Tank Farm emission units in this submittal.

If you have any questions regarding this submittal, please contact me at (801) 366-2036.

Sincerely,

Chris Kaiser
Environmental Supervisor

Enclosures:
- Attachment 1: RACT Analysis Report
- Attachment 2: List of Applicable Facility Sources
- Attachment 3: Potential-to-Emit (PTE) Calculations

cc: Mr. Oliver Dugas – Tesoro Logistics Operations LLC

8-Hour Ozone Moderate Nonattainment SIP
Reasonably Available Control Technology Analysis

Tesoro Refining & Marketing Company LLC
Tesoro Logistics Operations LLC

Prepared for
Tesoro Refining & Marketing Company LLC

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Tesoro Refining & Marketing Company LLC

March 2021

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Reasonably Available Control Technology Analysis

February 2021

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1.0 Executive Summary

The Utah Department of Environmental Quality Division of Air Quality (UDAQ) requested in a November 2020 letter that Tesoro Refining & Marketing Company LLC (Tesoro) complete a Reasonably Available Control Technology (RACT) assessment for their existing emission units at the Salt Lake City Refinery in Salt Lake County, Utah. The facilities within Tesoro (Refinery) and the Tesoro Logistics Operations LLC (TLO) are a single major source. However, because UDAQ determined the Best Available Control Technology (BACT) analysis previously conducted on the Refinery as part of the $PM_{2.5}$ Serious SIP will satisfy the moderate ozone SIP RACT requirements, Tesoro has only included TLO Truck Loading Rack and Remote Tank Farm emission units in this submittal.

The RACT assessment will assist UDAQ in determining acceptable pollution controls as necessary by an anticipated moderate designation for ozone by performing an evaluation of existing emission units emitting ozone precursors including the following:

- Oxides of nitrogen (NO_X)
- Volatile organic compounds (VOC)

Table 1-1 lists the project-related emission units and pollutants that have been included in the RACT review. There are no sources of NOx emissions subject to the RACT review.

Table 1-1 Summary of Emission Units and Pollutants subject to RACT

Emissions Unit	Ozone Pollutants Emitted
Fugitive Equipment	VOC
Refinery Wastewater System[1]	VOC
Transport Loading Rack	VOC
Fixed Roof Tanks	VOC
Internal Floating Roof Tanks	VOC
External Floating Roof Tanks	VOC

[1]The only refinery wastewater system emission unit included in this analysis is the Oil-Water Separator (OWS) tank. Because it is a small fixed-roof tank, it is categorized as such in the remainder of this document.

This RACT analysis follows EPA's five-step top-down approach for Best Available Control Technology, as specified in the U.S. EPA's draft New Source Review Workshop Manual, (October 1990) and affirmed by UDAQ.[1]

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[1] The workshop manual can be found at U.S. EPA's website https://www.epa.gov/sites/production/files/2015-07/documents/1990wman.pdf.
UDAQ has confirmed this procedure at https://deq.utah.gov/air-quality/reasonably-available-control-technology-ract-process-moderate-area-ozone-sip

- Step 1 – Identify All Available Control Technologies
- Step 2 – Eliminate Technically Infeasible Options
- Step 3 – Rank Remaining Control Technologies by Control Effectiveness
- Step 4 – Evaluate Most Effective Control Technologies and Document Results
- Step 5 – Select RACT

A key consideration for the technical feasibility of control technologies is the schedule for installation. Per UDAQ's estimated timeline, the control technology will likely need to be implemented by the end of 2023. If due to the time for engineering design, the refinery operating schedule, or the equipment lead time, it is not feasibly possible to install and operate prior to December 31, 2023, that technology is determined to be technically infeasible and eliminated from further consideration. For these control technologies that cannot be installed by December 31, 2023, Tesoro did not complete further evaluation of technical and economic feasibility. Upon a more detailed review, Tesoro may determine that these control technologies are not technically or economically feasible. Tesoro has not completed these evaluations for control technologies that cannot be installed by December 31, 2023.

Table 1-2 below summarizes RACT for each project-related emission unit and control technologies which cannot be installed by the end of 2023.

