

## 8.0 MITIGATION MONITORING PROGRAM

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2 As the lead agency under the California Environmental Quality Act (CEQA), the  
3 California State Lands Commission (CSLC) is required to adopt a program for reporting  
4 or monitoring regarding the implementation of mitigation measures for the Tesoro Avon  
5 Marine Oil Terminal Lease Consideration Project (Project), if it is approved, to ensure  
6 that the adopted mitigation measures are implemented as defined in this Environmental  
7 Impact Report (EIR). This lead agency responsibility originates in Public Resources  
8 Code section 21081.6, subdivision (a) (Findings), and the State Guidelines for  
9 Implementing CEQA sections 15091, subdivision (d) (Findings) and 15097 (Mitigation  
10 Monitoring or Reporting).

### 11 8.1 MONITORING AUTHORITY

12 The purpose of a Mitigation Monitoring Program (MMP) is to ensure that measures  
13 adopted to mitigate or avoid significant impacts are implemented. An MMP can be a  
14 working guide to facilitate not only the implementation of mitigation measures by the  
15 Project proponent, but also the monitoring, compliance, and reporting activities of the  
16 CSLC and any monitors it may designate.

17 The CSLC may delegate duties and responsibilities for monitoring to other  
18 environmental monitors or consultants as deemed necessary, and some monitoring  
19 responsibilities may be assumed by responsible agencies, such as affected jurisdictions  
20 and cities, and the California Department of Fish and Wildlife. The number of  
21 construction monitors assigned to the Project would depend on the number of  
22 concurrent construction activities and their locations. The CSLC or its designee(s),  
23 however, would ensure that each person delegated any duties or responsibilities is  
24 qualified to monitor compliance.

25 Any mitigation measure study or plan that requires the approval of the CSLC must allow  
26 at least 60 days for adequate review time. When a mitigation measure requires that a  
27 mitigation program be developed during the design phase of the project, the Applicant  
28 must submit the final program to the CSLC for review and approval at least 60 days  
29 before construction begins. Other agencies and jurisdictions may require additional  
30 review time. It is the responsibility of the environmental monitor assigned to the  
31 installation or implementation of the project or a project component (e.g., a pipeline  
32 “spread” [the equipment and crew needed to build a section of pipeline]) to ensure that  
33 appropriate agency reviews and approvals are obtained.

34 The CSLC or its designee would also ensure that any deviation from the procedures  
35 identified under the monitoring program is approved by the CSLC. Any deviation and its

1 correction shall be reported immediately to the CSLC or its designee by the  
2 environmental monitor.

### 3 **8.2 ENFORCEMENT RESPONSIBILITY**

4 The CSLC, as the lead agency, is responsible for enforcing the procedures adopted for  
5 monitoring through the environmental monitor. Any assigned environmental monitor  
6 shall note problems with monitoring, notify appropriate agencies or individuals about  
7 any problems, and report the problems to the CSLC or its designee.

### 8 **8.3 MITIGATION COMPLIANCE RESPONSIBILITY**

9 Tesoro Refining and Marketing Company, LLC is responsible for successfully  
10 implementing all the mitigation measures in the MMP, and shall ensure that these  
11 requirements are met by all of its construction contractors and field personnel.  
12 Standards for successful mitigation also are implicit in many mitigation measures that  
13 include such requirements as obtaining permits or avoiding a specific impact entirely.  
14 Other mitigation measures include detailed success criteria. Additional mitigation  
15 success thresholds may be established by applicable agencies with jurisdiction through  
16 the permit process and through the review and approval of specific plans for the  
17 implementation of mitigation measures.

### 18 **8.4 GENERAL MONITORING PROCEDURES**

#### 19 **Environmental Monitors**

20 Many of the monitoring procedures would be conducted during the construction phase  
21 of the project, if there is a construction phase. The CSLC and the environmental  
22 monitor(s) are responsible for integrating the mitigation monitoring procedures into the  
23 construction process in coordination with the Applicant. To oversee the monitoring  
24 procedures and to ensure success, the environmental monitor must be on site during  
25 that portion of construction that has the potential to create a significant environmental  
26 impact or other impact for which mitigation is required. The environmental monitor is  
27 responsible for ensuring that all procedures specified in the monitoring program are  
28 followed.

#### 29 **General Reporting Procedures**

30 Site visits and specified monitoring procedures performed by other individuals would be  
31 reported to the environmental monitor. A monitoring record form would be submitted to the  
32 environmental monitor by the individual conducting the visit or procedure so that details of  
33 the visit can be recorded and progress tracked by the environmental monitor. A checklist  
34 would be developed and maintained by the environmental monitor to track all procedures  
35 required for each mitigation measure and to ensure that the timing specified for the

1 procedures is adhered to. The environmental monitor would note any problems that may  
2 occur and take appropriate action to rectify the problems.

### 3 **Public Access to Records**

4 The public is allowed access to records and reports used to track the monitoring  
5 program. Monitoring records and reports would be made available for public inspection  
6 by the CSLC or its designee on request.

## 7 **8.5 MITIGATION MONITORING TABLES**

8 This section presents mitigation monitoring tables (Tables 8-1 through 8-5) for the  
9 following environmental disciplines: Operational Safety/Risk of Accidents; Biological  
10 Resources; Water Quality; Land Use and Recreation; and Visual Resources, Light and  
11 Glare. All other environmental disciplines were found to have less than significant or no  
12 impacts and are, therefore, not included below. Each table lists the following  
13 information, by column:

- 14 • Impact (impact number, title, and impact class),
- 15 • Mitigation Measure (full text of the measure),
- 16 • Location (where the impact occurs and the mitigation measure should be  
17 applied),
- 18 • Monitoring/reporting action (the action to be taken by the monitor or lead  
19 agency),
- 20 • Effectiveness criteria (how the agency can know if the measure is effective),
- 21 • Responsible agency, and
- 22 • Timing (before, during, or after construction; during operation, etc.).

**Table 8-1: Mitigation Monitoring – Operational Safety/Risk of Accidents**

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p><b>OS-1:</b> Potential for spills and response capability for containment of oil spills from the Avon Terminal during continued operations. (Significant and unavoidable.)</p>	<p><b>OS-1a: Remote Release Systems.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall install remote release systems to allow a vessel to leave the Avon Terminal as quickly as possible in the event of an emergency (fire, explosion, accident, or tsunami) that could lead to a spill. Tesoro shall provide and maintain mooring line quick-release devices that shall be able to be activated within 60 seconds. These devices shall be capable of being engaged by an electric/push-button release mechanism and by an integrated remotely operated release system.</p> <ul style="list-style-type: none"> <li>• Tesoro shall document procedures and training for systems use and communications between Avon Terminal and the vessel operator(s).</li> <li>• Routine inspection, testing, and maintenance of all equipment and systems shall be conducted in accordance with manufacturers' recommendations and necessity and shall be required to ensure safety and reliability, to the satisfaction of California State Lands Commission (CSLC) staff.</li> <li>• Tesoro may install alternate technology that provides an equivalent level of protection, as reviewed by CSLC staff and approved by the Commission at a publicly noticed meeting.</li> </ul>	<p>CSLC monitor to observe properly provided and maintained devices and periodically monitor procedures and training for systems use.</p>	<p>Would allow a vessel to leave the Avon Terminal as quickly as possible in the event of an emergency that could lead to a spill or impact the Avon Terminal or the vessel.</p>	<p>CSLC</p>	<p>Within 24 months of lease implementation</p>

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p><b>OS-1b: Tension Monitoring Systems.</b>                      Tesoro Refining and Marketing Company, LLC (Tesoro) shall provide and maintain tension monitoring systems to effectively monitor all mooring line and environmental loads, and avoid excessive tension or slack-line conditions that could result in damage to the Avon Terminal structure or equipment, and/or vessel mooring line failures that could result in spills.</p> <ul style="list-style-type: none"> <li>• Line tensions and environmental data shall be integrated into systems that record and relay all critical data in real time to the control room, Avon Terminal operator(s), and vessel operator(s).</li> <li>• This system shall include, but not be limited to, quick-release hooks only (with load cells), site-specific current meter(s), site-specific anemometer(s), and visual and audible alarms that can support effective preset limits and shall be able to record and store monitoring data.</li> <li>• Tesoro shall document procedures and training for systems use and communications between the Avon Terminal and vessel operator(s).</li> <li>• Routine inspection, testing, and maintenance of all equipment and systems, in accordance with manufacturers' recommendations and necessity, shall be required to ensure safety and reliability, to the satisfaction of California State Lands</li> </ul>	CSLC monitor to observe properly provided and maintained devices and periodically monitor procedures and training for systems use.	Reduces potential for damages and spills.	CSLC	Within 24 months of lease implementation

