

MINUTE ITEM

This Calendar Item No. C47 was approved as
Minute Item No. 47 by the California State Lands
Commission by a vote of 3 to 0 at its
8-8-05 meeting.

**CALENDAR ITEM
C47**

A	11		08/08/05
S	7	PRC 4769	WP 4769.1 N. Smith D. Plummer M. Meier V. Van Way

**ISSUANCE OF A GENERAL LEASE - INDUSTRIAL USE AND
TERMINATION OF PRC 8160 AND PRC 8205**

APPLICANT:

Shore Terminals LLC
2801 Waterfront Road
Martinez, California 94553

AREA, LAND TYPE, AND LOCATION:

14.04 acres, more or less, of sovereign lands in Suisun Bay and Pacheco
Slough, city of Martinez, Contra Costa County.

AUTHORIZED USE:

An existing marine terminal consisting of a 40x100 foot concrete wharf connected
to land by a 1,700 foot long trestle supporting an 11 foot wide roadway and pipe
rack. This lease includes annual dredging of up to 6,000 cubic yards per year
and an existing 12-inch petroleum pipeline across Pacheco Slough and along
Waterfront Road.

LEASE TERM:

Twenty years, beginning January 1, 2005

CONSIDERATION:

\$235,800 per year; with the State adjusting the annual base rent each year by
application of the Consumer Price Index (CPI), the adjusted annual rent will
never be lower than the base rent. This CPI adjustment will continue until the
tenth anniversary of the lease, when a new base rent may be established.

SPECIFIC LEASE PROVISIONS:

Insurance:

Liability insurance: Combined single limit coverage of \$10,000,000.

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Bond:
\$2,000,000.

BACKGROUND INFORMATION:

The California State Lands Commission (Commission) authorized issuance of lease PRC 4769 to Wickland Oil Company (Wickland) at its meeting on May 31, 1973, and subsequently assigned the lease to Shore Terminal LLC (Shore) in September 1998. This lease provided for a 25-year term with two 10-year renewal periods, which permitted the use of State-owned sovereign lands in Contra Costa County for a marine terminal facility in conjunction with storage facilities on the upland for crude oil and petroleum products. When Shore applied to continue its use of the marine terminal, they also requested a new long term lease. Commission staff determined that an Environmental Impact Report (EIR) must be completed before the Commission could consider a new long-term lease for the terminal.

Shore Terminals LLC is a wholly owned subsidiary of Kaneb Pipeline Partners, L.P. Kaneb Pipeline Partners, L.P. unconditionally guarantees the full performance by Shore Terminals LLC of its obligations under the lease, and staff has determined that Kaneb has the financial ability to carry out the terms of the lease.

Lease PRC 8160 for dredging at the marine terminal and PRC 8205 for the 12-inch petroleum pipeline along Waterfront Road will be terminated because the new lease proposed for approval by this calendar item incorporates provisions for dredging and for the 12-inch line.

ENVIRONMENTAL PROCESS:

1. The Notice of Preparation (NOP) for an EIR was circulated April 5, 2001, to 92 public agencies and interested parties, and two Public Scoping Hearings were held in the city of Martinez on April 19, 2001, at which no member of the public provided comments. Staff received two sets of comments on the NOP, from the Bay Conservation and Development Commission (BCDC), and the California Sportfishing Protection Alliance. The Draft EIR was circulated for a 45-day public review and comment period on May 21, 2004, and staff conducted two public hearings on June 23, 2004, in the city of Martinez, at which no speakers provided comments. Staff received two sets of comments on the Draft EIR, from BCDC and the applicant, and the Final EIR was released on April 7, 2005.

CALENDAR ITEM NO. C47 (CONT'D)

2. CEQA Findings, made in conformance with the State CEQA Guidelines (Title 14, California Code of Regulations, section 15091) are contained in Exhibit C, attached hereto.
3. A Mitigation Monitoring Program has been prepared in conformance with the provisions of the CEQA (Public Resources Code section 21081.6) and is contained in Exhibit D attached hereto.
4. A Statement of Overriding Considerations made in conformance with the State CEQA Guidelines (Title 14, California Code of Regulations, section 15093) is contained in Exhibit E, attached hereto.
5. The Final Environmental Impact Report (FEIR) identified the following significant impacts that, with the application of all feasible mitigation measures, cannot be reduced to less than significant:
6. All documents and material that constitute the record of proceedings upon which staff's recommendation is based are on file in the Sacramento Office of the commission located at 100 Howe Avenue, Suite 100 South.
 - Oil Spills
 - Shore's terminal response capability for containment of leaks or spills greater than 50 barrels (bbls) is not adequate to contain and recover all the spill, and could result in significant, adverse and/ or residual impacts to water quality or biological resources, commercial and sport fisheries, recreation, land or natural resource uses, and/ or visual aesthetics;
 - Accidental spills or leaks of crude oil or oil product originating from a vessel at Shore terminal or in transit in S.F. Bay or the outer coast could significantly impair and/or present significant residual impacts to water quality, biological resources, and have the potential to spread through the Carquinez Strait and into Suisun and San Pablo Bays; and
 - Oil spills that beach along sensitive lands or heavily-used areas, including recreational areas, could limit or preclude such uses, depending on the various characteristics of a spill and its residual effects.

CALENDAR ITEM NO. C47 (CONT'D)

- Water Quality
 - Pollution from use of metal-based or highly toxic marine anti-fouling paints on vessels associated with Shore terminal may significantly, adversely impact water quality; and
 - Ballast water discharge containing harmful invasive organisms/ introduction of non-indigenous species near the project area, the S.F. Bay and outer coast, could significantly, adversely impair several beneficial uses, including fishing, estuarine habitat, preservation of rare and endangered species, recreation, fish spawning, wildlife habitat, and other biota, especially plankton, benthos, fishes, and birds.
- Fisheries
 - Contamination from an oil or product spill presents high risk of adverse effects to S.F. Bay shrimp, herring, commercial and sport fisheries. Depending on spill location, size and water and weather conditions, areas upstream of the confluence of the Sacramento and San Joaquin rivers may also suffer harm. In addition, Bay marinas, launch ramps and fishing access points may be threatened, contaminated or closed; and
 - Dredging activities during periods when juveniles are migrating through the area could contribute to significant loss of juvenile Dungeness crabs and young Chinook salmon.
- Aesthetics
 - Visual impacts of a spill originating from Shore terminal could, depending on the level of physical impact and cleanup ability, potentially persist for a long period of time, resulting in negative public impression of the view shed and significant adverse aesthetic impacts.

