Tesoro Logistics Operations LLC (TLO)*
Terminal 1, Long Beach
At Berth Terminal Plan

This terminal plan has been prepared pursuant to Section 93130.14(a)(3) of the Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port.

*Tesoro Logistics Operations LLC is the terminal operator for Carson Cogeneration LLC, the leaseholder with the Port of Long Beach.

1. GENERAL INFORMATION

Terminal Contact Name: Timothy Hayes

Phone Number: 562-499-2249	Email: twhayes@marathonpetroleum.com

Berths Included in this Plan:

Name:	Approximate Geographic Boundary Coordinates:*
1. Berth T121	1. 33.75713, -118.21901

**The number of berths on a terminal and the spatial positioning of berths are dependent on vessel size; thus, the geographic boundary coordinates are approximates only.*

2. STRATEGY DETAILS

Strategies used to comply with the requirements for ocean-going vessels visiting each berth:

Provided technology is sufficiently developed to operate with an acceptable level of personal and process safety risk, TLO plans to employ the following strategies:

1. Terminal Shore Power System* - land-based system to supply electricity from the grid to a vessel
2. Vendor-Provided and CARB-Approved Barge-Based Capture and Control (C&C) System as a CARB-Approved Emission Control Strategy (CAECS)
3. CARB-Approved Innovative Concept – See TLO's Innovative Concept Application for Long Beach

TLO may rely on a combination of these strategies to help reduce emissions from vessels at TLO's berths.

*Berth T121 currently has a shore power system, but this system is only compatible with one (1) vessel. TLO plans to upgrade the system to provide compatibility for future vessels which may be shore power enabled.

2.1 Strategy 1: Terminal Shore Power System

Identification and description of all necessary equipment:

Equipment:	Location:
1. Terminal Shore Power System (current system) a. Vessel connection is port side only, connecting at the rear of the vessel	1. Terminal 1, Berth T121

b. 60 Hz, 6.6kV, 900A, 10,288kVA

2. Terminal Shore Power System (upgraded system)
    a. Electrical Raceways and Wiring
    b. Cable Management System
    c. Fixed Crane

Number of **vessels** expected to use this strategy (annual): 1 initially, increasing as vessels adopt shore power technology

Number of vessel **visits** expected to use this strategy (annual): 14 initially, increasing as vessels adopt shore power technology

Berths where equipment will be used:

1. Berth T121

Schedule for installing equipment:

Project:

1. Terminal Shore Power System (current system)
2. Terminal Shore Power System (upgraded system)

Estimated Completion Date:

1. NA – system already in service
2. 3/1/2029*
    a. Estimated completion date does not reflect timeline for vessels to convert to shore power.

*Items below may impact the Estimated Completion Date to upgrade the system

- Delays in permitting or environmental clearances
- Equipment development resulting from industry guidance and standardization for tanker vessel shore power systems
- Lead time and availability to procure shore power equipment developed from industry guidance and standardization

Physical or Operational Constraints

Project:

1. Terminal Shore Power System (current system)
2. Terminal Shore Power System (upgraded system)

Constraints:

- Physical Constraints
    - None
- Operational Constraints
    - The current shore power system does not have a shoreside crane to facilitate transportation of power and control cables from shore to vessel. Not all vessels have a shipboard crane which can support the cable transportation process. This may lead to an inability for some vessels to utilize the current system.

- TLO's ability to upgrade the current shore power system will be reliant on industry development and standardization of a shore power system for tanker vessels.
- Manufactures do not currently offer shore power systems for terminals and tanker vessels. Engineering and development are required before procurement and implementation of a system can take place.

TLO participated in a technology assessment led by the DNV to evaluate emissions control strategies that could be used to meet the requirements of the Regulation. The physical and operational constraints listed above are included as additional constraints to what was identified by the DNV study. A copy of the DNV study is provided as an attachment to this plan.

2.2 Strategy 2: Vendor-Provided and CARB-Approved Barge-Based Capture and Control

Identification and description of all necessary equipment:

Equipment:

1. Vendor-Provided and CARB-Approved Barge-Based Capture and Control System
    a. Fully contained barge system including collection system and treatment system

Location:

1. Terminal 1, Berth T121

Number of **vessels** expected to use this strategy (annual): 100

Number of vessel **visits** expected to use this strategy (annual): 250

Berths where equipment will be used:

1. Berth T121

Schedule for installing equipment:

Project:

Vendor-Provided and CARB-Approved Barge-Based Capture and Control (C&C) System

Estimated Completion Date:

As of the date of this plan, a Vendor-Provided and CARB-Approved barge-based capture and control system does not exist. The estimated completion date is projected based on current knowledge and development status of the systems being proposed.

- 9/1/2027*
    - C&C estimate assumes technology is proven safe, controls all emission sources required in the Regulation, and

the CARB Executive Officer has approved a minimum of two independent vendors by the end of 2024.

*Any unmitigated risks detailed below may result in a change to the Estimated Completion Date stated above.