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>Commission (CSLC) staff.</p> <ul style="list-style-type: none"> <li>Tesoro may install alternate technology that provides an equivalent level of protection, as reviewed by CSLC staff and approved by the Commission at a publicly noticed meeting.</li> </ul>				
	<p><b>OS-1c: Allision Avoidance Systems (ASSs).</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall provide and maintain AASs at the Avon Terminal to prevent damage to the pier/wharf and/or vessel during docking and berthing operations.</p> <ul style="list-style-type: none"> <li>The AASs shall be used and alarmed to monitor vessel drift (both surge and sway) during all mooring operations, and shall be equipped with an AIS receiver to capture passing vessel parameters.</li> <li>The AASs shall be integrated with the tension monitoring systems such that all data collected are available in the control room and to Avon Terminal operator(s) at all times and vessel operator(s) during berthing operations. The AASs shall also be able to record and store monitoring data.</li> <li>Tesoro shall document procedures and training for systems use and communications between the Avon Terminal and vessel operator(s).</li> <li>Routine inspection, testing, and maintenance of all equipment and systems, in accordance with</li> </ul>	<p>CSLC monitor to observe properly, provided, and maintained devices and periodically monitor procedures and training for systems use.</p>	<p>Reduces potential for damages and spills.</p>	<p>CSLC</p>	<p>Within 24 months of lease implementation</p>

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>manufacturers' recommendations and necessity, shall be required to ensure safety and reliability, to the satisfaction of California State Lands Commission (CSLC) staff.</p> <ul style="list-style-type: none"> <li>• Tesoro may install alternate technology that provides an equivalent level of protection, as reviewed by CSLC staff and approved by the Commission at a publicly noticed meeting.</li> </ul>				
<p><b>OS-3:</b> Potential for fires and explosions during continued operations, and response capability. (Significant and unavoidable.)</p>	<p><b>OS-3: Fire Protection Assessment.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall develop a Fire Protection Assessment, including a set of procedures, training, and drills consistent with Marine Oil Terminal Engineering Maintenance Standards (Cal. Code Regs., tit. 24, § 3108F2.2). Tesoro shall also develop a set of procedures and conduct training and drills for managing potential tank vessel fires and explosions for vessels berthed at the Avon Terminal. The procedures shall include the steps to follow in the event of a tank vessel fire and describe how Tesoro and the vessel operator would coordinate activities. The procedures shall also identify other capabilities that can be procured, if necessary, in the event of a major incident. The Fire Protection Assessment shall be submitted to the California State Lands Commission (CSLC) staff within 90 days of lease renewal. Tesoro shall update the plan and procedures to cover the new Berth 1A and submit them to CSLC staff for approval prior to any tank vessel docking at Berth 1A. CSLC staff shall have final approval of the plan and procedures.</p>	<p>Prepare and submit Fire Protection Assessment to CSLC for review and approval.</p>	<p>Provides planning and procedures for emergency response.</p>	<p>CSLC</p>	<p>Submit to CSLC within 90 days of signing the lease agreement.</p>

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	MMs OS-1a, OS-1b, OS-1c, and OS-7 apply to this impact.	Refer to MMs OS-1a, OS-1b, OS-1c, and OS-7	Refer to MMs OS-1a, OS-1b, OS-1c, and OS-7	Refer to MMs OS-1a, OS-1b, OS-1c, and OS-7	Refer to MMs OS-1a, OS-1b, OS-1c, and OS-7
<b>OS-4:</b> Potential for spills and response capability for containment of oil spills for accidents in the San Francisco Bay and outer coast during continued operations. (Significant and unavoidable.)	<b>OS-4a: USCG Ports and Waterways Safety Assessment (PAWSA) Workshops.</b> Tesoro Refining and Marketing Company, LLC shall participate in U.S. Coast Guard (USCG) PAWSA workshops for the San Francisco Bay Area (Bay Area) to support overall safety improvements to the existing Vessel Traffic Service in the Bay Area or approaches to the bay, if such workshops are conducted by the USCG during the life of the lease.	Tesoro to demonstrate participation in USCG PAWSA workshops to support overall safety in the bay and to protect sensitive resources.	Reduces potential damage to resources.	CSLC	Life of lease
	<b>OS-4b: Spill Response to Vessel Spills.</b> Tesoro Refining and Marketing Company, LLC shall respond to any spill near the Avon Terminal from a vessel traveling to or from the Avon Terminal or moored at the Avon Terminal, as if it were its own, without assuming liability, until such time as the vessel's response organization can take over management of the response actions in a coordinated manner.	CSLC monitor to observe emergency actions.	Reduces potential damage to resources.	CSLC	Life of lease
<b>OS-7:</b> Potential for spills during renovation from Avon Terminal pipelines during non-transfer periods during renovation. (Significant and unavoidable.)	<b>OS-7: Pipeline Purging and Removal Plan.</b> Prior to work on existing pipelines or pipeline support systems, Tesoro Refining and Marketing Company, LLC shall prepare a Pipeline Purging and Removal Plan, identifying practices and procedures to be implemented to minimize the potential for work on the pipelines to result in a spill of oil from the pipelines. The plan shall be signed by a California Professional Engineer with experience in oil spill prevention and submitted to California State Lands	Prepare and submit Pipeline Purging and Removal Plan to CSLC for review and approval.	Reduces potential for pipeline releases during renovation.	CSLC	Prior to start of pipeline renovation



Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	Commission (CSLC) staff for review and approval prior to commencing work. The plan shall be implemented for work on the existing pipelines until the pipelines are adequately purged of oil to no longer present threat of a spill.				
<b>CUM-OS-1:</b> Upset Conditions. (Significant and unavoidable.)	MMs OS-1a, OS-1b, OS-1c, OS-7, OS-4a, and OS-4b apply to this impact.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-7, OS-4a, and OS-4b	Refer to MMs OS-1a, OS-1b, OS-1c, OS-7, OS-4a, and OS-4b	Refer to MMs OS-1a, OS-1b, OS-1c, OS-7, OS-4a, and OS-4b	Refer to MMs OS-1a, OS-1b, OS-1c, OS-7, OS-4a, and OS-4b

Table 8-2: Mitigation Monitoring – Biological Resources

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<b>BIO-8:</b> Cause impacts to the San Francisco Bay Estuary and associated aquatic biota as a result of major fuel, lubricant, and/or boat-related spills. (Significant and unavoidable.)	<b>MM BIO-8a: Bird Rescue Personnel and Rehabilitators.</b> Tesoro Refining and Marketing Company, LLC shall ensure that procedures are in place to bring bird rescue personnel and rehabilitators to the site following a spill event that is not immediately contained at the Avon Terminal. This requires having contractual arrangements in place as part of the Golden Eagle Refinery Oil Spill Contingency Plan so that bird rescue personnel and equipment can be on site within hours of the onset of an accidental release.	Verify contractual arrangements in place and contact info on site.	Minimize marine bird mortality in the event of a spill.	CSLC	Within 60 days of project approval and EIR certification and for life of lease.
	<b>MM BIO-8b: Cleanup of Oil from Biological Area.</b> If a substantial spill occurs that affects biological resources, Tesoro Refining and	Verify that cleanup procedures have	Minimize impacts to sensitive	California State Lands Commission,	Within 60 days of project approval and