OTHER PERTINENT INFORMATION:

1. Applicant owns the uplands adjoining the lease premises.
2. Staff recommends that the Commission accept the back rent for the period from June 1, 1998, to December 31, 2004, in the amount of \$522,255.

CALENDAR ITEM NO. C47 (CONT'D)

3. Pursuant to the Commission's delegation of authority and the State CEQA Guidelines (Title 14, California Code of Regulations, section 15025), the staff has prepared an Environmental Impact Report (EIR) identified as CSLC EIR No. 706, State Clearinghouse No. 2001042022. Such EIR was prepared and circulated for public review pursuant to the provisions of the CEQA.

EXHIBITS:

- A. Land Description
- B. Site Map
- C. CEQA Findings
- D. Mitigation Monitor Program
- E. Statement of Overriding Considerations

PERMIT STREAMLINING ACT DEADLINE:

12/21/05

RECOMMENDED ACTION:

IT IS RECOMMENDED THAT THE COMMISSION:

CEQA FINDING:

1. CERTIFY THAT AN EIR NO. 706, STATE CLEARINGHOUSE NO. 2001042022, WAS PREPARED FOR THIS PROJECT PURSUANT TO THE PROVISIONS OF THE CEQA, THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN, AND THAT THE EIR REFLECTS THE COMMISSION'S INDEPENDENT JUDGMENT AND ANALYSIS.
2. ADOPT THE FINDINGS, MADE IN CONFORMANCE WITH TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTION 15091, AS CONTAINED IN EXHIBIT C, ATTACHED HERETO.
3. ADOPT THE MITIGATION MONITORING PROGRAM, AS CONTAINED IN EXHIBIT D, ATTACHED HERETO.
4. ADOPT THE STATEMENT OF OVERRIDING CONSIDERATIONS MADE IN CONFORMANCE WITH TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTION 15093, AS CONTAINED IN EXHIBIT E, ATTACHED HERETO.

CALENDAR ITEM NO. C47 (CONT'D)

AUTHORIZATION:

1. AUTHORIZE ACCEPTANCE OF BACK RENT IN THE AMOUNT OF \$522,255 FOR THE PERIOD JUNE 1, 1998, THROUGH DECEMBER 31, 2004.

2. AUTHORIZE ISSUANCE TO SHORE TERMINALS LLC OF A GENERAL LEASE-INDUSTRIAL USE, BEGINNING JANUARY 1, 2005, FOR A TERM OF TWENTY YEARS, FOR MARINE TERMINAL FACILITIES, 12-INCH PIPELINE AND ANNUAL DREDGING OF UP TO 6,000 CUBIC YARDS WITH SUCH ACTIVITY BEING CONTINGENT UPON APPLICANT'S COMPLIANCE WITH APPLICABLE PERMITS, RECOMMENDATIONS, OR LIMITATIONS ISSUED BY FEDERAL, STATE AND LOCAL GOVERNMENTS; ON THE LAND DESCRIBED ON EXHIBIT A ATTACHED AND BY THIS REFERENCE MADE A PART HEREOF; ANNUAL RENT IN THE AMOUNT OF \$235,800, WITH THE STATE RESERVING THE RIGHT TO FIX A DIFFERENT RENT PERIODICALLY DURING THE LEASE TERM, AS PROVIDED IN THE LEASE; NO LESS THAN \$.25 PER CUBIC YARD WILL BE CHARGED FOR ANY DREDGED MATERIAL USED FOR PRIVATE BENEFIT OR COMMERCIAL SALE PURPOSES; LIABILITY INSURANCE FOR COMBINED SINGLE LIMIT COVERAGE OF \$10,000,000; OR AN EQUIVALENT SELF INSURANCE PROGRAM UPON APPROVAL OF COMMISSION STAFF TO SATISFY INSURANCE REQUIREMENTS; SURETY BOND IN THE AMOUNT OF \$2,000,000.

Exhibit "A"

Description of Lands Covered by Lease No. PRC 4769.1

Real property situated in Contra Costa County State of California described as follows:

Parcel One:

A parcel of tide and submerged land lying within Suisun Bay, near the city of Martinez, being more particularly described as follows:

COMMENCING at a 2" X 2" hub numbered 29, as shown on that Record of Survey recorded January 26, 1954 in Book 16 of Licensed Land Surveyors' Maps at page 14, Contra Costa County Records; thence South 79° 09' East along the northern line of Swamp and Overflow Survey No. 424, 83.16 feet to the TRUE POINT OF BEGINNING, said point also being on the line common to Sections 8 and 9, Township 2 North, Range 2 West, Mount Diablo Base Line and Meridian; thence North 00° 51' 00" East along said section line 2789.00 feet; thence leaving said section line North 71° 51' 00" East, 35.00 feet; thence North 10° 00' 00" West, 27.21 feet; thence North 33° 10' 09" West, 1490.20 feet; thence South 62° 47' 18" West, 259.56 feet; thence South 79° 58' 49" West 235.64 feet; thence North 27° 12' 42" West, 180.00 feet; thence North 62° 47' 18" East, 995.00 feet; thence South 27° 12' 42" East, 180.00 feet; thence South 45° 55' 59" West, 240.21 feet; thence South 62° 47' 18" West, 226.89 feet; thence South 33° 10' 09" East, 601.81 feet; thence North 56° 49' 51" East, 40.00 feet; thence South 33° 10' 09" East, 85.00 feet; thence South 56° 49' 51" West, 40.00 feet; thence South 33° 10' 09" East, 840.00 feet; thence North 71° 51' 00" East, 4.53 feet; thence South 00° 51' 00" West, 2841.06 feet to the northern line of said Swamp and Overflow Survey No. 424; thence North 79° 09' 00" West along the northern line of said Survey No. 424, 101.54 feet to the TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM any validly patented interest in that land covered by Tideland Survey No. 207 patented to J.M. Keith pursuant to that certain Tideland Patent recorded November 22, 1901 in Book 4 of Patents, page 402, Contra Costa County Official Records.