Table 1-2 VOC RACT

Source Description	RACT	Basis
Fugitive Equipment	LDAR Program (40 CFR 60 Subpart GGGa)	An LDAR program compliant with Subpart GGGa meets RACT.
Transport Loading Rack	Vapor Recovery Unit with Carbon adsorption	Operation of a vapor recovery unit with carbon adsorption meets RACT.
Fixed Roof Tanks	Carbon control (OWS Tank only) Good Design Methods and Operating Practices (All others)	Carbon control meets RACT for the OWS tank. Good design methods and operating practices meets RACT for all others.
Internal Floating Roof Tanks	Upgrade to MACT CC controls or operate using NSPS Kb required controls	Some tanks have been upgraded. Upgrading all tanks is technically not feasible by 12/31/23.
External Floating Roof Tanks	Upgrade to MACT CC controls or operate using NSPS Kb required controls	Some tanks have been upgraded. Upgrading all tanks is technically not feasible by 12/31/23.

2.0 RACT Methodology

RACT is defined as devices, systems, process modifications, or other apparatus or techniques that are reasonably available taking into account social, environmental and economic impacts as well as the necessity of imposing such controls in order to attain and maintain a national ambient air quality standard.[2]

2.1 Top-Down Approach

This RACT analysis has been conducted in accordance with 40 CFR 51.912. RACT technologies have been selected using the "top-down" approach for Best Available Control Technology specified in U.S. EPA's draft New Source Review Workshop Manual, (October 1990) and affirmed by UDAQ,[3] using the five-step process.

Step 1 - Identify all Available Control Technologies

All available control technologies are identified for each emission unit. A control technology is considered available for a specific pollutant if it could practically be applied to the specific emission unit. To identify all available control technologies, the following sources were consulted:

- U.S. EPA's RACT/BACT/LAER Clearinghouse (RBLC)
- U.S. EPA's New Source Review (NSR) website
- U.S. EPA draft permit review comments on recent PSD permits
- State/local agency air quality permits and the associated agency review documents
- Permit applications and BACT/RACT reports for recent projects
- Air pollution control technology vendors and consultants
- Manufacturer's recommendations
- Technical journals, reports, webinars, conferences and seminars

Step 2 - Eliminate Technically Infeasible Control Technologies

Each control technology identified in Step 1 is evaluated, using source-specific factors, to determine if it is technically feasible. If physical, chemical and engineering principles demonstrate that a technology could

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[2] The definition for RACT is set forth in 40 CFR 51.100(o).

[3] The workshop manual can be found at U.S. EPA's website https://www.epa.gov/sites/production/files/2015-07/documents/1990wman.pdf.
UDAQ has confirmed this procedure at https://deq.utah.gov/air-quality/reasonably-available-control-technology-ract-process-moderate-area-ozone-sip

not be successfully used on the emission unit, then that technology is determined to be technically infeasible. Economics are not considered in the determination of technical feasibility. Technologies which are determined to be infeasible are eliminated from further consideration.

In this step, the control technology is also evaluated for feasibility of installation and operation by the end of 2023, which is the estimated required implementation period specified by UDAQ. If, due to the time for engineering design, the refinery operating schedule, or the equipment lead time it is not feasibly possible to install and operate prior to December 31, 2023, that technology is determined to be technically infeasible, and will be eliminated from further consideration.

Factors considered in estimating installation schedules for emission control technologies include:

- Does the emission source need to be out of service to complete the installation?
- If a shutdown is required, when is the next maintenance shutdown (turnaround) planned for that emission unit? Turnarounds (TARs) occur once every 5 to 7 years. 2020 was the most recent refinery TAR.
- Can the engineering design, equipment procurement, construction contracts and construction planning be accomplished prior to the next scheduled maintenance shutdown?
- Can funding for the project be approved before the next TAR?
- Can air quality permits be obtained prior to the start of construction? This would include and construction activities which are needed to occur prior to the TAR.

Step 3 - Rank Technically Feasible Technologies by Control Effectiveness

All technically feasible technologies are ranked in order of overall control effectiveness. Rankings are based on the level of emission control expressed as emissions per unit of production, emissions per unit of energy used, the concentration of a pollutant emitted from the source, control efficiency, or a similar measure. The control effectiveness listed will be representative of the level of emission control which can be achieved by the control technology at the operating conditions of the emission unit being reviewed. If the most effective control technology is selected as RACT, then Step 4 need not be completed.

Step 4 - Evaluate Technically Feasible Control Technologies

The economic, environmental, and energy impacts of each technically feasible control technology are evaluated. Step 4 is only required if the most effective control technology is not proposed as RACT. As the top control technology was chosen in all cases, the economic, environmental, and energy impact analyses were not required for this evaluation.