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	Marketing Company, LLC shall develop procedures for cleanup of any sensitive biological areas contacted by oil in consultation with biologists from the California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS).	been developed.	biological areas in the event of a spill.	CDFW, NMFS, USFWS	EIR certification and for life of lease.
	<b>MM BIO-8c: Natural Resource Damage Assessment (NRDA) Team.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall coordinate to the maximum extent feasible with the Natural Resource Damage Assessment (NRDA) team to determine the extent of damage and loss of resources, cleanup, restoration, and compensation. Tesoro shall keep California State Lands Commission (CSLC) staff informed of its participation in such efforts by providing copies of memos, meeting agendas, emails, or other appropriate documentation. Tesoro shall be responsible for cleanup, restoration, and compensation of damages to resources if Tesoro is determined to be the responsible party for a spill.	Tesoro shall provide documentation of participation to CSLC staff.	Reduces potential damage and loss of resources from oil spill.	CSLC, NRDA trustee agencies	In conjunction with NRDA, for life of lease.
	MM OS-4b applies to this impact.	Refer to MM OS-4b	Refer to MM OS-4b	Refer to MM OS-4b	Refer to MM OS-4b
<b>BIO-9:</b> Introduce invasive nonindigenous aquatic species to the San Francisco Bay Estuary. (Significant and unavoidable.)	<b>MM BIO-9a: Marine Invasive Species Act Reporting Forms.</b> Following the adoption of the Mitigation Monitoring Program for the Project, Tesoro Refining and Marketing Company, LLC (Tesoro) shall advise both agents and representatives of shipping companies having control over vessels that have informed Tesoro of plans to call at the Avon Terminal about the California Marine	Verify documentation of vessel compliance with reporting requirements and associated regulation.	Compliance with MISA to reduce the introduction of nonindigenous aquatic species from ballast water and hull fouling.	CSLC	Life of lease.

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>Invasive Species Act (MISA) and associated implementing regulations. Tesoro shall satisfy itself that all vessels submit required reporting forms, as applicable for each vessel, to the California State Lands Commission (CSLC) Marine Facilities Division, including, but not limited to, the Ballast Water Reporting Form, Hull Husbandry Reporting Form, Ballast Water Treatment Technology Annual Reporting Form, and/or Ballast Water Treatment Supplemental Reporting Form.</p>				
	<p><b>MM BIO-9b: Invasive Species Action Funding.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall participate and assist in funding ongoing and future actions related to nonindigenous aquatic species (NAS) as identified in the October 2005 Delta Smelt Action Plan (State of California 2005). The funding support shall be provided to the Pelagic Organism Decline Account or other account identified by the California Department of Water Resources (DWR) and California Department of Fish and Wildlife (CDFW), the lead Action Plan agencies. The level of funding shall be determined through a cooperative effort between California State Lands Commission (CSLC) staff, the DWR, CDFW, and Tesoro, and shall be based on criteria that establish Tesoro's commensurate share of the plan's NAS actions costs.</p>	<p>The level of funding shall be determined by the CSLC, DWR, CDFW, and Tesoro as part of the agencies' responsibilities under the Delta Smelt Action Plan and CSLC's administration of MISA.</p>	<p>Contributions will go towards effort in finding a solution to pelagic species decline.</p>	<p>CSLC, DWR, CDFW</p>	<p>Life of lease.</p>
<p><b>BIO-10:</b> Cause substantial temporary impacts to special-status species due to Marine Oil Terminal Engineering and Maintenance</p>	<p><b>MM BIO-10a: Pre-renovation Surveys for Key Special-status Species.</b> Pre-renovation surveys for special-status species and other species of concern shall be conducted by a qualified biologist to verify their presence or absence. Key special-status species,</p>	<p>Conduct surveys and observe activities for compliance.</p>	<p>Avoid or reduce impacts to special-status species.</p>	<p>CSLC, USFWS, CDFW</p>	<p>Prior to and during renovation</p>

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Standards (MOTEMS) renovation activity. (Potentially significant.)	including California clapper rail, California black rail, rare plants, and other species of concern, including nesting birds, shall be avoided during renovation; if avoidance is not feasible, Tesoro Refining and Marketing Company, LLC shall consult with the California Department of Fish and Wildlife (CDFW) and/or the U.S. Fish and Wildlife Service (USFWS) and submit a plan(s) to minimize impacts to California State Lands Commission (CSLC) staff for approval prior to renovation. Plans for minimizing or mitigating impacts to plants and salt marsh harvest mouse are described in MM BIO-12c and MM BIO-15b, respectively. The plan(s) for other species shall list the species and anticipated temporary or permanent impacts and describe measures that would be taken to minimize and mitigate impacts, which may include, but not be limited to: translocation to suitable habitat out of work areas, restoration, and compensatory mitigation.				
	<b>MM BIO-10b: Designated Work Areas.</b> All work areas in sensitive terrestrial and aquatic habitats shall be confined to the smallest feasible size. Terrestrial work in sensitive areas shall be clearly demarcated with exclusion fencing in coordination with the biological monitor. Aquatic work areas shall be clearly identified on renovation drawings. All personnel and their equipment shall be required to stay within the designated work sites to perform job-related tasks, and shall be directed to stay out of surrounding wetlands and waters.	Clearly delineate work areas.	Work areas confined to the smallest feasible size.	CSLC	Prior to and during renovation

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p><b>MM BIO-10c: Worker Environmental Awareness Program.</b> All renovation personnel shall receive environmental awareness training provided by a U.S. Fish and Wildlife Service (USFWS) approved biological monitor (as described below). The training shall provide information about special-status species potentially occurring in the Project area, measures being implemented to avoid impacts to the species, and procedures to follow should a listed species be encountered during routine activities. Training shall be conducted to assure understanding by both Spanish and English speakers. Training materials shall be submitted to California State Lands Commission (CSLC) staff for approval 2 weeks prior to program initiation.</p>	<p>Submit resume of proposed biological monitor to USFWS for approval 2 weeks prior to program initiation.</p> <p>Submit training materials to CSLC for approval 2 weeks prior to program initiation.</p> <p>Submit attendance records to CSLC within 2 weeks of each training.</p>	<p>All renovation personnel receive training prior to conducting work.</p>	<p>CSLC, USFWS</p>	<p>Prior to and during renovation</p>
	<p><b>MM BIO-10d: Safe and Clean Work Area Maintenance.</b> Pets shall not be allowed in or near the renovation work areas. Firearms shall not be allowed in or near the renovation areas. No intentional killing or injury of wildlife shall be permitted. No smoking is allowed on the facility. The renovation sites shall be maintained in a clean condition. All trash (e.g., food scraps, cans, bottles, containers, wrappers, and other discarded items) shall be placed in closed containers and properly disposed of off-site.</p>	<p>Renovation work areas shall be kept clean and safe.</p>	<p>Renovation work areas are kept clean and safe.</p>	<p>California State Lands Commission</p>	<p>Prior to and during renovation</p>

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p><b>MM BIO-10e: Biological Monitoring.</b> A qualified biologist shall be present on-site to conduct biological monitoring during vegetation clearing, mouse exclusion fence installation, and pile driving. The biological monitor shall have the authority to stop work if deemed necessary for any reason to protect special-status species. The biological monitor shall have demonstrated experience in monitoring sensitive resource issues on construction projects. Specifically, the biological monitor shall have at least a bachelor's degree in the biological or allied sciences or the equivalent, at least one field season of prior biological monitoring experience under the supervision of a qualified biological monitor, and knowledge of the natural history of the salt marsh harvest mouse and related sensitive biological resources in the vicinity of the Project area. Resumes of candidate biological monitors shall be submitted to California State Lands Commission (CSLC) staff for their approval at least 2 weeks prior to the biological monitor being deployed in the field.</p>	<p>Submit resume of qualified biologist to CSLC for approval 2 weeks prior to deployment.  Qualified biologist conduct monitoring during vegetation clearing, mouse exclusion fence installation, and pile driving.</p>	<p>Avoid and reduce impacts to special-status species and habitat.</p>	<p>CSLC</p>	<p>Prior to and during renovation</p>
	<p><b>MM BIO-10f: Post-renovation Cleanup.</b> After renovation is completed, a final clean up shall include removal of all stakes, temporary fencing, flagging, and other refuse generated during renovation. Upon Project completion, all equipment shall be safely demobilized from the area. Any excess debris shall be placed into trucks or barges for proper disposal.</p>	<p>Clean up site following renovation.</p>	<p>Site is clean.</p>	<p>California State Lands Commission</p>	<p>Post-renovation</p>