Parcel Two:

A parcel of tide and submerged land lying in the bed of Pacheco Creek (also know as Walnut Creek), approximately 2 miles northeast of the City of Martinez, Contra Costa County, State of California, being more particularly described as follows:

COMMENCING at State Lands Monument "AVON" having CCS 27, Zone 3 coordinates of X=1,545,386.26, Y=561,570.34; thence North 18° 39' 30" West, 231.00 feet; thence South 71° 20' 30" West, 239.53 feet to the ordinary high water mark of the east bank of Pacheco Slough and being the TRUE POINT OF BEGINNING; said ordinary high water mark being described in Boundary Line Agreement No. 7 between Tidewater Associated Oil Company and the State Lands Commission as recorded on March 15, 1951, in Volume 1732, page 35, Official Records of Contra Costa County; thence along said boundary line North 59° 02' 55" West, 65.65 feet; thence leaving said boundary line South 71° 20' 30" West, 141.64 feet to the ordinary high water mark of the west bank of the Pacheco Slough; said ordinary high water mark described in Boundary Line Agreement No. 8 between the United Towing Company and the State Lands Commission as recorded on March 15, 1951, in Volume 1732, page 37, Official Records of Contra Costa County; thence along said boundary line South 64° 08' 41" East, 71.32 feet; thence leaving said boundary line North 71° 20' 30" East, 133.33 feet to the TRUE POINT OF BEGINNING.

Parcel Three:

A parcel of submerged land lying in the bed of Suisun Bay, near the city of Martinez, being more particularly described as follows:

COMMENCING at the most westerly corner of the above described parcel one, thence South 62° 07' 14" West, 74.38 feet to the TRUE POINT OF BEGINNING; thence North 27° 01' 01" West, 165.00 feet to a line parallel with and 150 feet Southeast of the Bullshead Channel Centerline; thence along said parallel line North 62° 58' 59" East, 1187.50 feet; thence leaving said parallel line South 27° 01' 01" East, 160.00 feet; thence South 25° 44' 31" West, 210.00 feet; thence South 62° 54' 38" West, 896.06 feet; thence North 72° 15' 29" West, 175.00 feet to the TRUE POINT OF BEGINNING.

Parcel Four:

All that sovereign land lying in Parcels "F" and "H" of AD 238, recorded March 14, 1996 in Document Number 96 46533 of Contra Costa County Recorders Office, and more particularly described as follows:

A strip of land eight (8) feet wide, the centerline of which is an existing 12 inch diameter petroleum pipeline, said existing pipeline lying parallel with and 46 feet northerly of the south lines of said Parcels "F" and "H".

The sidelines of side strip shall be extended or shortened so as to terminate at the northeasterly line of Parcel "F" and the southwesterly line of Parcel "H".

END OF DESCRIPTION

Parcel One revised by the California State Lands Commission Boundary Unit December 15, 2004.

Parcel Two prepared by the California State Lands Commission Boundary Unit, 1998.

Parcels Three and Four prepared by the California State Lands Commission Boundary Unit July 19, 2004.

The above described Parcel Three was based on "Hydrographic Survey of Shore Terminals Martinez, CA. Pier". Surveyed 03-06-2004. Prepared by Connexsys Eng. Inc. Richmond, CA.

The survey is on file with the California State Lands Commission.