- Full resolution of considerations identified in the Safety Study under the CARB grant for C&C Systems for Oil Tanker Project awarded to SCAQMD where TLO resources are actively supporting advancement as a demonstration partner.
- Full resolution of considerations from future safety studies and hazard assessments which TLO anticipates and view as necessary to ensure safe operations on tanker vessels
- Stack connection/collection design demonstrates:
    - Ability to capture emissions from a variable set of stack configurations without damaging the vessel's exhaust stacks.
    - Ability to capture emissions without introducing backpressure in the vessels exhaust systems.
    - Ability to capture emissions without creating sparks (electrical continuity)
    - Ability of the connection/collection design to accommodate vessel draft and pitch changes due to cargo operations
    - Ability of connection/collection system to adequately transport a wide range of flow rates from multiple stacks
    - Ability to capture emissions without placing an individual in harm's way
- Barge congestion and siting around vessels
    - C&C barges must not interfere with adjacent vessel traffic in the port

	○ C&C barges must not interfere with containment boom ○ C&C barge mooring systems must not impact submerged utilities crossing navigational channels ○ C&C barge must not hinder the vessel from being able to meet California State Lands 30-minute departure requirements • Implementation of adequate emergency preparedness to ensure safety of barge-based system operators near hazardous cargo • Treatment system performance meets or exceeds emission reduction requirements for all emissions sources that are required to be controlled on tankers • To prevent monopolization of services, a minimum of two vendors needs to be approved.
Physical or Operational Constraints Project: Vendor-Provided and CARB-Approved Barge-Based Capture and Control (C&C) System	Constraints: As of the date of this plan, a Vendor-Provided and CARB-Approved barge-based capture and control system does not exist. Barge-based capture and control systems are still under development for tanker vessels. Until the systems are developed and demonstrated, a complete list of constraints cannot be fully assessed and finalized. The following list is based on current knowledge of the systems being proposed and may be amended once a system has been demonstrated and approved. • Physical Constraints ○ Impedance or blockage of traffic in the channel • Operational Constraints ○ Lack of safe and/or readily available CARB-approved barge-based capture and control systems ○ Lack of tug availability to move CARB-approved barge-based capture and control systems around the port(s)/terminal(s)

- Lack of adequate safeguards of the CARB-approved barge-based capture and control system
- Incompatibility between the design of the CARB-approved capture and control barge and the terminal/vessel. This includes, but is not limited to:
  - Undersized C&C treatment system, leading to an inability to treat all the vessel's emissions required by the Regulation.
  - Connection/collection design incompatible with the vessel's stacks
  - Undersized spuds preventing the barge from being able to spud alongside the vessel
  - Inability to safely operate the C&C barge due to lack of visibility or access to the vessel
- Insufficient barge operability or employee qualifications – barge hinderance of vessels ability to meet California State Lands 30-minute departure requirements

TLO participated in a technology assessment led by the DNV to evaluate emissions control strategies that could be used to meet the requirements of the Regulation. The physical and operational constraints listed above are included as additional constraints to what was identified by the DNV study. A copy of the DNV study is provided as an attachment to this plan.

2.3 Strategy 3: CARB-Approved Innovative Concept

Identification and description of all necessary equipment:

Equipment:

1. Innovative concept – see "Innovative Concept Application" submittal

Location:

1. Innovative concept – see "Innovative Concept Application" submittal

Number of **vessels** expected to use this strategy (annual): TBD

Number of vessel **visits** expected to use this strategy (annual): TBD

Berths where equipment will be used:

1. See "Innovative Concept Application" submittal

Schedule for installing equipment:

Project:

1. See "Innovative Concept Application" submittal

Estimated Completion Date:

1. See "Innovative Concept Application" submittal

Physical or Operational Constraints

Project:

CARB-Approved Innovative Concept

Constraints:

- Physical Constraints
  - See "Innovative Concept Application" submittal
- Operational Constraints
  - See "Innovative Concept Application" submittal

2.4 Feasibility Studies

Section 93130.14(a)(3)(H) states *'A terminal operator claiming that a physical and/or operational constraint will delay its ability to implement its preferred CARB approved control strategy to achieve emission reductions from vessels at berth according to the requirements of section 93130 et seq., must also include with its terminal plan a technical feasibility study evaluating if there are any other emission control options that could be implemented more quickly at the terminal'.*

As of the date of this plan, the only CARB approved control strategy is shore power. While TLO currently has a shore power system, it is only compatible with one (1) vessel. To provide compatibility for future vessels which may be shore power enabled, TLO has elected to invest in upgrading the existing shore power system at its Terminal. Within this Terminal Plan, TLO has identified the operational and physical constraints which will delay the upgrades of a shore power system according to the requirements of section 93130 et seq.

Due to the physical and operational constraints identified and to support CARB's request to evaluate if any other emission control options could be implemented more quickly at the Terminal, TLO conducted a feasibility study to assess implementation of additional technology. To TLO's best knowledge, the only other technology which may be capable of meeting the requirements of section 93130 and not already being implemented by TLO is a land-based capture and control system. Based on the results of TLO's feasibility study to implement a land-based capture and control system, the estimated completion date aligned with the estimated completion date for an upgraded shore power system. In addition to dates, a physical constraint exists with the infrastructure due to the separate infrastructure required for a shore power system. Operational constraints, reflecting those identified for a barge-based system, also exist due to the needs to design a connection/collection system capable of safely capturing emissions from a variable set of stack configurations.