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<b>BIO-11:</b> Cause disturbance or loss of special-status fish. (Potentially significant.)	<b>MM BIO-11a: In-water Work Restrictions.</b> Tesoro shall implement the following in-water work restrictions: <ul style="list-style-type: none"> <li>• To the extent feasible, in-water work shall be performed between 30 minutes after sunrise and 30 minutes before sunset.</li> <li>• Pile driving with an impact hammer and in-water deconstruction activity shall only occur during the work window specified by the National Marine Fisheries Service (NMFS) and California Department of Fish and Wildlife (CDFW) for avoidance of potential impacts to fish species in this region of the San Francisco Bay Estuary, from August 1 to November 30. The work window proposed may be adjusted based on the U.S. Fish and Wildlife Service's (USFWS) programmatic consultation on the delta smelt and coordination with the CDFW, NMFS, and USFWS.</li> </ul>	In-water work activities restricted to the extent feasible.	Impacts to special-status fish avoided or reduced.	California State Lands Commission, NMFS, USFWS, CDFW	During and post-renovation
	<b>MM BIO-11b: Nearshore Habitat Disturbance Minimization.</b> The number of round trips made by barges during renovation activities shall be limited to the extent feasible. Personnel shall be transported daily to the barge by means of a shallow-draft boat. Barge and support vessels shall transit through the shallows at a no-wake-producing speed to minimize disturbance to bottom sediments. Anchoring shall be minimized to the extent possible.	Boat trips minimized and shallow-draft boats used.	Impacts to bottom sediment reduced.	California State Lands Commission	Prior to, during, and post-renovation

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	<p><b>MM BIO-11c: Anchoring Plan.</b> Tesoro Refining and Marketing Company, LLC shall prepare for inclusion in the Project's renovation Work Plan an Anchoring Plan, which shall require that the use of mooring anchors by deconstruction vessels and barges shall be minimized. The Anchoring Plan shall further specify that if mooring anchors must be used, then a secondary support workboat shall be used to deploy and retrieve mooring anchors and that mooring anchors shall not be dragged along the sea floor. The Anchoring Plan must be submitted to California State Lands Commission (CSLC) staff for approval 30 days prior to renovation.</p>	<p>Anchoring Plan submitted to CSLC 30 days prior to renovation.</p>	<p>Impacts to bottom sediments reduced.</p>	<p>CSLC</p>	<p>Prior to renovation</p>
<p><b>BIO-12:</b> Cause disturbance or loss of special-status plant populations. (Potentially significant.)</p>	<p><b>MM BIO-12a: Pre-renovation Special-status Plant Surveys.</b> Tesoro Refining and Marketing Company, LLC shall retain a qualified botanist to survey suitable habitat in the Project area for the presence of special-status species. Surveys shall be conducted during April through May and in accordance with standardized protocols as determined by the California Department of Fish and Wildlife (CDFW) and/or U.S. Fish and Wildlife Service (USFWS), including visiting nearby known reference populations, and shall be timed to coincide with the blooming periods of known populations (CDFG 2009). Based on the blooming periods of special-status plants known to occur in the region, two surveys (one in late spring/early summer, one in late summer/early fall) shall be conducted to capture the floristic diversity at a level necessary to determine if special-status species are present. Within 30 days of the</p>	<p>Qualified botanist to conduct special-status plant surveys during appropriate survey windows Letter documenting survey results submitted to CSLC and CDFW within 30 days of each survey.</p>	<p>Locations, if any, of special-status plants identified.</p>	<p>CSLC, CDFW, USFWS</p>	<p>Prior to renovation</p>



Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>completion of each survey, the results of the survey shall be summarized in a botanical survey letter report and submitted to California State Lands Commission (CSLC) staff and the CDFW.</p>				
	<p><b>MM BIO-12b: Special-status Plant Avoidance and Protection.</b> If any special-status plants are found during the pre-renovation survey, protective fencing shall be installed under the direction of a qualified biological monitor to ensure that plants are avoided during renovation, if feasible.</p>	<p>Protective fencing installed around special-status plant locations.</p>	<p>Special-status plants protected.</p>	<p>California State Lands Commission</p>	<p>Prior to renovation</p>
	<p><b>MM BIO-12c: Salvage and Recovery Plan for Special-status Plants.</b> If avoidance is not possible (e.g., if plants are found in areas requiring vegetation clearing), Tesoro Refining and Marketing Company, LLC (Tesoro) shall consult with the California Department of Fish and Wildlife (CDFW) and/or U.S. Fish and Wildlife Service (USFWS) to develop and implement a salvage and recovery plan for the affected species. The plan shall incorporate the following, at a minimum:</p> <ul style="list-style-type: none"> <li>• preparation by a qualified restoration specialist or botanist experienced in the development and implementation of native plant restoration, mitigation, and monitoring plans;</li> <li>• salvage and/or recovery requirements, including clearly defined goals focusing on plant establishment (stability, succession, reproduction) monitoring, and non-native species control measures;</li> <li>• locations and procedures for restoration of salvaged materials or</li> </ul>	<p>Tesoro to consult with CDFW and/or USFWS to implement a salvage/recovery plan for special-status plants that would otherwise be impacted by renovation.</p>	<p>Special-status plants salvaged, habitat recovered.</p>	<p>California State Lands Commission, USFWS, CDFW</p>	<p>Prior to renovation, post-renovation</p>

8.0 Mitigation Monitoring Program

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>seeds;</p> <ul style="list-style-type: none"> <li>• specification of a 5-year post-renovation maintenance and monitoring program by a qualified restoration specialist or botanist to ensure that the Project goals and performance standards are met. The monitoring program shall include provision for remedial action as needed to correct deficiencies. Annual reports and a final report, prepared by Tesoro and subject to approval by the CDFW, shall document the success of the salvage and replanting effort. If replanting is not successful, an additional period of correction and monitoring shall be specified; and</li> <li>• maintenance requirements and the responsibility for implementation.</li> <li>• If salvage and recovery of special-status plants is infeasible, Tesoro shall consult with the CDFW and/or USFWS to implement a compensation plan, which may consist of the following: <ul style="list-style-type: none"> <li>• preservation of an off-site area containing individuals of the affected species so that there is no net loss of special-status plants;</li> <li>• purchase of plant credits from an off-site, agency-approved mitigation bank; or</li> <li>• other compensatory measures as required by the CDFW and/or USFWS.</li> </ul> </li> </ul>				

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p><b>BIO-13:</b> Cause disturbance of nesting migratory birds and raptors. (Potentially significant.)</p>	<p><b>MM BIO-13a: Pre-renovation Nesting Bird Surveys.</b> To avoid potentially adverse impacts to bird species identified under the Migratory Bird Treaty Act, Tesoro Refining and Marketing Company, LLC shall ensure that prior to any work in Areas A, B, and C (including adjacent staging areas) of the approachway conducted during the nesting season for small birds (March 15 to August 30), a biologist approved by California State Lands Commission (CSLC) staff shall inspect all shrubs, trees, and emergent marsh vegetation in and within 50 feet of the limits of work for nesting birds. The biologist shall also observe all trees and shrubs within 300 feet of the limits of work for evidence of nesting raptors using binoculars and/or spotting scope. The survey shall be conducted no more than seven (7) days prior to the start of work for a given work area, and shall begin within 0.5 hour of sunrise and last a minimum of 2 hours. If the survey indicates the presence of nesting birds, the biologist shall determine an appropriately sized buffer around the nest in which no work shall be allowed until the young have successfully fledged in consultation with the California Department of Fish and Wildlife (CDFW) and/or U.S. Fish and Wildlife Service (USFWS). The size of the nest buffer shall be determined by the biologist and shall be based on the nesting species and its sensitivity to disturbance.</p>	<p>Submit resume for biologist to CSLC for approval prior to survey</p> <p>Surveys conducted by qualified biologist</p> <p>Nest buffer compliance.</p>	<p>Avoid/reduce impacts to nesting birds.</p>	<p>CSLC, CDFW, USFWS</p>	<p>Prior to renovation activities in a given work area</p>