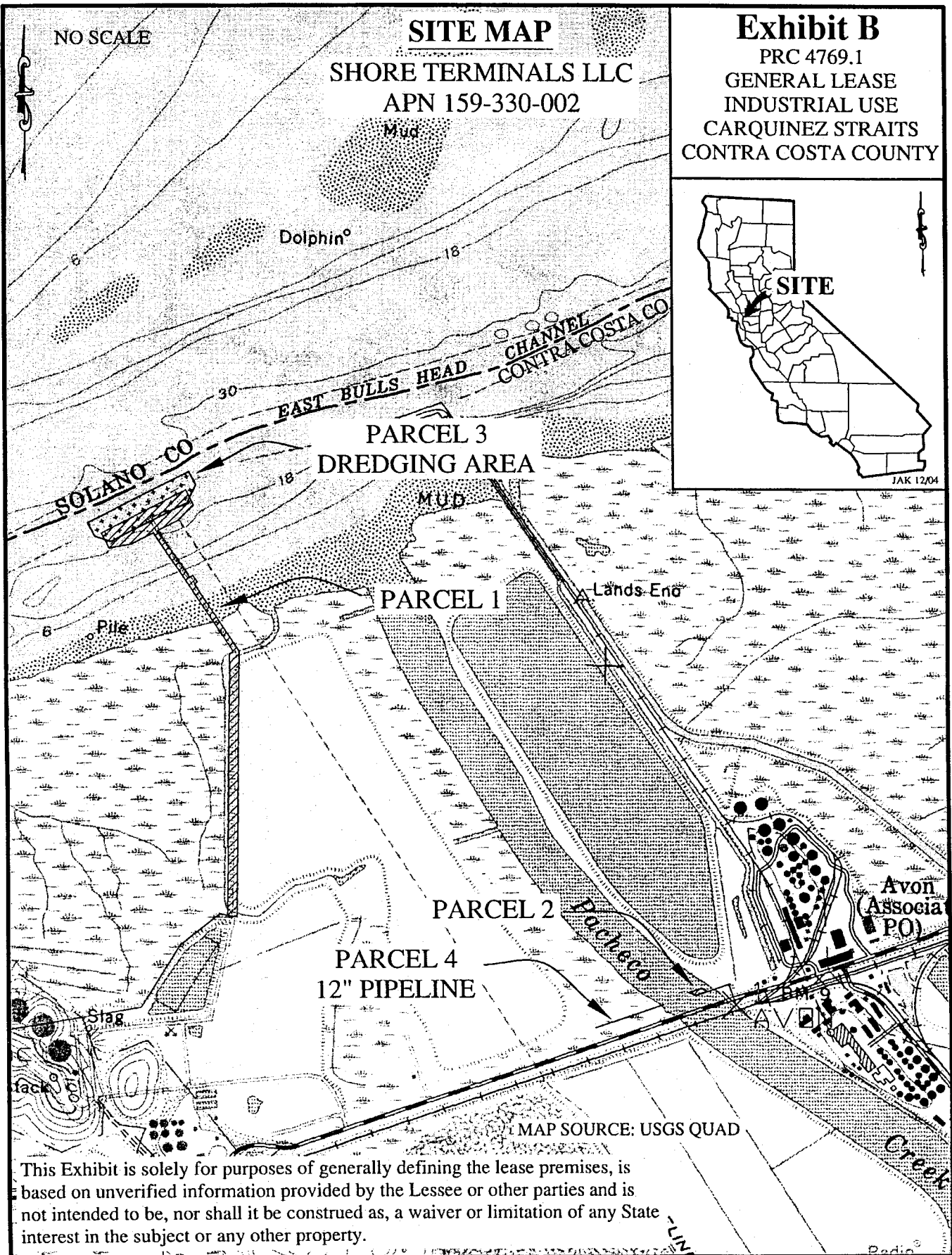


NO SCALE

SITE MAP

SHORE TERMINALS LLC
APN 159-330-002

Exhibit B
PRC 4769.1
GENERAL LEASE
INDUSTRIAL USE
CARQUINEZ STRAITS
CONTRA COSTA COUNTY



MAP SOURCE: USGS QUAD

This Exhibit is solely for purposes of generally defining the lease premises, is based on unverified information provided by the Lessee or other parties and is not intended to be, nor shall it be construed as, a waiver or limitation of any State interest in the subject or any other property.

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EXHIBIT C – SHORE TERMINALS STATEMENT OF FINDINGS

FINDINGS

These findings on the Shore Terminals LLC Martinez Marine Terminal Project (proposed Project) proposed by Shore Terminals LLC (“the Applicant”) are made by the California State Lands Commission (CSLC), pursuant to the *Guidelines* for the California Environmental Quality Act (the CEQA) (California Code of Regulations, Title 14, section 15091). All significant adverse impacts of the project in California identified in the Final Environmental Impact Report (Final EIR) are included herein and organized according to the resource affected.

The CEQA Findings are numbered in accordance with the impact and mitigation numbers identified in the Mitigation Monitoring Program table of the Final EIR (see Section 8.0 of the Draft EIR, with revisions in Section 4.0 of the Final EIR). The CEQA Finding numbers are not numbered sequentially because some of the impacts were less than significant before mitigation (Class III) or a beneficial impact (Class IV).

For discussion of impacts, significance is classified according to the following definitions:

- **Class I** (significant adverse impact that remains significant after mitigation);
- **Class II** (significant adverse impact that can be eliminated or reduced below an issue’s significance criteria);
- **Class III** (adverse impact that does not meet or exceed an issue’s significance criteria); or
- **Class IV** (beneficial impact).

Class III and Class IV impacts require neither mitigation nor findings.

For each significant impact (i.e., Class I or II) a finding has been made as to one or more of the following, as appropriate:

- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
- b) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
- c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

A discussion of the facts supporting them follows the findings.

Whenever Finding (b) occurs, the agencies with jurisdiction have been specified. These agencies, within their respective spheres of influence, have the ultimate responsibility to adopt, implement, and enforce the mitigation discussed within each type of impact that could result from project implementation. However, under the CEQA (Public Resources Code section 21081.6), the CSLC, as the CEQA Lead Agency, has the responsibility to ensure that the mitigation measures contained are effectively implemented. Other specified State, local, regional, and Federal public agencies include, but are not necessarily limited to the following:

California Department of Fish and Game (CDFG);

California Coastal Commission (CCC);

California Regional Water Quality Control Board (RWQCB);

National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries);

U.S. Army Corps of Engineers (Corps);

U.S. Coast Guard (USCG);

U.S. Fish and Wildlife Service (USFWS);

Bay Area Air Quality Management District (BAAQMD); and

Other local districts or jurisdictions.

Whenever Finding (c) is made, the CSLC has determined that sufficient mitigation is not practicable to reduce the impact to a less than significant level and, even after implementation of all feasible mitigation measures, there will or could be an unavoidable significant adverse impact due to the Project. The Statement of Overriding Considerations applies to all such unavoidable impacts as required by the CEQA *Guidelines* sections 15092 and 15093.

CEQA FINDING NO. OS-3

CONTAINMENT OF SPILLS GREATER THAN 50 BARRELS FROM TRANSFER OPERATIONS AT TERMINAL

Impact: **OS-3: Shore's response capability for containment of spills during transfer operations would be adverse and significant for spills greater than 50 bbls, and range from spills that can be contained during first response efforts with rapid cleanup (Class II), to those**

complex spills that result in a significant impact (Class I) with residual effects after mitigation.

Class: I and II

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

The Shore terminal meets all federal and state requirements for response capabilities. In most cases, Shore's response capability is considered adequate to contain a spill of up to 50 bbls and prevent it from spreading over a wide area, thus either preventing or mitigating significant impacts (Class II). However, the terminal will not be able to contain and recover all the oil from a release of greater than 50 bbls and even with implementation of mitigation measures, impacts may remain significant (Class I).

Mitigation Measures for OS-3: The following shall be completed by Shore Terminals within 12 months of lease implementation, unless otherwise specified.