In summary, TLO believes all efforts have been exhausted to identify technologies capable of meeting the requirements of section 93130 which are not already being pursued through barge-based capture and control, a terminal shore power system, and innovative concepts. Industry studies, most notably the DNV Technology Assessment (attached), also did not identify alternative technologies which may be able to support the requirements of section 93130.

3. TERMINAL OPERATOR/PORT BERTHING RESTRICTIONS

Are there any terminal or port specific berthing restrictions? If yes, please describe.

1. Vessels are restricted to berthing port side only.
2. Underwater utilities located near the vessel berthing locations could restrict mooring systems for barge-based capture and control.

4. DIVISION OF ROLES AND RESPONSIBILITIES

Division of responsibilities:

Note: this plan does not amend or modify the terms and/or the conditions of Tesoro Refining & Marketing Company LLC's preferential assignment agreement and other agreements with the Port, including without limitation expiration dates, nor does it amend or modify the terms and/or conditions of any agreements of the Port of Long Beach and/or of Tesoro Refining & Marketing Company LLC with other entities nor does it modify or diminish any other obligations of other entities to the Port of Long Beach and/or Tesoro Refining & Marketing Company LLC.

	Port	Terminal
Initiation of electrical infrastructure construction including design		✓
Responsibility to provide equipment or necessary electrical infrastructure inside of the terminal		✓
Responsibility to maintain electrical infrastructure inside of the terminal		✓
Responsibility of uncontrolled emissions at berth due to incomplete electrical infrastructure construction		✓
Responsibility of uncontrolled emissions during repair of electrical infrastructure/equipment		✓
Submission of terminal plan		✓
Submission of port plan	✓	

Are there any contractual limitations applicable to the terminal relevant to enacting the infrastructure? If yes, describe.
No limitations have been identified at this time.

Port approval of responsibilities:
Set forth in Section 4 of this At Berth Terminal Plan, the Port's responsible official confirms by signing

below that he/she has reviewed the division of responsibilities and agrees to them under penalty of perjury. The Port does not make any representations about the accuracy, feasibility, or legality of Tesoro Refining & Marketing Company LLC proposed compliance strategy set forth in this At Berth Terminal Plan.

Name:	MARIO CORDERO	*Title:*	CEO
Port:	Long Beach		
Signature:		*Date:*	1/29/24

5. SIGNATURE OF TERMINAL OPERATOR

By signing below, Carson Cogeneration LLC's responsible official confirms under penalty of perjury that he/she has reviewed this At Berth Terminal Plan and is submitting this At Berth Terminal Plan as Carson Cogeneration LLC*'s compliance strategy for the At Berth Regulation.* Carson Cogeneration LLC *] understands this plan is subject to verification by CARB staff.*

Name: Timothy Hayes		Title: Region Manager	
Signature:		Date:	1-15-24

Tesoro Logistics Operations LLC (TLO)*
Terminal 2, Long Beach
At Berth Terminal Plan

This terminal plan has been prepared pursuant to Section 93130.14(a)(3) of the Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port.

*Tesoro Logistics Operations LLC is the terminal operator for Tesoro Refining & Marketing Company LLC, the leaseholder with the Port of Long Beach.

1. GENERAL INFORMATION

Terminal Contact Name: Timothy Hayes

Phone Number: 562-499-2249 | Email: twhayes@marathonpetroleum.com

Berths Included in this Plan:

Name:

1. Berth B77
2. Berth B78

Approximate Geographic Boundary Coordinates:*

1. 33.77580, -118.21300
2. 33.77501, -118.21501

Berth B76 handles liquids but is barge only.
Berths B79 and B80 do not handle liquids.

**The number of berths on a terminal and the spatial positioning of berths are dependent on vessel size; thus, the geographic boundary coordinates are approximates only.*

2. STRATEGY DETAILS

Strategies used to comply with the requirements for ocean-going vessels visiting each berth:

Provided technology is sufficiently developed to operate with an acceptable level of personal and process safety risk, TLO plans to employ the following strategies:

1. Vendor-Provided and CARB-Approved Barge-Based Capture and Control (C&C) System as a CARB-Approved Emission Control Strategy (CAECS)
2. CARB-Approved Innovative Concept – See TLO's Innovative Concept Application for Long Beach
3. Terminal Shore Power System - land-based system to supply electricity from the grid to a vessel

TLO may rely on a combination of these strategies to help reduce emissions from vessels at TLO's berths.