The environmental impact analysis assesses collateral environmental impacts associated with control of the regulated pollutant in question. Impacts considered may include solid or hazardous waste generation, wastewater discharges from a control device, visibility impacts, collateral increases in emissions of other criteria or non-criteria pollutants, increased water consumption, and land use. The environmental impact analysis is conducted based on consideration of site-specific circumstances.

The energy impact analysis considers whether use of an emission control technology results in any significant or unusual energy penalties or benefits. Energy use may be evaluated on an energy used per unit of production basis; energy used per ton of pollutant controlled or total annual energy use. Energy impacts may consider whether or not use of an emission control technology will have an adverse impact on local energy supplies due to increased fuel consumption or the loss of fuel production or power generation.

Step 5 - Select RACT

Based on technical considerations and economic, environmental and energy impacts the proposed RACT for each emissions unit will include:

- A pollutant-specific emission control technology as RACT, or a combination of controls when appropriate
- Document approach is consistent with existing applicable requirements.

Relevant RBLC determinations are discussed for comparison purposes.

3.0 Overview of Available Control Technologies

Available emission control technologies for the Ozone SIP pollutants evaluated in this report are listed in Table 3-1. This table summarizes the results of Step 1 of the “top-down” approach to identify all available control technologies. Further evaluation of these control technologies for each emissions unit is completed in the remainder of this report.

Table 3-1 Available Emission Control Technologies

Pollutant	Control Technology
VOC	**Add-on VOC Control Technologies**
	CO Boiler (COB) with Good Combustion Practices
	Catalytic Control
	Catalytic Oxidation
	Thermal Oxidation
	Vapor Recovery System
	Vapor Combustion Unit
	Flare
	Carbon Adsorption
	Other VOC Control Technologies
	CO Promoter Catalyst Additive
	VOC Promoter with ESP
	Good Design Methods and Operating Procedures
	Use of Natural Gas
	LDAR Program
	API Separator Floating Covers
	API Separator Floating Roof Covers meeting QQQ Standards
	Replace uncontrolled drains
	Retrofit controls
	Controlled Drains at QQQ Process Units
	Flare Gas Recovery
	Flare Management Plan
	Flare Cap
	Flare Combustion Efficiency
	Comply with emergency engine requirements of MACT ZZZZ
	Replace engine with Tier 4 engine
	Compliance with 40 CFR Part 63, Subpart CC
	Low emitting drift eliminators
	Electric Motor
	NSPS Kb Controls
	RSR Controls
	Degassing controls when storage tanks are taken out of service
	Vent tank to a Control Device
	Retrofit to an IFR
	Dome Retrofit
	Installation of a vapor recovery system VOC control

4.0 RACT for Fugitive Equipment

4.1 Fugitive Equipment VOC Emissions

Control strategies for volatile organic compound emissions from fugitive components are based on LDAR program work practice requirements, which identify and then reduce emissions from process equipment components.

4.1.1 Step 1 – Identify All Available Control Technologies

Potential control technologies for VOC emissions from a review of available information are listed in Table 3-1.

4.1.2 Step 2 – Technical Feasibility of Control Technologies

The technical feasibility of potential control options for VOC emissions are summarized in Table 4-1. The following sections provide additional detail.

Table 4-1 Technical Feasibility of VOC Control Technologies for Fugitive Equipment

Technology	Technically Feasible?
LDAR Program	Yes

4.1.3 Step 3 – Effectiveness of Feasible Control Technologies

The technically feasible control options are ranked in Table 4-2, according to their control effectiveness.

Table 4-2 Control Effectiveness Ranking of VOC Control Technologies for Fugitive Equipment

Rank	Technology	Emission Control Effectiveness	Basis for Listed Performance
1	LDAR Program	N/A	N/A

4.1.4 Step 4 – Evaluation of Feasible Control Technologies

The economic, environmental, and energy impacts of technically feasible control options are not required, as the top feasible control option is selected.

4.1.5 Step 5 – RACT Selection

RACT for VOC emissions from fugitive equipment is an LDAR program, as required by 40 CFR Part 60 Subpart GGGa and Tesoro's Consent Decree. This proposal is consistent with recent RBLC determinations for fugitive emissions.