- OS-3a:** Provide quick release devices that would allow a vessel to leave the wharf as quickly as possible in the event of an emergency (fire or accident that could lead to a spill), that could impact the wharf or the vessel.
- OS-3b:** Install tension monitoring devices on the wharf that would avoid excess strain on mooring lines and avoid damage that could result in spills.
- OS-3c:** Install Allision Avoidance System (AAS) at the terminal to prevent damage to the pier and/or vessel during docking operations. Prior to implementing this measure, Shore shall consult with the San Francisco Bay Bar Pilots, the USCG, and the staff of the CSLC and provide information that would allow the CSLC to determine, on the basis of such consultations and information regarding the nature, extent and adequacy of the existing berthing system, the most appropriate application and timing of an AAS at the Shore Terminal.
- OS-3d:** Develop a comprehensive preventative maintenance program for the wharf, that includes periodic inspection of all components related to transfer operations. The program shall be subject to review and approval by the CSLC.

The wharf is located in a high velocity current area in the Carquinez Strait. The wharf currently has no mechanisms that would allow the quick release of mooring lines in the event of an emergency. In the event of a fire, oil spill, earthquake, or tsunami, quick release of the mooring lines would allow the vessel to quickly leave the wharf which could help prevent damage to the wharf and vessel. The quick release hooks have options for mooring line release including electrically at the hook with a push button and/or all lines can be released from the control room.

Tension monitoring enables loading to continue in marginal weather conditions, high velocity current conditions or other conditions where the limits of strain on the mooring lines could result in movement of the vessel resulting in damage to the wharf and/or vessel. Monitoring would provide the knowledge that the design limits of the mooring are not being exceeded. This permits cost effective use of both the mooring and tankers.

At present, the docking system relies on the pilot's judgement to determine the vessel's approach speed and angle. An Allision Avoidance System would help to prevent damage to the wharf and vessel by monitoring the speed, approach angle, and distance from the dock of the approaching vessel and providing warning if the monitored parameters fall outside preset limits indicating an allision could occur.

The comprehensive preventative maintenance program would ensure that all maintenance and inspection of all transfer operation components are routinely conducted. This program will provide assurance that damaged or aging components are identified and repaired or replaced, which aid in avoiding spill/leaks.

The above measures would lower the probability of an oil spill by allowing for quick release of mooring lines (OS-3a), monitoring of tension of the mooring lines (OS-3b), allision avoidance (OS-3c), and ensuring through maintenance and inspection that damaged or aging wharf components are in proper operating condition (OS-3d). These measures help to reduce the potential for spills and their associated impacts. However, the impacts associated with the consequences of larger spills, greater than 50 bbls, could remain significant.

CEQA FINDING NO. OS-4

CONTAINMENT OF SPILLS DURING NON-TRANSFER OPERATIONS AT TERMINAL

Impact: **OS-4: Spills from the terminal during non-transfer periods would be associated with pipelines and are considered a significant (Class II) impact if spills are less than 50 bbls, or significant (Class I) impacts for spills greater than 50 bbls.**

Class: I and II

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

The only potential source for a spill during period of no transfers would be associated with the pipelines. Spills from the terminal during non-transfer periods are considered a significant (Class II) impact if spills are less than 50 bbls, or significant (Class I) impacts for spills greater than 50 bbls.

When transfers are not occurring, the standby boom deployment boat is not present. The regulations do not require the deployment of boom within 30 minutes during non-transfer times as the probability of a release is much less. The response to a non-transfer release would be similar as described above, except that it could take up to 2 hours to bring a response vessel to the site to begin deploying boom because the standby boom deployment boat may not be present. After that, the total amount of response equipment that could be brought to the scene would be the same as when a tank vessel is transferring oil. Shore and their response contractors have adequate response capability to prevent a small spill of less than 50 bbls from spreading over a wide areas and causing significant impacts. However, the impacts associated with the consequences of larger spills, greater than 50 bbls, could remain significant.

Mitigation Measures for OS-4:

OS-4: Implement measure OS-3d.

Implementation of a comprehensive preventative maintenance program would ensure through proper maintenance and inspection that damaged or aging wharf components are in proper operating condition (OS-3d). These measures help to reduce spills and their associated impacts. However, the impacts associated with the consequences of larger spills, greater than 50 bbls, could remain significant.

Additional mitigation for pipeline integrity due to seismic forces are included as mitigation measures GEO-11a (requirement for a pipeline analysis) and GEO-11b (pipelines must meet MOTEMS for pipeline integrity).

CEQA FINDING NO. OS-5

WHARF OPERATIONS MANUAL UPDATE OF RESPONSIBLE PERSONS AND RESPONSE CONTRACTORS

Impact: **OS-5: Shore Terminals Wharf Operations Manual requires minor revisions to become current, and is a significant (Class II) impact.**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

Shore Terminals maintains an Oil Spill Response Plan (Shore Terminals LLC 2001) that strictly addresses response to spills and was updated in July 2003 with USCG approval dated November 2003. The Plan references the OSPR Area Contingency Plan for specific procedures for protecting sensitive resources. The Plan is complete and up-to-date.

Shore Terminals also maintains a Wharf Operations Manual (Shore Terminals LLC 1998) which was last approved by the CSLC in 1999. The Wharf Operations Manual addresses wharf operations, including responses to emergency situations such as spills and fires. The Manual requires minor revisions to bring it current, including updating names of responsible persons at the terminal and the names of the response contractors. This is important information for terminal operations staff in the event of an emergency.

Mitigation Measure for OS-5:

OS-5: Shore Terminals shall update and bring the Wharf Operations Manual current. Revise the manual by providing current names of responsible persons at the terminal and the names of the current response contractors. Submit the Manual to the CSLC for review and approval within 6 months of lease implementation.

Time is a critical factor in mobilizing for and responding to either an oil spill or fire. Updating the manual will ensure that terminal personnel have the most current information available to contact appropriate parties to respond to these emergency situations by being onsite more quickly.