2.1 Strategy 1: Vendor-Provided and CARB-Approved Barge-Based Capture and Control

Identification and description of all necessary equipment:

Equipment:

1. Vendor-Provided and CARB-Approved Barge-Based Capture and Control System
   a. Fully contained barge system including collection system and treatment system

Location:

1. Terminal 2, Berths B77, B78

Number of **vessels** expected to use this strategy (annual): 25

Number of vessel **visits** expected to use this strategy (annual): 100

Berths where equipment will be used:

1. Berth 77
2. Berth 78

Schedule for installing equipment:

Project:

Vendor-Provided and CARB-Approved Barge-Based Capture and Control (C&C) System

Estimated Completion Date:

As of the date of this plan, a Vendor-Provided and CARB-Approved barge-based capture and control system does not exist. The estimated completion date is projected based on current knowledge and development status of the systems being proposed.

- 9/1/2027*
    - C&C estimate assumes technology is proven safe, controls all emission sources required in the Regulation, and the CARB Executive Officer has approved a minimum of two independent vendors by the end of 2024.

*Any unmitigated risks detailed below may result in a change to the Estimated Completion Date stated above.

- Full resolution of considerations identified in the Safety Study under the CARB grant for C&C Systems for Oil Tanker Project awarded to SCAQMD where TLO resources are actively supporting advancement as a demonstration partner.
- Full resolution of considerations from future safety studies and hazard assessments which TLO anticipates and view as necessary to ensure safe operations on tanker vessels
- Stack connection/collection design demonstrates:
    - Ability to capture emissions from a variable set of stack configurations without damaging the vessel's exhaust stacks.
    - Ability to capture emissions without introducing backpressure in the vessels exhaust systems.

	○ Ability to capture emissions without creating sparks (electrical continuity) ○ Ability of the connection/collection design to accommodate vessel draft and pitch changes due to cargo operations ○ Ability of connection/collection system to adequately transport a wide range of flow rates from multiple stacks ○ Ability to capture emissions without placing an individual in harm's way • Barge congestion and siting around vessels ○ C&C barges must not interfere with adjacent vessel traffic in the port ○ C&C barges must not interfere with containment boom ○ C&C barge mooring systems must not impact submerged utilities crossing navigational channels ○ C&C barge must not hinder the vessel from being able to meet California State Lands 30-minute departure requirements • Implementation of adequate emergency preparedness to ensure safety of barge-based system operators near hazardous cargo • Treatment system performance meets or exceeds emission reduction requirements for all emissions sources that are required to be controlled on tankers • To prevent monopolization of services, a minimum of two vendors needs to be approved.
Physical or Operational Constraints <u>Project:</u> Vendor-Provided and CARB-Approved Barge-Based Capture and Control (C&C) System	<u>Constraints:</u> As of the date of this plan, a Vendor-Provided and CARB-Approved barge-based capture and control system does not exist. Barge-based capture and control systems are still under development for tanker vessels. Until the systems are developed and demonstrated, a complete list of constraints

cannot be fully assessed and finalized. The following list is based on current knowledge of the systems being proposed and may be amended once a system has been demonstrated and approved.

- Physical Constraints
    - Impedance or blockage of traffic in the channel
- Operational Constraints
    - Lack of safe and/or readily available CARB-approved barge-based capture and control systems
    - Lack of tug availability to move CARB-approved barge-based capture and control systems around the port(s)/terminal(s)
    - Lack of adequate safeguards of the CARB-approved barge-based capture and control system
    - Incompatibility between the design of the CARB-approved capture and control barge and the terminal/vessel. This includes, but is not limited to:
        - Undersized C&C treatment system, leading to an inability to treat all the vessel's emissions required by the Regulation.
        - Connection/collection design incompatible with the vessel's stacks
        - Undersized spuds preventing the barge from being able to spud alongside the vessel
        - Inability to safely operate the C&C barge due to lack of visibility or access to the vessel
    - Insufficient barge operability or employee qualifications – barge hinderance of vessels ability to

	meet California State Lands 30-minute departure requirements TLO participated in a technology assessment led by the DNV to evaluate emissions control strategies that could be used to meet the requirements of the Regulation. The physical and operational constraints listed above are included as additional constraints to what was identified by the DNV study. A copy of the DNV study is provided as an attachment to this plan.
2.2 Strategy 2: CARB-Approved Innovative Concept	
Identification and description of all necessary equipment: Equipment: 1. Innovative concept – see "Innovative Concept Application" submittal	Location: 1. Innovative concept – see "Innovative Concept Application" submittal
Number of **vessels** expected to use this strategy (annual): TBD	
Number of vessel **visits** expected to use this strategy (annual): TBD	
Berths where equipment will be used: 1. See "Innovative Concept Application" submittal	
Schedule for installing equipment: Project: 1. See "Innovative Concept Application" submittal	Estimated Completion Date: 1. See "Innovative Concept Application" submittal
Physical or Operational Constraints Project: CARB-Approved Innovative Concept	Constraints: • Physical Constraints o See "Innovative Concept Application" submittal • Operational Constraints o See "Innovative Concept Application" submittal
2.3 Strategy 3: Terminal Shore Power System	
Identification and description of all necessary equipment: Equipment: 2. Terminal Shore Power System a. Upgraded utility provider infrastructure (transmission lines, substation transformers, switchgear) b. Transformers c. Power Distribution Center with electrical switchgear and motor controls d. Electrical Raceways and Wiring e. Cable Management Systems f. Fixed Cranes	Location: 2. Terminal 2, Berths B77, B78
Number of **vessels** expected to use this strategy (annual): TBD - dependent on vessel adoption	