5.0 RACT for Loading Racks

5.1 Transportation Rack VOC Emissions

TLO operates the TLR for loading and unloading refinery products into and out of trucks and railcars. VOC vapors are discharged from the tankers as they are filled, and each loading rack is operated with a vapor recovery unit with carbon adsorption as the control device.

5.1.1 Step 1 – Identify All Available Control Technologies

Potential control technologies for VOC emissions from a review of available information are listed in Table 3-1.

5.1.2 Step 2 – Technical Feasibility of Control Technologies

The technical feasibility of potential control options for VOC emissions are summarized in Table 5-1. The following sections provide additional detail.

Table 5-1 Technical Feasibility of VOC Control Technologies for Loading Racks

Technology	Technically Feasible?
Carbon adsorption	Yes
Flare/Thermal Oxidizer	Yes

All control options are technically feasible.

5.1.3 Step 3 – Effectiveness of Feasible Control Technologies

The technically feasible control options are ranked in Table 5-2, according to their control effectiveness.

Table 5-2 Control Effectiveness Ranking of VOC Control Technologies for Loading Racks

Rank	Technology	Emission Control Effectiveness	Basis for Listed Performance
1	Carbon Adsorption	10 mg/L product loaded	MACT CC
1	Flare/Thermal Oxidizer	10 mg/L product loaded	MACT CC

5.1.4 Step 4 – Evaluation of Feasible Control Technologies

The use of a flare/thermal oxidizer results in additional combustion related emissions from the controlled VOC. In comparison, a carbon adsorption unit recovers product which would otherwise be emitted and results in no collateral emissions. Therefore, a carbon adsorption unit is considered the top feasible control option in this case. The economic and energy impacts of technically feasible control options are not required, as the top feasible control option is selected.

5.1.5 Step 5 – RACT Selection

RACT for VOC from the transport loading rack is a vapor recovery unit with carbon adsorption. This proposal is consistent with recent RBLC determinations.

6.0 RACT for Fixed Roof Tanks

6.1 Fixed Roof Tanks VOC Emissions

Fixed roof tanks are either vented with a gooseneck or have a pressure/vacuum vent. Emissions from fixed roof tanks are in the form of working losses and standing losses. Standing losses occur through tank temperature fluctuations, while working losses occur primarily from liquid level changes. TLO operates the following fixed roof tanks:

- TK41
- TK41T
- TK42
- TK401
- TK411
- TK502
- TK505
- TK506
- TK510
- Oil-Water Separator (OWS) Tank

6.1.1 Step 1 – Identify All Available Control Technologies

Potential control technologies for VOC emissions from a review of available information are listed in Table 3-1.

6.1.2 Step 2 – Technical Feasibility of Control Technologies

The technical feasibility of potential control options for VOC emissions are summarized in Table 6-1. The following sections provide additional detail.

Table 6-1 Technical Feasibility of VOC Control Technologies for Fixed Roof Tanks

Technology	Technically Feasible?
Vapor Recovery System	No
Vent to a Control Device	OWS Tank – Yes All others - No
Retrofit to an IFR	No
Good design methods and operating procedures	Yes

Although adding a vapor recovery system or venting to a control device may be feasible, it is not feasible to design, install, and begin operating either of these control technologies prior to December 31, 2023 (with the exception of the existing carbon control device at the Oil-Water Separator Tank). Therefore, a vapor recovery system and venting to a control device is considered technically infeasible.

6.1.3 Step 3 – Effectiveness of Feasible Control Technologies

The technically feasible control options are ranked in Table 6-2, according to their control effectiveness.

Table 6-2 Control Effectiveness Ranking of VOC Control Technologies for Fixed Roof Tanks

Rank	Technology	Emission Control Effectiveness	Basis for Listed Performance
1	Carbon Control (OWS Tank only)	Varies	N/A
2	Good design methods and operating procedures	Varies by tank	N/A

6.1.4 Step 4 – Evaluation of Feasible Control Technologies

The economic, environmental, and energy impacts of technically feasible control options are not required, as the top feasible control option is selected for each tank.

6.1.5 Step 5 – RACT Selection

RACT for VOC emissions from fixed roof tanks is good design methods and operating procedures, as additional control technology is not feasible.