CEQA FINDING NO. OS-6

WHARF OPERATIONS MANUAL UPDATE FOR FIRES AND EXPLOSIONS RESPONSE CAPABILITY

Impact: OS-6: Public areas are beyond the hazard footprint boundary, thus fires and explosions would not cause a public safety risk. However, the Wharf's Operations Manual does not address fire emergency procedures and the Wharf does not meet detection/suppression system requirements. A significant adverse (Class II) impact has been identified.

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

The wharf is equipped with fire extinguishing equipment that can be activated in the event of a fire. Four permanently mounted fire monitors are installed on the wharf. These fire monitors are fed with bay water by a 2,000 gpm diesel engine-driven pump. The three monitors located around the loading arm area are pointed at locations high on the loading arm supports so that starting the fire pump will immediately spray cooling water on the loading arms. This fire extinguishing system is started by pushing one of the red buttons. One portable 150 lb. wheeled extinguisher and three portable 20 lb. extinguishers are also located on the wharf. There are no fire response vessels located near the terminal. At the present time, it does not appear that the wharf fire detection/suppression system meets the full requirements of the MOTEMS, and a significant adverse impact is identified.

No discussion or procedure for dealing with tank vessel fires could be found in Shore's manuals addressing fires or emergency response. This has been identified as a deficiency in the manual and in planning for emergency response and is considered a significant impact.

Mitigation Measures for OS-6:

OS-6a: Shore shall implement mitigation measure OS-3a to provide for quick release devices that would allow a vessel to depart the wharf quickly would help in the event of a fire.

OS-6b: Shore Terminals shall develop a set of procedures for dealing with tank vessel fires and explosions for tankers berthed at the Shore terminal. The procedures should include the steps to follow in the event of a tank vessel fire and describe

how Shore and the vessel will coordinate activities. The procedures shall also identify other capabilities that can be procured if necessary in the event of a major incident. The procedures shall be submitted to CSLC within 6 months of lease renewal. CSLC shall have final approval of the plan.

OS-6c: Shore Terminals shall ensure that the fire detection/suppression system conforms to the MOTEMS, Section 8.0.

OS-3a, to provide for quick release of mooring lines, could help, as previously discussed, to prevent damage to the wharf and vessel.

Shore's Operations Manual presently has no discussion or procedure for dealing with tank vessel fires or emergency response. Procedures need to be in place in planning for emergency response, so that the wharf operations crew follows appropriate steps to ensure that emergency response measures are implemented without incident in an emergency situation.

The fire detection/suppression system is required to conform to the MOTEMS, Section 8.0. The section addresses the minimum standards required for fire detection, prevention and suppression at MOTS.

CEQA FINDING NO. OS-8

PARTICIPATION IN RESPONSE CAPABILITY FOR ACCIDENTS IN BAY AND OUTER COAST

Impact: OS-8: Spills from accidents in the Bay could result in impacts to water quality or biological resources that could be significant adverse (Class II) impacts for those that can be contained during first response efforts; or significant adverse (Class I) impacts that would have residual impacts. While Shore does not have legal responsibility for tankers, it does have responsibility to participate in improving general response capabilities.

Class: I and II

Finding(s):

- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
- c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

Spill Response for Vessels Transiting the Bay

Response to a spill from a tanker is the responsibility of the vessel owner/operator. As a result of OPA 90, each vessel is required to have an oil plan that identifies the worst-case spill (defined as the entire contents of the vessel) and the assets that will be used to respond to the spill. All tanker companies operating within California waters must demonstrate by signed contract to the USCG and CDFG that they have, either themselves or under contract, the necessary response assets to respond to a worst case release as defined under federal and state regulations. Shore does not own or operate any tank vessels and thus, is not responsible for spills from tankers once they have left the terminal. Shore would respond to spills from tankers at their terminal.

Response to a vessel spill would consist of containment (deploying booms), recovery (deploying skimmers), and protection of sensitive resources. If the oil were to reach the shore and/or foul wildlife, the shoreline and wildlife would be cleaned. If the tanker's spill response contractor is unable to adequately respond to the spill, the USCG could step in and order additional response equipment and hire additional response contractors that could include both Clean Bay and MSRC. If required, additional equipment and manpower would be made available from local contractors, other spill cooperatives (Clean Seas, Clean Coastal Waters), and MSRC at other locations.

While response contractors can provide the equipment and manpower required by OPA 90 and OSPR, it is unlikely that they could prevent a large spill from causing significant contamination of the shoreline. The Area Contingency Plan (USCG and Office of Oil Spill Prevention and Response 2000) identifies sensitive resources within the Bay Area and methodologies for protecting and cleaning up those areas. Consistent with the findings of the other resource disciplines in the Draft EIR (DEIR), it was concluded that, although the probability of a large spill from a tank vessel is small, the consequences of a spill could be significant (see DEIR Sections 3.2 Water Quality, 3.3 Biological Resources, 3.4 Commercial Fisheries, 3.5 Land Use/Recreation, and 3.9 Visual Resources). Based on the anticipated spills and on the impacts to resources, it is concluded that the impact of spills would be adverse and significant and range from spills that can be contained during first response efforts with rapid cleanup (Class II) to those complex spills that result in a significant impacts (Class I) with residual effects after mitigation. While Shore does not have legal responsibility for tankers, it does have responsibility to participate in improving general response capabilities.

Spill Response for Vessels Transiting the Outer Coast

As above, the vessel owner/operator is responsible for cleaning up spills and must be able to identify what assets will be used. The Area Contingency Plan identifies sensitive resources along the outer coast and measures to be used in protecting these resources.

Response to spills outside the Bay would be somewhat different from that inside the Bay. First, the environment outside the Bay may be more difficult to work in because of sea conditions. Booms become less effective as wave heights increase, losing much of their effectiveness once waves exceed 6 feet. There may be conditions when it would be impossible to provide any response actions. However, when wave energy is such that it is impossible to deploy response equipment, the wave energy causes the oil to be dispersed much more rapidly.

Second, it may not be necessary to try to contain and clean up a spill if it does not threaten the shoreline or a sensitive area. In this case, the spiller would monitor the trajectory of the spill in accordance with methodologies presented in the Area Contingency Plan.