Number of vessel **visits** expected to use this strategy (annual): TBD - dependent on vessel adoption
Berths where equipment will be used: 3. Berth 77 4. Berth 78

Schedule for installing equipment:
Project:
Terminal Shore Power System
 	
Estimated Completion Date:
• 3/1/2029*
  ○ Shore Power schedule assumes electric utility provider can meet the proposed construction schedule and the grid is sufficient to handle the increased power demand.
  ○ Estimated completion date does not reflect timeline for vessels to convert to shore power.
 	
*Items below may impact the Estimated Completion Date
• Delays in permitting or environmental clearances
• Ability for electric utility provider to assess and supply the increased power demand
• Equipment development resulting from industry guidance and standardization for tanker vessel shore power systems
• Lead time and availability to procure shore power equipment developed from industry guidance and standardization

Physical or Operational Constraints
Project:
Terminal Shore Power System
 	
Constraints:
• Physical Constraints
  ○ A Method of Service study has been requested from the electric utility provider, Edison. Results from this study will validate whether physical constraints exist due to available space at the Terminal and new equipment required to be installed.
  ○ Inability to obtain California Environmental Quality Act (CEQA) clearance could impact the installation of a shore power system. TLO has submitted their Harbor Development Permit to

the Port of Long Beach and is awaiting final review.

- Operational Constraints
  - A Method of Service study has been requested from the electric utility provider, Edison. Results from this study will validate the timeline for Edison to provide the necessary power required of vessels. Edison's ability to provide the necessary power may impact the estimated completion date.
  - TLO's ability to implement a shore power system will be reliant on industry development and standardization of a shore power system for tanker vessels.
  - Manufactures do not currently offer shore power systems for terminals and tanker vessels. Engineering and development are required before procurement and implementation of a system can take place.

TLO participated in a technology assessment led by the DNV to evaluate emissions control strategies that could be used to meet the requirements of the Regulation. The physical and operational constraints listed above are included as additional constraints to what was identified by the DNV study. A copy of the DNV study is provided as an attachment to this plan.

2.4 Feasibility Studies

Section 93130.14(a)(3)(H) states *'A terminal operator claiming that a physical and/or operational constraint will delay its ability to implement its preferred CARB approved control strategy to achieve emission reductions from vessels at berth according to the requirements of section 93130 et seq., must also include with its terminal plan a technical feasibility study evaluating if there are any other emission control options that could be implemented more quickly at the terminal'.*

As of the date of this plan, the only CARB approved control strategy is shore power. TLO has elected to invest in the implementation of a shore power system at its Terminal. Within this Terminal Plan, TLO has identified the operational and physical constraints which will delay the implementation of a shore power system according to the requirements of section 93130 et seq.

Due to the physical and operational constraints identified and to support CARB's request to evaluate if any other emission control options could be implemented more quickly at the Terminal, TLO conducted a feasibility study to assess implementation of additional technology. To TLO's best

knowledge, the only other technology which may be capable of meeting the requirements of section 93130 and not already being implemented by TLO is a land-based capture and control system. Based on the results of TLO's feasibility study to implement a land-based capture and control system, the estimated completion date aligned with the estimated completion date for a shore power system. In addition to dates, a physical constraint exists with the infrastructure due to the separate infrastructure required for a shore power system. Operational constraints, reflecting those identified for a barge-based system, also exist due to the needs to design a connection/collection system capable of safely capturing emissions from a variable set of stack configurations.

In summary, TLO believes all efforts have been exhausted to identify technologies capable of meeting the requirements of section 93130 which are not already being pursued through barge-based capture and control, a terminal shore power system, and innovative concepts. Industry studies, most notably the DNV Technology Assessment (attached), also did not identify alternative technologies which may be able to support the requirements of section 93130.

3. TERMINAL OPERATOR/PORT BERTHING RESTRICTIONS

Are there any terminal or port specific berthing restrictions? If yes, please describe.

1. Vessels calling at Berth B78 in crude petroleum and heavy intermediate petroleum product service are restricted to starboard side only.
2. Future dock enhancements necessary to accommodate shore power systems could necessitate additional berthing restrictions.
3. Underwater utilities located near the vessel berthing locations could restrict mooring systems for barge-based capture and control.

4. DIVISION OF ROLES AND RESPONSIBILITIES

Division of responsibilities:

Note: this plan does not amend or modify the terms and/or the conditions of Tesoro Refining & Marketing Company LLC's preferential assignment agreement and other agreements with the Port, including without limitation expiration dates, nor does it amend or modify the terms and/or conditions of any agreements of the Port of Long Beach and/or of Tesoro Refining & Marketing Company LLC with other entities nor does it modify or diminish any other obligations of other entities to the Port of Long Beach and/or Tesoro Refining & Marketing Company LLC.