8.0 Mitigation Monitoring Program

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p><b>MM BIO-13b: Osprey Nest Protection.</b> To avoid and minimize impacts to the osprey pair that nest annually on Berth 5, Tesoro Refining and Marketing Company, LLC (Tesoro) shall consult with the California Department of Fish and Wildlife (CDFW) to remove the nest and replace it in a nearby location not subject to Project disturbance. The nest shall be removed when it is inactive (i.e., does not contain egg or juvenile osprey). The replacement nest shall be located as close to the original nest as feasible. The replacement nest structure shall be of comparable or better quality than the nest support structure removed or destroyed. In addition, prior to any work in Area D of the approachway and at the Avon Terminal (i.e., Berth 1A installation, Berth 5 demolition) conducted during the osprey nesting season (February 15 to August 31), a qualified biologist approved by California State Lands Commission staff shall survey Berth 5 with a spotting scope to determine whether ospreys are nesting. If nesting is observed, the biologist shall watch the nest for a minimum of 2 hours to establish a baseline for the adults' behavioral response to marine traffic and ongoing Avon Terminal operations. In consultation with the CDFW, the resulting information shall be used to determine an appropriately sized buffer around the nest in which no work shall be allowed until the young have successfully fledged.</p>	<p>Tesoro to consult with CDFW to protect and replace on-site osprey nest.</p>	<p>Osprey nest is protected and replaced.</p>	<p>California State Lands Commission, CDFW</p>	<p>Prior to construction</p>
	<p>MM BIO-19b applies to this impact.</p>	<p>Refer to MM BIO-19b</p>	<p>Refer to MM BIO-19b</p>	<p>Refer to MM BIO-19b</p>	<p>Refer to MM BIO-19b</p>

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p><b>BIO-14:</b> Cause disturbance of California clapper rail and California black rail and habitat. (Potentially significant.)</p>	<p><b>MM BIO-14a: Survey and Avoidance Measures for California Clapper Rail and California Black Rail.</b> Tesoro Refining and Marketing Company, LLC shall retain a U.S. Fish and Wildlife Service (USFWS) approved permitted biologist to conduct a second year of protocol-level surveys, including rail-call and rail-track surveys at the Project site for California clapper rail and California black rail during the 2015 breeding season, prior to the initiation of renovation. If breeding California clapper rail or California black rail is determined to be present, activities shall not occur within 500 feet of an identified calling center (or a smaller distance if approved by the USFWS and California Department of Fish and Wildlife [CDFW]). If the intervening distance is across a major slough channel or across a substantial barrier between the rail calling center and any activity area is greater than 200 feet, work may proceed at that location within the breeding season.</p>	<p>Qualified biologist conducts surveys, monitors work activities for compliance.</p>	<p>Avoid or reduce impacts on California clapper rail and California black rail.</p>	<p>California State Lands Commission, CDFW, USFWS</p>	<p>Prior to and during renovation</p>
<p><b>BIO-15:</b> Cause disturbance of salt marsh harvest mouse and Suisun shrew and habitat. (Potentially significant.)</p>	<p><b>MM BIO-15a: Salt Marsh Harvest Mouse and Suisun Shrew Impact Avoidance Measures.</b></p> <ul style="list-style-type: none"> <li>Any areas dominated by brackish marsh vegetation and adjacent uplands that must be accessed by renovation personnel or equipment shall be cleared of vegetation. All clearing of vegetation shall be done under the direct supervision of a U.S. Fish and Wildlife Service (USFWS) approved biologist. In renovation and staging areas where habitat is to be disturbed, vegetation shall be cleared</li> </ul>	<p>Submit biologist resume to USFWS for approval 2 weeks prior to vegetation clearing. USFWS-approved biologist supervises vegetation clearance and exclusion</p>	<p>Impacts to salt marsh harvest mouse are avoided. Impacts to Suisun shrew are reduced and/or avoided.</p>	<p>California State Lands Commission, CDFW, USFWS</p>	<p>Prior to and during construction</p>

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>to bare ground or stubble no higher than 3 inches, unless otherwise authorized by the USFWS and California Department of Fish and Wildlife (CDFW). Vegetation clearing shall start at the marsh edge closest to the existing approachway and proceed outward toward the marsh interior. Vegetation shall be removed by hand using hand tools.</p> <ul style="list-style-type: none"> <li>• If a salt marsh harvest mouse is discovered, the biological monitor shall stop work in the immediate area until the CDFW and USFWS are contacted and the individual has been allowed to leave the work area. If the mouse does not leave the work area, work in the immediate area shall not resume until the CDFW and USFWS are consulted regarding appropriate avoidance measures, and grant permission to commence work. No salt marsh harvest mouse may be handled or captured at any time.</li> <li>• Exclusion fencing shall be installed around the work areas immediately following vegetation removal. The fence shall be a minimum of 2 feet in height. Openings of at least 10 feet in width shall be established at two to four locations such that habitat connectivity across the marsh is maintained.</li> <li>• Exclusion fencing shall be extended to the high tide line. Tesoro Refining and Marketing Company, LLC shall monitor tidal heights while the</li> </ul>	<p>fencing installation. Exclusion fencing is inspected daily and following high-tide events. Work during high-tide events is avoided. Repairs to fencing are made within 24 hours of discovery, and the fenced area is resurveyed by a USFWS- and CDFW-approved biologist. Night lighting is minimized. Compliance is observed by qualified biologist.</p>			

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>exclusion fencing is installed. If areas within the exclusion fencing are flooded, sections shall be temporarily removed to allow exit of any special-status species from the work area. The area shall then be resurveyed by a USFWS and CDFW-approved biologist, and the exclusion fencing reinstalled.</p> <ul style="list-style-type: none"> <li>• Following installation of the fence, the biological monitor shall train a representative to inspect the fencing. The representative shall inspect the fence daily to ensure that it maintains a minimum of 2 feet in height, has no holes or rips, and that the base is still buried. Any necessary repairs to the fencing shall be completed within 24 hours of the initial observance of damage. Work shall not continue within 300 feet of the damaged fencing until the fence is repaired and the site is surveyed by an approved biologist to ensure that salt marsh harvest mice have not entered the work area.</li> <li>• The biological monitor shall be available on an on-call basis to come to the site in the event that the trained representative finds a salt marsh harvest mouse in the work area after the vegetation has been cleared and the fenced has been installed.</li> <li>• Work within fenced salt marsh harvest mouse habitat shall be scheduled to avoid extreme high tides (6.5 feet or above at the Golden Gate Bridge)</li> </ul>				

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>when there is potential for mice to move into adjacent uplands.</p> <ul style="list-style-type: none"> <li>Night lighting shall be minimized and pointed down to the extent possible and still assure the safety of personnel working in the area.</li> </ul> <p><b>MM BIO-15b: Compensation for Temporary and Permanent Loss of Salt Marsh Harvest Mouse Habitat.</b> To compensate for 0.03 acre of permanent impacts and 6.93 acres of temporary impacts on salt marsh harvest mouse habitat (i.e., tidal brackish marsh and adjacent uplands within 100 meters), Tesoro Refining and Marketing Company, LLC (Tesoro) shall purchase mitigation habitat credits at the Cordelia Slough Preserve managed by Wildlands, Inc. in northern Suisun Bay. The Preserve provides high-quality habitat for salt marsh harvest mouse and would be managed in perpetuity for that purpose. The final amount of mitigation habitat shall be calculated based on the actual duration of various phases of the Project.</p>				
<b>BIO-16:</b> Cause disturbance to marine mammals. (Potentially significant.)	<b>MM BIO-16a: Adjust Vessel Speed.</b> Vessel operators shall attempt to remain at least 150 feet from marine mammals and shall maneuver their vessel slowly, watching for seal heads that may pop up around the vessel, to avoid collisions when marine mammals are observed in the Project area. In the event of a vessel collision with a marine mammal, Tesoro Refining and Marketing Company, LLC shall immediately report the incident to the National Marine Fisheries Service (NMFS) West Coast Region Stranding Network at 1-866-767-6114.	Vessel collisions reported to NMFS.	Impacts to marine mammals reduced.	CSLC, NMFS	During renovation



Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p><b>MM BIO-16b: Implementation of a Marine Mammal Contingency Plan.</b> Tesoro Refining and Marketing Company, LLC shall prepare a Marine Mammal Contingency Plan, which shall be implemented in its entirety. This plan shall be consistent with section 109 (h) of the Marine Mammal Protection Act for dealing with nuisance animals and animals that need to be relocated from a location for their own protection and welfare. This plan shall be submitted for review and approval to the National Marine Fisheries Service (NMFS) and California State Lands Commission (CSLC) staff 60 days prior to Project implementation.</p>	Submit a Marine Mammal Contingency Plan to NMFS and CSLC 60 days prior to renovation.	Impacts to marine mammals reduced by implementation of Marine Mammal Contingency Plan.	CSLC, NMFS	Pre-renovation 60 days prior to Project implementation
	<p><b>MM BIO-16c: Prioritize Removal of Potential Haul-out Locations.</b> Parts of the Avon Terminal that have the potential to be used by marine mammals as a resting haul out (pilings and structural support components, boat landing) shall be removed as early in the deconstruction schedule as possible. This shall be done to prevent the continued use of these structures by marine mammals during deconstruction.</p>	Remove haul-out locations first.	Impacts to marine mammals reduced.	California State Lands Commission	During renovation
	MM BIO-18b applies to this impact.	Refer to MM BIO-18b	Refer to MM BIO-18b	Refer to MM BIO-18b	Refer to MM BIO-18b
<p><b>BIO-17:</b> Cause substantial impact to special-status species or sensitive habitat due to degradation of water quality. (Potentially significant.)</p>	<p><b>MM BIO-17a: Lead-based Paint Management Plan.</b> Because lead-based paint is present on the Avon Terminal, Tesoro Refining and Marketing Company, LLC (Tesoro) shall retain a licensed lead-abatement contractor to address lead-based paint prior to the general deconstruction of the Avon Terminal. A lead-based paint management plan shall be prepared and</p>	Tesoro to submit a Lead-based Paint Management Plan to CSLC 2 weeks prior to deconstruction.	Impacts to aquatic habitat reduced.	CSLC	2 weeks prior to deconstruction and included as part of the Project's work plan.

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	submitted to California State Lands Commission (CSLC) staff for approval 2 weeks prior to deconstruction and included as part of the Project's work plan.				
	<b>MM BIO-17b: Post-demolition Bathymetric Survey.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall conduct a post-demolition bathymetric survey, no later than 2 weeks after demolition activities conclude, to confirm that pile stubs are at minimum 3 feet below the mudline and that no renovation debris remains on or above the seafloor.	Tesoro to conduct post-demolition bathymetric survey.	Pile stubs are minimum 3 feet below mudline, no debris on seafloor.	California State Lands Commission	Post-renovation, no later than 2 weeks after demolition activities conclude.
	<b>MM BIO-17c: Stub/scour Monitoring.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall conduct monitoring of broken timber piles 2 years after completion of demolition activities to determine whether or not piles have been exposed by erosion. If piles have not remained buried under at least 2 feet of sediment cover, Tesoro shall monitor, consult, and survey to ensure they are not a navigational hazard. Should exposed piles be determined to be a navigational hazard, Tesoro shall take remedial action to remove the navigational hazard and monitor again in another 2 years.	Tesoro to monitor broken timber piles for 2 years to determine sediment coverage.	Piles remain covered with 2 feet of sediment.	California State Lands Commission	Post-renovation
	<b>MM BIO-17d: Minimization of Creosote Release.</b> The following measures shall be used to minimize creosote release, sediment disturbance, and total suspended solids generation during pile removal/deconstruction: <ul style="list-style-type: none"> <li>• install a floating surface boom to capture floating surface debris;</li> <li>• keep all equipment out of the water and grip piles above the waterline;</li> <li>• slowly lift the piles from the sediment</li> </ul>	Tesoro Refining and Marketing Company, LLC to minimize creosote release from removal of piles.	Reduce impacts from creosote release.	California State Lands Commission	During renovation

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>and through the water column; and</p> <ul style="list-style-type: none"> <li>dispose of all removed piles, floating surface debris, sediment spilled on work surfaces, and all containment supplies at a permitted upland disposal site that accepts creosote-treated wood and materials contaminated with creosote.</li> </ul>				
	MM WQ-8 applies to this impact.	Refer to MM WQ-8	Refer to MM WQ-8	Refer to MM WQ-8	Refer to MM WQ-8
<p><b>BIO-18:</b> Cause substantial impact to special-status species or sensitive habitat due to increased sound levels from Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) renovation. (Potentially significant.)</p>	<p><b>MM BIO-18a: Sound-attenuation Measures.</b> Pile driving with an impact hammer shall only occur during the work window specified by the National Marine Fisheries Service (NMFS) for avoidance of potential impacts to fish species in this region of the San Francisco Bay Estuary, from August 1 to November 30. The work window proposed may be adjusted based on the U.S. Fish and Wildlife Service’s programmatic consultation on the delta smelt and through consultation with the California Department of Fish and Wildlife (CDFW). Conducting work within the work window would minimize the possibility that work activities may impact fish species as listed fish species are less likely to use the action area as a migratory corridor during this period.</p> <ul style="list-style-type: none"> <li>A cushion block (e.g., wood, nylon, Micarta, etc.) shall be placed between the pile and impact hammer, if feasible based on pile size and type.</li> <li>A <del>confined</del> bubble curtain <u>of a design approved by the NMFS</u> shall be properly placed around all in-water piles during impact hammer pile driving activities to attenuate</li> </ul>	Tesoro to employ sound reduction measures during pile driving.	Sound levels from pile-driving remain below NMFS thresholds as documented in the Hydroacoustic Monitoring Plan.	CSLC, NMFS, CDFW	During pile-driving

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>underwater sound levels to below thresholds established by the NMFS.</p> <p><b>MM BIO-18b: Hydroacoustic Monitoring Plan.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall retain a qualified specialist to develop a hydroacoustic monitoring plan to ensure compliance with the injury and disturbance thresholds. The purpose of the hydroacoustic monitoring plan shall be to establish protocols to ensure compliance with the Project's sound-attenuation measures and any additional requirements imposed during permitting by regulatory agencies. The plan shall contain measures to:</p> <ul style="list-style-type: none"> <li>• Measure sound pressure levels from <del>vibratory</del> and impact pile driving <u>and any additional construction activities as imposed during permitting by regulatory agencies</u> to establish zones of influence related to sound thresholds for fish and marine mammals.</li> <li>• Avoid injury to marine mammals through visual monitoring of identified zones of influence and cease pile driving activities if any marine mammals enter the zone in which thresholds are exceeded.</li> <li>• Establish locations for stationing of biological monitors and provide for access to and use of a small maneuverable boat in the immediate vicinity of the monitoring for use during field data collection.</li> <li>• Conduct field operations to obtain</li> </ul>	Tesoro to implement a Hydroacoustic Monitoring Plan.	Impacts to special-status fish and marine mammals reduced and/or avoided.	California State Lands Commission	During pile-driving

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>data as follows:</p> <ul style="list-style-type: none"> <li>• Using sound meters, measure baseline of ambient noise in the vicinity of pile driving locations.</li> <li>• Measure noise from vibratory and impact pile driving to establish/confirm threshold distances.</li> <li>• Make daily observations and record presence and locations of marine mammals.</li> <li>• Observe, document, and report any indication of fish injury or mortality in the immediate vicinity of the proposed pile driving activities.</li> </ul>				
<p><b>BIO-19:</b> Cause substantial impact to wetlands and other waters of the United States and waters of the State. (Potentially significant.)</p>	<p><b>MM BIO-19a: Avoidance and Minimization Measures for Impacts to Wetlands and Waters.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall ensure that the following measures are implemented by the contractor during renovation to minimize impacts on wetlands and aquatic resources, including waters of the United States and waters of the State:</p> <ul style="list-style-type: none"> <li>• Renovation activities shall be avoided in saturated or ponded wetlands and streams. Where wetlands or other water features must be disturbed as authorized by permitting resource agencies, the minimum area of disturbance necessary for renovation shall be identified and the area outside of that necessary area shall be avoided.</li> <li>• Prior to renovation, silt fencing shall</li> </ul>	<p>Tesoro to install and maintain silt fencing in wetlands, erosion control measures, and to use protective practices when working within wetlands.</p>	<p>Impacts to wetland reduced, erosion controlled.</p>	<p>California State Lands Commission, U. S. Army Corps of Engineers</p>	<p>Prior to and during renovation</p>