If the spill could affect the shoreline or sensitive area, then the response efforts would consist of containing and cleaning as much oil as necessary, and protecting sensitive areas.

The response contractor's large response vessels are located inside the Bay. It would take the vessels a minimum of 2 hours to get underway and exit the Bay, and 24 hours to reach the Fort Bragg area. While the contractor response capability meets the minimum requirements of OPA 90 and OSPR, a large spill could still result in significant, adverse impacts (Class I) to sensitive resources as described in other resources sections of this document. While Shore does not have legal responsibility for tankers, it does have responsibility to participate in improving general response capabilities.

Mitigation Measures for OS-8:

OS-8a: As a lease condition, Shore shall agree to participate in an analysis to determine the adequacy of the existing VTS in the Bay Area, if such a study is conducted by a federal, state, or local agency during the life of the lease. Agencies such as the San Francisco Bay Harbor Safety Committee often conduct studies of safety issues within the Bay Area. As vessel traffic increases in and around the Bay Area and as technology improves, it may be necessary and feasible to upgrade and expand the VTS in and around the Bay Area. Shore shall designate a representative(s) to participate in this analysis and toward the upgrade or expansion of the VTS per terms, including financial, to be agreed upon with other study participants.

OS-8b: As a lease condition, Shore shall agree to respond to the spill 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.

As presented above, the tanker owner/operator has responsibility for spills from their tanker. Shore does not have any legal responsibility for tanker spills. Nevertheless, as a participant in any analysis to examine upgrades to the VTS, Shore can help to improve transit issues and response capabilities in general, which help to reduce the

potential for incidents and the consequences of spills within the Bay. For a spill near the Shore terminal, Shore is more suited to provide immediate response to a spill using its own equipment and resources, rather than waiting for mobilization and arrival of the vessel's response organization. The marine terminal staff is fully trained to take immediate actions in response to spills. Such action will result in a quicker application of oil spill equipment to any spill and improve control and recovery of such spill.

CEQA FINDING NO. WQ-2

SEGREGATED BALLAST WATER DISCHARGE COULD IMPAIR WATER QUALITY

Impact: WQ-2: Discharge of ballast water that contains harmful microorganisms could impair several of the project area's beneficial uses, including commercial and sport fishing, estuarine habitat, fish migration, preservation of rare and endangered species, water contact recreation, non-contact water recreation, fish spawning, and wildlife habitat. Therefore discharge of segregated ballast water is determined to have a potentially significant impact to water quality (Class I).

Class: I

Finding(s):

- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
- c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

Ballast water is used to stabilize tankers and barges. Ballast water is taken up to compensate for the lightening of vessels bringing crude oil or products to the Shore terminal. Ballast water is kept in tanks that are segregated from oily cargo. Sometimes, however, ballast may be taken into cargo holds where it will come in contact with oil. Nonsegregated ballast water is considered a hazardous waste in California and cannot be discharged to Bay or coastal waters. If nonsegregated ballast water must be unloaded at the Shore terminal, it is transferred to a truck provided by a contractor and taken to a suitable waste handling facility (R. Brandes, Shore Terminals LLC, Personal Communication 2002).

Vessels may discharge ballast water from segregated ballast tanks into San Francisco Bay as they take on product from the Shore terminal or during transfer of product from a larger vessel to a smaller vessel or barge at Anchorage No. 9. This ballast water contains the pollutants present in the water at the port where it was taken on. If this water contains higher levels of pollutants than are present in San Francisco Bay, discharge of this water could have an adverse water quality impact. Because the ballast tank is segregated, no pollutants are transmitted to the ballast water from the cargo and little, if any, pollutants occur from leaching of material from segregated ballast tanks. In addition, ballast water contains an assemblage of organisms living in the water where the ballast was taken on.

Ships that visit the Shore marine terminal follow an established pattern from as far south as San Pedro, California, to as far north as the Cook Inlet in the Gulf of Alaska. The levels of certain pollutants in some of those ports may exceed ambient levels in Suisun Bay. In cases where the pollutant in ballast water exceeds the concentration in San Francisco estuary, the volume of water discharged (2.5 million gallons) is small compared to the volume of water in San Francisco Bay so that concentrations in discharged ballast water would reach background levels rapidly. Therefore, the discharge of segregated ballast water at the Shore terminal or Anchorage No. 9 is not expected to result in long-term elevations of contaminant levels that exceed criteria in the California Toxics Rule.

On the other hand, non-indigenous organisms in ballast water may have significant adverse impacts to area biological resources and water quality. Release of segregated ballast water could have a significant adverse impact to water quality if viruses, toxic algae, or other harmful microorganisms were released. Suisun Bay and the Carquinez Strait are on the 303(d) list of impaired waterbodies for exotic species. Harmful algal blooms have been associated with such adverse effects as mass mortalities of pelicans and sea lions (attributed to the toxin domoic acid produced by the diatom *Pseudo-nitzschia australis*) off coastal California (Committee on Environment and Natural Resources 2000). Ballast water discharges have been implicated as one mechanism for the spread of harmful algae. Mid-ocean exchange reduces reproduction of exotic organisms but is not completely effective. One study of the ballast water of ships that had conducted mid-ocean exchange showed that ships that exchanged ballast water had 5 percent of the number of organisms and half the number of species compared to ships that did not exchange (Cohen 1998). Another study showed that 14 of 32 ships that conducted mid-ocean ballast exchange retained significant amounts of sediment and dinoflagellate cysts. Discharge of ballast water that contains harmful microorganisms could impair several of the project area's beneficial uses, including commercial and sport fishing, estuarine habitat, fish migration, preservation of rare and endangered species, water contact recreation, non-contact water recreation, fish spawning, and wildlife habitat. Therefore, discharge of segregated ballast water is determined to have a potentially significant impact to water quality.