	Port	Terminal
Initiation of electrical infrastructure construction including design		✓
Responsibility to provide equipment or necessary electrical infrastructure inside of the terminal		✓

Responsibility to maintain electrical infrastructure inside of the terminal		✓
Responsibility of uncontrolled emissions at berth due to incomplete electrical infrastructure construction		✓
Responsibility of uncontrolled emissions during repair of electrical infrastructure/equipment		✓
Submission of terminal plan		✓
Submission of port plan	✓	

Are there any contractual limitations applicable to the terminal relevant to enacting the infrastructure? If yes, describe.
No limitations have been identified at this time.

Port approval of responsibilities:
Set forth in Section 4 of this At Berth Terminal Plan, the Port's responsible official confirms by signing below that he/she has reviewed the division of responsibilities and agrees to them under penalty of perjury. The Port does not make any representations about the accuracy, feasibility, or legality of Tesoro Refining & Marketing Company LLC proposed compliance strategy set forth in this At Berth Terminal Plan.

Name: MARIO CORDERO *Title:* CEO
Port: Long Beach
Signature: [signature] *Date:* 1/29/24

5. SIGNATURE OF TERMINAL OPERATOR

By signing below, Tesoro Logistics Operations LLC's responsible official confirms under penalty of perjury thathe/she has reviewed this At Berth Terminal Plan and is submitting this At Berth Terminal Plan as Tesoro Logistics Operations LLC's compliance strategy for the At Berth Regulation. Tesoro Logistics Operations understands this plan is subject to verification by CARB staff.

Name: Timothy Hayes Title: Region Manager
Signature: Timothy B Hayes Date: 1-15-24

Tesoro Logistics Operations LLC (TLO)*
Long Beach Terminal (LBT), Long Beach
At Berth Terminal Plan

This terminal plan has been prepared pursuant to Section 93130.14(a)(3) of the Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port.

*Tesoro Logistics Operations LLC is the terminal operator for Tesoro Refining & Marketing Company LLC, the leaseholder with the Port of Long Beach.

1. GENERAL INFORMATION

Terminal Contact Name: Timothy Hayes

Phone Number: 562-499-2249 | Email: twhayes@marathonpetroleum.com

Berths Included in this Plan:

Name:

1. Berth B84a
2. Berth B86

Approximate Geographic Boundary Coordinates:*

1. 33.77236, -118.22173
2. 33.77104, -118.22411

Berths B84a and B86 are the only berths at the terminal which receive tanker vessels.

**The number of berths on a terminal and the spatial positioning of berths are dependent on vessel size; thus, the geographic boundary coordinates are approximates only.*

2. STRATEGY DETAILS

Strategies used to comply with the requirements for ocean-going vessels visiting each berth:

Provided technology is sufficiently developed to operate with an acceptable level of personal and process safety risk, TLO plans to employ the following strategies.

1. Vendor-Provided and CARB-Approved Barge-Based Capture and Control (C&C) System as a CARB-Approved Emission Control Strategy (CAECS)
2. CARB-Approved Innovative Concept – See TLO's Innovative Concept Application for Long Beach
3. Terminal Shore Power System - land-based system to supply electricity from the grid to a vessel

TLO may rely on a combination of these strategies to help reduce emissions from vessels at TLO's berths.

2.1 Strategy 1: Vendor-Provided and CARB-Approved Barge-Based Capture and Control

Identification and description of all necessary equipment:

Equipment:

1. Vendor-Provided and CARB-Approved Barge-Based Capture and Control System
   a. Fully contained barge system including collection system and treatment system

Location:

1. Long Beach Terminal, Berths B84a, B86

Number of **vessels** expected to use this strategy (annual): 70

Number of vessel **visits** expected to use this strategy (annual): 190

Berths where equipment will be used:

1. Berth B84a
2. Berth B86

Schedule for installing equipment:

Project:

Vendor-Provided and CARB-Approved Barge-Based Capture and Control (C&C) System

Estimated Completion Date:

As of the date of this plan, a Vendor-Provided and CARB-Approved barge-based capture and control system does not exist. The estimated completion date is projected based on current knowledge and development status of the systems being proposed.

- 9/1/2027*
  - C&C estimate assumes technology is proven safe, controls all emission sources required in the Regulation, and the CARB Executive Officer has approved a minimum of two independent vendors by the end of 2024.

*Any unmitigated risks detailed below may result in a change to the Estimated Completion Date stated above.

- Full resolution of considerations identified in the Safety Study under the CARB grant for C&C Systems for Oil Tanker Project awarded to SCAQMD where TLO resources are actively supporting advancement as a demonstration partner.
- Full resolution of considerations from future safety studies and hazard assessments which TLO anticipates and view as necessary to ensure safe operations on tanker vessels
- Stack connection/collection design demonstrates:
  - Ability to capture emissions from a variable set of stack configurations without damaging the vessel's exhaust stacks.
  - Ability to capture emissions without introducing backpressure in the vessels exhaust systems.