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>be installed along the work limits in areas within 50 feet of designated wetlands and drainages.</p> <ul style="list-style-type: none"> <li>• To minimize the degradation of designated wetlands in the Project vicinity, protective practices such as use of geotextile cushions or other materials (e.g., timber pads, prefabricated equipment pads, geotextile fabric, or other permeable material) or vehicles with balloon tires shall be employed.</li> <li>• The contractor shall stabilize exposed slopes immediately upon completion of renovation activities. Erosion control measures shall be installed adjacent to suitable aquatic habitat to prevent soil from eroding or falling into these areas. Restoration shall be completed and monitored as described in MM BIO-19b.</li> <li>• Natural/biodegradable erosion control measures (i.e., straw wattles and hay bales) shall be used. Plastic monofilament netting (erosion control matting) shall not be allowed because wildlife can become entangled in this type of erosion control material.</li> </ul>				
	<p><b>MM BIO-19b: Revegetation and Restoration Plan.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall retain a qualified restoration specialist or botanist to develop a Revegetation and Restoration Plan that describes how marsh habitats shall be enhanced or recreated and monitored over a minimum period of 5 years. Tesoro shall be responsible for ensuring that the revegetation</p>	<p>Tesoro to revegetate and restore vegetation in work areas. Monitoring to be conducted for a minimum of 5</p>	<p>Success criteria are met for final 2 years of monitoring period.</p>	<p>California State Lands Commission, U. S. Army Corps of Engineers, U.S. Fish and Wildlife Service,</p>	<p>Post-renovation</p>

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>and restoration plan is implemented under the guidance of the restoration specialist. The plan shall be designed such that it meets the following success criteria, or other equally protective success criteria as approved by the resource agencies through the permitting process:</p> <ul style="list-style-type: none"> <li>• The restored site is composed of a mix of appropriate native species.</li> <li>• The restored site has at least 75 percent of the absolute cover of native vegetation present in areas immediately adjacent to the renovation area.</li> <li>• Plantings are self-sustaining after a reasonable establishment period without human support (e.g., weed control, rodent control, irrigation).</li> <li>• Functions and values of the restored habitat are comparable to those of adjacent, undisturbed marsh habitat.</li> </ul> <p>After revegetation and restoration are completed, monitoring shall be conducted by a restoration specialist or biologist for a minimum of 5 years to ensure that the success criteria, as identified in the revegetation and restoration plan, are met, and to identify any necessary remedial actions during the monitoring period. At a minimum, the success criteria shall be met for the final 2 years of the monitoring period. Remedial action shall be required of Tesoro if the restoration specialist finds that any of the above criteria are not met by the end of the monitoring period. Annual monitoring reports</p>	years.		California Department of Fish and Wildlife	

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	shall be submitted to California State Lands Commission staff.				
<b>BIO-20:</b> Cause substantial impact to Essential Fish Habitat (EFH) due to renovation of new and replacement overwater structures. (Potentially significant.)	MMs BIO-8b, BIO-8c, BIO-9a, BIO-9b, BIO-11b, BIO-17b, BIO-17c, BIO-18a, BIO-18b, and WQ-8 apply to this impact.	Refer to MMs BIO-8b, BIO-8c, BIO-9a, BIO-9b, BIO-11b, BIO-17b, BIO-17c, BIO-18a, BIO-18b, and WQ-8	Refer to MMs BIO-8b, BIO-8c, BIO-9a, BIO-9b, BIO-11b, BIO-17b, BIO-17c, BIO-18a, BIO-18b, and WQ-8	Refer to MMs BIO-8b, BIO-8c, BIO-9a, BIO-9b, BIO-11b, BIO-17b, BIO-17c, BIO-18a, BIO-18b, and WQ-8	Refer to MMs BIO-8b, BIO-8c, BIO-9a, BIO-9b, BIO-11b, BIO-17b, BIO-17c, BIO-18a, BIO-18b, and WQ-8
<b>BIO-21:</b> Isolate wildlife populations and/or disrupt wildlife migratory or movement corridors, or use of native wildlife nursery sites. (Potentially significant.)	MMs BIO-15a, BIO-11a, BIO-10b, BIO-13a, and BIO-19b apply to this impact.	Refer to MMs BIO-15a, BIO-11a, BIO-10b, BIO-13a, and BIO-19b	Refer to MMs BIO-15a, BIO-11a, BIO-10b, BIO-13a, and BIO-19b	Refer to MMs BIO-15a, BIO-11a, BIO-10b, BIO-13a, and BIO-19b	Refer to MMs BIO-15a, BIO-11a, BIO-10b, BIO-13a, and BIO-19b
<b>CUM-BIO-2:</b> Cause cumulative impacts to San Francisco Bay Estuary and associated biota from oil spills from all marine oil terminals combined, or from all tankering combined. (Significant and unavoidable.)	MMs BIO-8a, BIO-8b, and BIO-8c apply to this impact.	Refer to MMs BIO-8a, BIO-8b, and BIO-8c	Refer to MMs BIO-8a, BIO-8b, and BIO-8c	Refer to MMs BIO-8a, BIO-8b, and BIO-8c	Refer to MMs BIO-8a, BIO-8b, and BIO-8c



Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<b>CUM-BIO-3:</b> Cause cumulative impacts by increasing the risk of introduction of nonindigenous aquatic species from vessel traffic to San Francisco Bay. (Significant and unavoidable.)	MMs BIO-9a, and BIO-9b apply to this impact.	Refer to MMs BIO-9a and BIO-9b	Refer to MMs BIO-9a and BIO-9b	Refer to MMs BIO-9a and BIO-9b	Refer to MMs BIO-9a and BIO-9b
<b>CUM-BIO-5:</b> Cause cumulative adverse impacts to special-status species, biotic communities, and habitat through Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) renovation and replacement of Avon Terminal structures. (Potentially significant.)	MMs and BIO-15b and BIO-19b apply to this impact.	Refer to MMs BIO-15b and BIO-19b	Refer to MMs BIO-15b and BIO-19b	Refer to MMs BIO-15b and BIO-19b	Refer to MMs BIO-15b and BIO-19b

Table 8-3: Mitigation Monitoring – Water Quality

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<b>WQ-3:</b> Degrade water quality by the discharge of segregated ballast water. (Significant and unavoidable.)	<b>MM WQ-3: Advise Vessels of the Coastal Ecosystems Protection Act and Associated Regulations.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall advise both agents and representatives of shipping companies that have control over vessels that have informed Tesoro of plans to call at the Avon Terminal about the Coastal Ecosystems	Tesoro will advise agents and representatives of shipping companies having control over vessels	Informing vessel operators of regulations and standards will help reduce the potential of nonindigenous	California State Lands Commission, U.S. Gulf Coast, U.S. Environmental Protection	Prior to the vessel's entry into San Francisco Bay or in the alternative, at least 24 hours prior to the

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	Protection Act of 2006, National Invasive Species Act of 1996, Marine Invasive Species Act of 2003, and other associated implementing regulations.	planning to call at the Avon Terminal of the Coastal Ecosystems Protection Act of 2006 and associated regulations.	aquatic species introduction via ballast water.	Agency	vessel's arrival at the Avon Terminal.
	MMs WQ-5, BIO-9a, and BIO-9b apply to this impact.	Refer to MMs WQ-5, BIO-9a, and BIO-9b	Refer to MMs WQ-5, BIO-9a, and BIO-9b	Refer to MMs WQ-5, BIO-9a, and BIO-9b	Refer to MMs WQ-5, BIO-9a, and BIO-9b
<b>WQ-5:</b> Degrade water quality as a result of vessel biofouling. (Significant and unavoidable.)	<b>MM WQ-5: Biofouling Regulations and Standards.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall prepare, and maintain current, a fact sheet and provide it to all vessels calling at the Avon Terminal to ensure that they are informed of applicable regulations and standards associated with the prevention of biofouling. Prior to allowing berthing at the Avon Terminal, Tesoro shall confirm with vessels that they are in compliance with the Marine Invasive Species Act of 2003 (MISA), including completion of MISA-required paperwork. Tesoro shall ensure that all vessels submit required reporting forms, as applicable for each vessel prior to the vessel's entry into the San Francisco Bay Estuary or in the alternative, at least 24 hours prior to the vessel's arrival at the Avon Terminal.	Tesoro shall prepare, and maintain current, a fact sheet and provide it to all vessels calling at the Avon Terminal to ensure that they are informed of applicable regulations and standards associated with the prevention of biofouling. Tesoro would confirm with vessels that they are in compliance with MISA, including completion of	Informing vessel operators of regulations and standards will help reduce the risk of the risk of nonindigenous aquatic species introductions through vessel biofouling. Data collected from the MISA reporting forms will aid research in preventing biofouling.	California State Lands Commission	Prior to the vessel's entry into San Francisco Bay or in the alternative, at least 24 hours prior to the vessel's arrival at the Avon Terminal.