7.0 RACT for Internal Floating Roof Tanks

7.1 Internal Floating Roof Tanks VOC Emissions

An internal floating roof (IFR) tank has a permanent roof with a floating roof on the inside floating on the surface of the liquid. Emissions from a floating roof tank come from both withdrawal losses and standing losses. Withdrawal losses are generally due to liquid level fluctuations, and standing storage losses originate from the rim seal, deck fittings, and the deck seam. All internal floating roof Group 1 tanks currently meet the double seal standard from 40 CFR Part 60 Subpart Kb and 40 CFR Part 63 Subpart CC (Existing MACT CC).

Some of the IFR tanks have been upgraded to meet controls required by recent revisions to Subpart CC under RSR. Under RSR, a new section within 40 CFR 63 Subpart CC (MACT CC RSR) has been added at 40 CFR 63.660. This new section contains new and additional requirements for floating roof seals, deck fitting controls, inspections, recordkeeping, and reporting. The existing storage tank section under Subpart CC, 40 CFR 63.646, remained effective until the new compliance date of April 29, 2016. After the new compliance date, the requirements of 40 CFR 63.646 no longer apply and the compliance requirements of 40 CFR 63.660 are now effective.

RSR requires that the next time the vessel is emptied and degassed or by February, 1, 2026, whichever comes first, the tank is upgraded to meet the deck fitting controls of 40 CFR Subpart WW, which is the method of compliance under 40 CFR 63.660. The deck fitting control upgrades (or commonly referred to below as Upgrades to RSR Controls) for IFR tanks from 40 CFR 63.646 to 40 CFR 63.660 compliance include:

- IFR well covers must be gasketed (i.e. deck openings other than for vents, drains, or legs) 1/8" max gap criteria.
- IFR vents to be gasketed (vacuum breakers, rim vents) 1/8" max gap criteria.
- Deck openings other than for vents must project into liquid.
- Access hatches and gauge float well covers are required to be bolted and gasketed.
- Emergency roof drains must have seals covering at least 90% of the floating roof deck opening.
- IFR column wells must have gasketed cover or flexible fabric sleeve.
- Unslotted guidepoles required to have a pole wiper at the deck fitting and a gasketed cap at the top of the pole.
- Slotted guidepoles must have an external pole wiper and an internal pole float or equivalent.
- Each opening through a floating roof for a ladder having at least one slotted leg shall be equipped with one of the following configurations:
    - A pole float in the slotted leg and pole wipers for both legs. The wiper or seal of the pole float must be at or above the height of the pole wiper.
    - A ladder sleeve and pole wipers for both legs of the ladder.
    - A flexible enclosure device and either a gasketed or welded cap on the top of the slotted leg.

Additionally, tank degassing emissions are controlled by portable combustion units, as required by the Utah SIP Section IX.H Emission Limits and Operating Practices.

7.1.1 Step 1 – Identify All Available Control Technologies

Potential control technologies for VOC emissions from a review of available information are listed in Table 3-1.

7.1.2 Step 2 – Technical Feasibility of Control Technologies

The technical feasibility of potential control options for VOC emissions are summarized in Table 7-1. The following sections provide additional detail.

Table 7-1 Technical Feasibility of VOC Control Technologies for Internal Floating Roof Tanks

Technology	Technically Feasible?
NSPS Kb Controls	Varies by tank
Existing MACT CC Controls	Varies by tank
RSR Controls	Varies by tank
Degassing controls when storage tanks are taken out of service	Yes
Installation of a vapor recovery system with vapor combustion	No

Although the installation of a vapor recovery system may be feasible, it would not be able to be designed, installed, and operated prior to December 31, 2023.

The technical feasibility of meeting NSPS Kb controls and/or RSR controls (MACT Subpart CC) varies by storage tank. The following tanks have been upgraded to include the MACT CC required controls and or currently meet NSPS Subpart Kb controls:

- TK413
- TK414
- TK504 (Kb)
- TK503 (Kb)

Table 7-2 shows the list of remaining tanks which are to be upgraded to the RSR MACT CC controls and the anticipated timeframe of the upgrade. Tanks complying with NSPS Kb are already in compliance.

Table 7-2 Internal Floating Roof Tanks to Be Updated to RSR Controls with Anticipated Upgrade Date

Tank	Anticipated Upgrade Date
TK402	Scheduled for 2024
TK412	Scheduled for 2024

7.1.3 Step 3 – Effectiveness of Feasible Control Technologies

The technically feasible control options are ranked in Table 7-3, according to their control effectiveness.