	○ Ability to capture emissions without creating sparks (electrical continuity) ○ Ability of the connection/collection design to accommodate vessel draft and pitch changes due to cargo operations ○ Ability of connection/collection system to adequately transport a wide range of flow rates from multiple stacks ○ Ability to capture emissions without placing an individual in harm's way • Barge congestion and siting around vessels ○ C&C barges must not interfere with adjacent vessel traffic in the port ○ C&C barges must not interfere with containment boom ○ C&C barge mooring systems must not impact submerged utilities crossing navigational channels ○ C&C barge must not hinder the vessel from being able to meet California State Lands 30-minute departure requirements • Implementation of adequate emergency preparedness to ensure safety of barge-based system operators near hazardous cargo • Treatment system performance meets or exceeds emission reduction requirements for all emissions sources that are required to be controlled on tankers • To prevent monopolization of services, a minimum of two vendors needs to be approved.
Physical or Operational Constraints Project: Vendor-Provided and CARB-Approved Barge-Based Capture and Control (C&C) System	Constraints: As of the date of this plan, a Vendor-Provided and CARB-Approved barge-based capture and control system does not exist. Barge-based capture and control systems are still under development for tanker vessels. Until the systems are developed and demonstrated, a complete list of constraints

cannot be fully assessed and finalized. The following list is based on current knowledge of the systems being proposed and may be amended once a system has been demonstrated and approved.

- Physical Constraints
  - Impedance or blockage of traffic in the channel
- Operational Constraints
  - Lack of safe and/or readily available CARB-approved barge-based capture and control systems
  - Lack of tug availability to move CARB-approved barge-based capture and control systems around the port(s)/terminal(s)
  - Lack of adequate safeguards of the CARB-approved barge-based capture and control system
  - Incompatibility between the design of the CARB-approved capture and control barge and the terminal/vessel. This includes, but is not limited to:
    - Undersized C&C treatment system, leading to an inability to treat all the vessel's emissions required by the Regulation.
    - Connection/collection design incompatible with the vessel's stacks
    - Undersized spuds preventing the barge from being able to spud alongside the vessel
    - Inability to safely operate the C&C barge due to lack of visibility or access to the vessel
  - Insufficient barge operability or employee qualifications – barge hinderance of vessels ability to

	meet California State Lands 30-minute departure requirements TLO participated in a technology assessment led by the DNV to evaluate emissions control strategies that could be used to meet the requirements of the Regulation. The physical and operational constraints listed above are included as additional constraints to what was identified by the DNV study. A copy of the DNV study is provided as an attachment to this plan.
2.2 Strategy 2: CARB-Approved Innovative Concept	
Identification and description of all necessary equipment: Equipment: 1. Innovative concept – see "Innovative Concept Application" submittal	Location: 1. Innovative concept – see "Innovative Concept Application" submittal
Number of **vessels** expected to use this strategy (annual): TBD	
Number of vessel **visits** expected to use this strategy (annual): TBD	
Berths where equipment will be used: 1. See "Innovative Concept Application" submittal	
Schedule for installing equipment: Project: 1. See "Innovative Concept Application" submittal	Estimated Completion Date: 1. See "Innovative Concept Application" submittal
Physical or Operational Constraints Project: CARB-Approved Innovative Concept	Constraints: • Physical Constraints o See "Innovative Concept Application" submittal • Operational Constraints o See "Innovative Concept Application" submittal
2.3 Strategy 3: Terminal Shore Power System	
Identification and description of all necessary equipment: Equipment: 1. Terminal Shore Power System a. Upgraded utility provider infrastructure (transmission lines, substation transformers, switchgear) b. Transformers c. Power Distribution Center with electrical switchgear and motor controls d. Electrical Raceways and Wiring e. Cable Management Systems f. Fixed Cranes	Location: 1. Long Beach Terminal, Berths B84a, B86

Number of **vessels** expected to use this strategy (annual): TBD - dependent on vessel adoption
Number of vessel **visits** expected to use this strategy (annual): TBD - dependent on vessel adoption
Berths where equipment will be used: 1. Berth 84a 2. Berth 86
Schedule for installing equipment: Project: Terminal Shore Power System Estimated Completion Date: • 3/1/2029* ○ Shore Power schedule assumes electric utility provider can meet the proposed construction schedule and the grid is sufficient to handle the increased power demand. ○ Estimated completion date does not reflect timeline for vessels to convert to shore power. *Items below may impact the Estimated Completion Date • Delays in permitting or environmental clearances • Ability for electric utility provider to assess and supply the increased power demand • Equipment development resulting from industry guidance and standardization for tanker vessel shore power systems • Lead time and availability to procure shore power equipment developed from industry guidance and standardization
Physical or Operational Constraints Project: Terminal Shore Power System Constraints: • Physical Constraints ○ A Method of Service study has been requested from the electric utility provider, Edison. Results from this study will validate whether physical constraints exist due to available space at the Terminal and new equipment required to be installed. ○ Inability to obtain California Environmental Quality Act (CEQA) clearance could impact the installation of a shore power system. TLO has submitted their

Harbor Development Permit to the Port of Long Beach and is awaiting final review.