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
		MISA-required paperwork.			
	MM BIO-9a applies to this impact.	Refer to MM BIO-9a	Refer to MM BIO-9a	Refer to MM BIO-9a	Refer to MM BIO-9a
<b>WQ-6:</b> Degrade water quality due to anti-fouling paints used on vessel hulls. (Potentially significant.)	<b>MM WQ-6: Tributyltin (TBT) Ban Requirements.</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall prepare, and maintain current, a fact sheet and provide it to all vessels calling at the Avon Terminal to ensure that they are informed of the requirements of the 2008 International Maritime Organization prohibition of TBT applications to vessel hulls. Prior to allowing berthing at the Avon Terminal, Tesoro shall confirm with vessels that they are in compliance with the Marine Invasive Species Act (MISA) and implementing regulations, including completion of MISA-required paperwork. Tesoro shall ensure that all vessels submit required reporting forms, as applicable for each vessel prior to the vessel's entry into the San Francisco Bay Estuary or in the alternative, at least 24 hours prior to the vessel's arrival at the Avon Terminal.	Tesoro shall Inform vessels calling at the Avon Terminal of the ban on TBT. Tesoro will advise both agents and representatives of shipping companies about the requirements of the 2008 International Maritime Organization prohibition of TBT applications to vessel hulls.	Informing vessel operators of the ban on TBT will help reduce the impact to water quality from anti-fouling paints used on vessel hulls.	California State Lands Commission	Prior to the vessel's entry into San Francisco Bay or in the alternative, at least 24 hours prior to the vessel's arrival at the Avon Terminal.
<b>WQ-8:</b> Degrade water quality as a result of stormwater runoff from the Avon Terminal. (Potentially significant.)	<b>MM WQ-8: Update Existing Facility Stormwater Pollution Prevention Plan (SWPPP).</b> Tesoro Refining and Marketing Company, LLC (Tesoro) shall update the existing SWPPP to include specific best management practices (BMPs) to prevent stormwater runoff from the new Berth 1A and approachway. BMPs shall be designed to reduce the input of contaminant to the San Francisco Bay Estuary and prevent leaks and spills during routine activities. Specific stormwater BMPs for Berth 1A and the	Tesoro shall append the existing SWPPP to include specific Best Management Practices (BMPs) to prevent stormwater runoff from the wharf area.	Amended SWPPP will prevent releases of contaminants from the new Berth 1A and approachway to nearby waterways.	California State Lands Commission	Prior to implementation of Project activities.

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	approachway shall include: <ul style="list-style-type: none"> <li>• Concrete berms and containment for spills on Berth 1A.</li> <li>• Documented inspections of the Avon Terminal approachway, as well as Berth 1A containment systems, in addition to already included requirements for immediate cleanup of any spills or releases.</li> </ul>				
<b>WQ-9:</b> Degrade water quality as a result of oil leaks and spills during unloading. (Significant and unavoidable.)	MMs OS-1a, OS-1b, and OS-1c apply to this impact.	Refer to MMs OS-1a, OS-1b, and OS-1c	Refer to MMs OS-1a, OS-1b, and OS-1c	Refer to MMs OS-1a, OS-1b, and OS-1c	Refer to MMs OS-1a, OS-1b, and OS-1c
<b>WQ-10:</b> Degrade water quality due to oil releases from vessels in transit in the San Francisco Bay Estuary or along the outer coast. (Significant and unavoidable.)	MMs OS-4a and OS-4b apply to this impact.	Refer to MMs OS-4a and OS-4b	Refer to MMs OS-4a and OS-4b	Refer to MMs OS-4a and OS-4b	Refer to MMs OS-4a and OS-4b
<b>WQ-154:</b> Degrade surface water quality as a result of offshore Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) renovation activities. (Potentially significant.)	<b>MM WQ-154: Utilize Local/Regional Barges and Vessels during Renovation.</b> During renovation activities, Tesoro Refining and Marketing Company, LLC (Tesoro) shall utilize barges and other vessels originating within the local vicinity or the Pacific Coast Region, to the extent practicable.	Tesoro will use local vessels and barges to the extent practical during renovation activities.	Reduces the potential biofouling from construction vessels.	California State Lands Commission	During implementation of renovation activities.
	MMs BIO-17d and WQ-5 apply to this impact.	Refer to MMs BIO-17d and WQ-5	Refer to MMs BIO-17d and WQ-5	Refer to MMs BIO-17d and WQ-5	Refer to MMs BIO-17d and WQ-5

<b>Impact (Class)</b>	<b>Mitigation Measure(s) (MMs)</b>	<b>Monitoring/ Reporting Action</b>	<b>Effectiveness Criteria</b>	<b>Responsible Agency</b>	<b>Timing</b>
<b>CUM-WQ-1</b> Cause contaminant impacts on San Francisco Bay Estuary water quality. (Significant and unavoidable).	MMs WQ-3, WQ-5, and BIO-9a apply to this impact.	Refer to MMs WQ-3, WQ-5, and BIO-9a	Refer to MMs WQ-3, WQ-5, and BIO-9a	Refer to MMs WQ-3, WQ-5, and BIO-9a	Refer to MMs WQ-3, WQ-5, and BIO-9a
<b>CUM-WQ-3:</b> Degrade water quality due to releases from vessels in transit in the San Francisco Bay Estuary or along the outer coast. (Significant and unavoidable.)	MMs OS-4a and OS-4b apply to this impact.	Refer to MM OS-4a and OS-4b	Refer to MM OS-4a and OS-4b	Refer to MM OS-4a and OS-4b	Refer to MM OS-4a and OS-4b

**Table 8-4: Mitigation Monitoring – Land Use and Recreation**

<b>Impact (Class)</b>	<b>Mitigation Measure(s) (MMs)</b>	<b>Monitoring/ Reporting Action</b>	<b>Effectiveness Criteria</b>	<b>Responsible Agency</b>	<b>Timing</b>
LUR-2: Cause residual impacts on sensitive shoreline lands and/or water and non-water recreation due to an accidental release of oil at or near the Avon Terminal. (Significant and unavoidable.)	MMs OS-1a, OS-1b, OS-1c, OS-4a, and OS-4b apply to this impact.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-4a, and OS-4b.

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Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<b>LUR-3:</b> Cause residual impacts on sensitive shoreline lands and/or water and non-water recreation due to an accidental release of oil from vessels in transit. (Significant and unavoidable.)	MMs OS-1a, OS-1b, OS-1c, OS-4a, and OS-4b apply to this impact.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-4a, and OS-4b.

**Table 8-5: Mitigation Monitoring – Visual Resources, Light and Glare**

Impact (Class)	Mitigation Measure(s) (MMs)	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<b>VR-2:</b> Create visual effects from accidental releases of oil at or near the Avon Terminal. (Significant and unavoidable.)	MMs OS-1a, OS-1b, OS-1c, OS-2, OS-4a, and OS-4b apply to this impact.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-2, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-2, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-2, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-2, OS-4a, and OS-4b.
<b>VR-3:</b> Create visual effects from oil spills from vessels in transit. (Significant and unavoidable.)	MMs OS-1a, OS-1b, OS-1c, OS-2, OS-4a, and OS-4b apply to this impact.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-2, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-2, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-2, OS-4a, and OS-4b.	Refer to MMs OS-1a, OS-1b, OS-1c, OS-2, OS-4a, and OS-4b.