Table 7-3 Control Effectiveness Ranking of VOC Control Technologies for Internal Floating Roof Tanks

Rank	Technology	Emission Control Effectiveness	Basis for Listed Performance
1	RSR Controls	Varies by tank	N/A
1	Degassing controls when storage tanks are taken out of service.	Varies by tank	N/A
1	NSPS Kb Controls	Varies by tank	N/A

7.1.4 Step 4 – Evaluation of Feasible Control Technologies

The economic, environmental, and energy impacts of technically feasible control options are not required, as the top feasible control option is selected.

7.1.5 Step 5 – RACT Selection

RACT for VOC emissions from internal floating roof tanks is as follows:

- For tanks currently meeting NSPS Kb, meeting NSPS Kb is RACT.
- For tanks currently meeting RSR requirements, meeting RSR is RACT.
- For tanks that don’t meet either NSPS Kb or RSR requirements, the existing MACT CC controls are RACT because upgrades are not feasible by 12/31/23.

This is consistent with recent RBLC determinations of using dual seals and welded decks. During tank shutdowns and degassing, a portable combustion unit will continue to be used to control emissions.

8.0 RACT for External Floating Roof Tanks

8.1 External Floating Roof Tanks VOC Emissions

An external floating roof (EFR) tank is an open topped tank with a roof floating on the surface of the liquid. Emissions from a floating roof tank come from both withdrawal losses and standing losses. Withdrawal losses are generally due to liquid level fluctuations, and standing storage losses originate from the rim seal and deck fittings. All external floating roofs currently meet the double seal standard from 40 CFR Part 60 Subpart Kb or 40 CFR Part 63 Subpart CC (Existing MACT CC).

Some of the tanks have been upgraded to meet RSR controls. Refer to Section 7.1 for additional background on compliance with RSR.

RSR requires that the next time the vessel is emptied and degasses or by February 1, 2026, whichever comes first, the tank is upgraded to meet the deck fitting controls of 40 CFR Subpart WW, which is the method of compliance under 40 CFR 63.660. The deck fitting control upgrades (or commonly referred to below as Upgrades to RSR Controls) for external floating roof tanks from 40 CFR 63.646 to 40 CFR 63.660 compliance include:

- EFR well covers must be gasketed (i.e. deck openings other than for vents, drains, or legs) 1/8" max gap criteria.
- EFR vents to be gasketed (vacuum breakers, rim vents) 1/8" max gap criteria.
- Deck openings other than for vents must project into liquid.
- Access hatches and gauge float well covers must be bolted and gasketed.
- Emergency roof drains must have seals covering at least 90% of the floating roof deck opening.
- Guidepole wells must have gasketed deck cover and a pole wiper.
- Unslotted guidepoles required to have a cap at the top of the pole.
- Slotted guidepoles must have an internal float or equivalent.

Additionally, tank degassing emissions are being now controlled by portable combustion units, as required by the Utah SIP Section IX.H Emission Limits and Operating Practices.

8.1.1 Step 1 – Identify All Available Control Technologies

Potential control technologies for VOC emissions from a review of available information are listed in Table 3-1.

8.1.2 Step 2 – Technical Feasibility of Control Technologies

The technical feasibility of potential control options for VOC emissions are summarized in Table 8-1. The following sections provide additional detail.

Table 8-1 Technical Feasibility of VOC Control Technologies for External Floating Roof Tanks

Technology	Technically Feasible?
Dome Retrofit	No
Installation of a vapor recovery system with vapor combustion	No
Existing MACT CC Controls	Varies by tank
NSPS Kb Controls	Varies by tank
RSR Controls	Varies by tank

Due to Tesoro being located in an earthquake zone, due to the snow load, and due to the age of most EFR tanks, the addition of a dome via retrofit to external floating roofs is technically infeasible. As a dome to capture emissions is technically infeasible, the installation of a vapor recovery system with vapor combustion is also technically infeasible.

The technical feasibility of meeting NSPS Kb controls and/or RSR controls (MACT Subpart CC) varies by storage tank. For several tanks, the upgrades are not technically feasible before December 31, 2023. Additional detail is provided below.

8.1.3 Step 3 – Effectiveness of Feasible Control Technologies

The technically feasible control options are ranked in Table 8-2, according to their control effectiveness.