- Operational Constraints
  - A Method of Service study has been requested from the electric utility provider, Edison. Results from this study will validate the timeline for Edison to provide the necessary power required of vessels. Edison's ability to provide the necessary power may impact the estimated completion date.
  - TLO's ability to implement a shore power system will be reliant on industry development and standardization of a shore power system for tanker vessels.
  - Manufactures do not currently offer shore power systems for terminals and tanker vessels. Engineering and development are required before procurement and implementation of a system can take place.

TLO participated in a technology assessment led by the DNV to evaluate emissions control strategies that could be used to meet the requirements of the Regulation. The physical and operational constraints listed above are included as additional constraints to what was identified by the DNV study. A copy of the DNV study is provided as an attachment to this plan.

2.4 Feasibility Studies

Section 93130.14(a)(3)(H) states '*A terminal operator claiming that a physical and/or operational constraint will delay its ability to implement its preferred CARB approved control strategy to achieve emission reductions from vessels at berth according to the requirements of section 93130 et seq., must also include with its terminal plan a technical feasibility study evaluating if there are any other emission control options that could be implemented more quickly at the terminal*'.

As of the date of this plan, the only CARB approved control strategy is shore power. TLO has elected to invest in the implementation of a shore power system at its Terminal. Within this Terminal Plan, TLO has identified the operational and physical constraints which will delay the implementation of a shore power system according to the requirements of section 93130 et seq.

Due to the physical and operational constraints identified and to support CARB's request to evaluate if any other emission control options could be implemented more quickly at the Terminal, TLO

conducted a feasibility study to assess implementation of additional technology. To TLO's best knowledge, the only other technology which may be capable of meeting the requirements of section 93130 and not already being implemented by TLO is a land-based capture and control system. Based on the results of TLO's feasibility study to implement a land-based capture and control system, the estimated completion date aligned with the estimated completion date for a shore power system. In addition to dates, a physical constraint exists with the infrastructure due to the separate infrastructure required for a shore power system. Operational constraints, reflecting those identified for a barge-based system, also exist due to the needs to design a connection/collection system capable of safely capturing emissions from a variable set of stack configurations.

In summary, TLO believes all efforts have been exhausted to identify technologies capable of meeting the requirements of section 93130 which are not already being pursued through barge-based capture and control, a terminal shore power system, and innovative concepts. Industry studies, most notably the DNV Technology Assessment (attached), also did not identify alternative technologies which may be able to support the requirements of section 93130.

3. TERMINAL OPERATOR/PORT BERTHING RESTRICTIONS

Are there any terminal or port specific berthing restrictions? If yes, please describe.

1. Future dock enhancements necessary to accommodate shore power systems could necessitate berthing restrictions.
2. Underwater utilities located near the vessel berthing locations could restrict mooring systems for barge-based capture and control.

4. DIVISION OF ROLES AND RESPONSIBILITIES

Division of responsibilities:

Note: this plan does not amend or modify the terms and/or the conditions of Tesoro Refining & Marketing Company LLC's preferential assignment agreement and other agreements with the Port, including without limitation expiration dates, nor does it amend or modify the terms and/or conditions of any agreements of the Port of Long Beach and/or of Tesoro Refining & Marketing Company LLC with other entities nor does it modify or diminish any other obligations of other entities to the Port of Long Beach and/or Tesoro Refining & Marketing Company LLC.

	Port	Terminal
Initiation of electrical infrastructure construction including design		✓
Responsibility to provide equipment or necessary electrical infrastructure inside of the terminal		✓
Responsibility to maintain electrical infrastructure inside of the terminal		✓

Responsibility of uncontrolled emissions at berth due to incomplete electrical infrastructure construction		✓
Responsibility of uncontrolled emissions during repair of electrical infrastructure/equipment		✓
Submission of terminal plan		✓
Submission of port plan	✓	

Are there any contractual limitations applicable to the terminal relevant to enacting the infrastructure? If yes, describe.
No limitations have been identified at this time.

Port approval of responsibilities:
Set forth in Section 4 of this At Berth Terminal Plan, the Port's responsible official confirms by signing below that he/she has reviewed the division of responsibilities and agrees to them under penalty of perjury. The Port does not make any representations about the accuracy, feasibility, or legality of Tesoro Refining & Marketing Company LLC proposed compliance strategy set forth in this At Berth Terminal Plan.

Name: MARIO CORDERO *Title:* CEO

Port: LONG BEACH

Signature: [signature] *Date:* 1/29/24

5. SIGNATURE OF TERMINAL OPERATOR

By signing below, Tesoro Logistics Operations LLC's responsible official confirms under penalty of perjury thathe/she has reviewed this At Berth Terminal Plan and is submitting this At Berth Terminal Plan as Tesoro Logistics Operations LLC's compliance strategy for the At Berth Regulation. Tesoro Logistics Operations understands this plan is subject to verification by CARB staff.

Name: Timothy Hayes Title: Region Manager

Signature: Timothy K Hayes Date: 1-15-24