Table 8-2 Control Effectiveness Ranking of VOC Control Technologies for External Floating Roof Tanks

Rank	Technology	Emission Control Effectiveness	Basis for Listed Performance
1	Meets RSR Controls	Varies by tank	N/A
1	Degassing controls when storage tanks are taken out of service.	Varies by tank	N/A
1	NSPS Kb Controls	Varies by tank	N/A

8.1.4 Step 4 – Evaluation of Feasible Control Technologies

The economic, environmental, and energy impacts of technically feasible control options are not required, as the top feasible control option is selected. The following tanks have been upgraded to include the MACT CC required controls and or currently meet NSPS Subpart Kb controls:

- TK423
- TK424 (Kb)

- TK431 (Kb)

Table 8-3 shows the list of remaining tanks which are to be upgraded to the MACT CC controls and the anticipated timeframe of the upgrade. Tanks complying with NSPS Kb are required to be in compliance currently.

Table 8-3 External Floating Roof Tanks to Be Updated to MACT CC Controls with Anticipated Upgrade Date

Tank	Anticipated Upgrade Date
TK432	Scheduled for 2025
TK405	Scheduled for 2025
TK421	Scheduled for 2025
TK422	Scheduled for 2025

8.1.5 Step 5 – RACT Selection

RACT for VOC emissions from the external floating roof tanks is as follows:

- For tanks currently meeting NSPS Kb, meeting NSPS Kb is RACT.
- For tanks currently meeting RSR requirements, meeting RSR is RACT.
- For tanks that don't meet either NSPS Kb or RSR requirements, the existing MACT CC controls are RACT because upgrades are not feasible by 12/31/2023.

This is consistent with recent RBLC determinations of using slotted guidepole controls. During tank shutdowns and degassing, a portable combustion unit will continue to be used to control emissions.

Tesoro Refining & Marketing Company LLC – Salt Lake City Refinery
Tesoro Logistics Operations LLC – Remote Tank Farm and Truck Loading Rack
8-Hour Ozone Moderate Nonattainment SIP: Initial RACT Screening
Emission Units List at TLO and RTF

Source	Capacity (bbl)	Capacity (gal)	Configuration	Service
Storage Vessels				
41	100	4,200	HFRT	Fuel Additive
41T	140	5,880	HFRT	Fuel Additive
42	100	4,200	HFRT	Fuel Additive
401	64,000	2,688,000	VFRT	Diesel
402	64,000	2,688,000	IFRT	Crude Oil
405	120,000	5,040,000	EFRT	Crude Oil
411	64,000	2,688,000	VFRT	LCO
412	64,000	2,688,000	IFRT	Crude Oil
413	64,000	2,688,000	IFRT	Crude Oil
414	64,000	2,688,000	IFRT	Crude Oil
421	62,000	2,604,000	EFRT	Gasoline
422	62,000	2,604,000	EFRT	Gasoline
423	62,000	2,604,000	EFRT	DAN
424	62,000	2,604,000	EFRT	Gasoline
431	64,000	2,688,000	EFRT	Gasoline
432	62,000	2,604,000	EFRT	DAN
502	90	3,780	HFRT	Fuel Additive
503	7,270	305,340	IFRT	Ethanol
504	14,000	588,000	IFRT	Gasoline
505	145	6,090	HFRT	Fuel Additive
506	145	6,090	HFRT	Fuel Additive
510	180	7,560	HFRT	Fuel Additive
Transport Loading Rack				
Transport Loading Rack				Gasoline
				Diesel/Jet Fuel
Piping/Associated Equipment				
Piping/Associated Equipment				
Waste Water Systems				
Oil-water separator at the TLR				

Key

HFRT	Horizontal fixed roof tank
VFRT	Vertical fixed roof tank
EFRT	External floating roof tank
IFRT	Internal floating roof tank

Tesoro Logistics Operations LLC
Salt Lake City Refinery
Potential-to-Emit Calculations
Table 1: Pollutants Summary

Emission Unit ID	Potential-to-Emit[1] (ton/yr) VOC
41	0.02
41T	0.02
42	0.02
401	0.93
402	3.38
405	3.28
411	0.90
412	2.31
413	2.31
414	4.17
421	4.56
422	4.05
423	3.88
424	3.88
431	4.58
432	4.01
502	0.01
503	0.19
504	1.31
505	0.02
506	0.02
510	0.02
Gasoline Truck Loading	36.42
Diesel/Jet Fuel Truck Loading	3.90
Paved Roads	-
Piping Component Fugitives	24.44
Oil Water Separator	37.90
Total Facility	146.52

Notes:
(1) VOC emissions from storage tanks calculated using TankESP.