Mitigation Measures for WQ-2:

WQ-2: Because the Shore terminal does not have any facilities to treat ballast water for microorganisms, Shore shall ensure that any vessel using its terminal complies with the California Marine Invasive Species Control Act (Public Resources Code Sections 71200 through 71271. See Appendix E of the DEIR for key components of the Act). Vessels must exchange their ballast water in mid-ocean waters, before entering the waters of the state or they must retain all ballast water on board the vessel (Public Resources Code Section 71204.2). Shore will advise agents of shipping companies having control over vessels that have called at the Shore Marine Terminal as of the date of adoption of the cited Mitigation Monitoring Program, and agents of shipping companies having control over vessels that would be likely to call at the Shore Marine Terminal in the future about the California Marine Invasive Species Control Act. Shore will ensure that a Questionnaire containing the following questions is provided to the Vessel Operator, and inform the Vessel Operator that the Questionnaire should be completed on behalf of the vessel, by its Captain or authorized representative, and provided to the CSLC's Marine Facilities Division's Northern California Field and Sacramento Offices, either electronically or by facsimile, 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 Shore Marine Terminal.

The Questionnaire shall solicit the following information:

1. Does the vessel intend to discharge ballast water in San Francisco Bay, the Carquinez Strait or any other location(s) in a Delta waterway on its transit to the Shore Marine Terminal?
2. Does the vessel intend to discharge ballast water at the Shore Marine Terminal?
3. Which of the following means specified in the California Marine Invasive Species Act (CMISA) has the vessel operator used or intend to use on the current voyage to manage the vessel's ballast water: a mid-ocean exchange (as defined in Section 71200(g)); retain all ballast on board; or discharge the ballast water at the same location (as defined in Section 71204.2(c)(2)) where ballast originated, provided ballast water was not mixed with ballast water taken on in an area other than mid-ocean waters?

The measure provides an interim tracking mechanism until a feasible system to kill organisms in ballast water is developed. Until then, the discharge of ballast water to San Francisco Bay will remain a significant adverse impact. Mid-ocean exchange reduces the introduction of exotic species, but is not completely effective.

CEQA FINDING NO. WQ-3

WATER QUALITY DEGRADATION FROM VESSEL WASTE SPILLS

Impact: **WQ-3: Spills of sanitary wastewater, bilge water, and non-segregated ballast water, could degrade water quality and many spills would constitute chronic long-term degradation of water quality, resulting in a significant adverse impact (Class II).**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

Any other liquid wastes that may need to be removed from vessels visiting the Shore terminal are discharged through a black oil pipeline in compliance with MARPOL waste discharge requirements. Therefore, unless there was a spill during transfer, none of these other wastes, which might include sanitary wastewater, bilge water, and non-segregated ballast water, would have any impact on water quality in the project area. A spill, however, would degrade water quality and many spills would constitute chronic long-term degradation of water quality, resulting in a significant adverse impact (Class II).

Mitigation Measures for WQ-3:

WQ-3: Shore shall prepare a SWPPP for the marine terminal that includes Best Management practices (BMPs) specifically to prevent leaks and spills during transfer of liquids between vessels and trucks on the wharf. The SWPPP shall be prepared within 6 months of lease implementation and reviewed by the CSLC and be available to the RWQCB.

Aggressive implementation of marine terminal specific BMPs to reduce the input of chemicals to the Bay from operations on the wharf would reduce or eliminate the Shore marine terminal's input of these substances to the environment and thereby reduce water quality degradation at the terminal.

CEQA FINDING NO. WQ-5

WATER QUALITY DEGRADATION FROM ANTI-FOULING PAINTS

Impact: **WQ-5: Marine anti-fouling paints are highly toxic containing copper, sodium, zinc, and tributyltin (TBT) and their use on vessels associated**

with the Shore terminal is considered to be a significant adverse impact to water quality that cannot be mitigated to less than significant (Class I).

Class: I

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

Marine anti-fouling paints are used to reduce nuisance algal and marine growth on ships. These marine growths can significantly affect the drag of the vessel through the water and thus its fuel economy. Anti-fouling paints are biocides that contain copper, sodium, zinc, and TBT as the active ingredients. All of these are meant to be toxic to marine life that would settle or attach to the hull of ships. At a November 1997 session of the IMO Assembly in London, a resolution was approved that calls for the elimination of organotin biocides after 2003. The resolution language bans the application of tin biocides as anti-fouling agents on ships by January 1, 2003, and prohibits the presence of tin biocides after January 1, 2008. The Marine Environment Protection Committee of the IMO is developing a legal instrument to enforce the ban of TBT on vessels (Lewis 2001). Much concern has been raised about TBT effects on non-target marine species. New types of bottom paints that do not contain metal-based biocides are being developed and tested. Some of these coatings, such as self-polishing coatings, are now in use. Because of the high toxicity of organotins to marine organisms, the use of these substances on vessels associated with the Shore terminal is considered to be a significant adverse impact to water quality that cannot be mitigated to less than significant levels.

Mitigation Measures for WQ-5:

WQ-5: Shore will advise agents of shipping companies having control over vessels that have called at the Shore Marine Terminal as of the date of adoption of the cited Mitigation Monitoring Program, and agents of shipping companies having control over vessels that would be likely to call at the Shore Marine Terminal in the future about the requirements of the 2008 IMO prohibition of TBT applications to vessel hulls. Following the effective date of the IMO prohibition, Shore will ensure that the Captain or authorized representative of vessels intending to call at the Shore Marine Terminal certify that their vessel is in compliance and provide a copy of such certification to the CSLC's Marine

Facilities Division's Northern California Field and Sacramento Offices, either electronically or by facsimile, 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 Shore Marine Terminal.

Until all TBT is phased out by 2008, vessels with old applications of TBT on their hulls will visit the Shore terminal. Although it is reasonable for Shore Terminals to require vessels to document no new TBT applications (per IMO mandate), Shore Terminals cannot feasibly require vessels to remove TBT from their hulls until the IMO mandate prohibiting the presence of TBT on shiphulls comes into effect in 2008. Prior to the effect date of the IMO mandate, the mitigation measure has Shore advise agents of shipping companies about the future requirements; after the effective date of the IMO mandate, Shore will certify that visiting vessels are in compliance and submit copies to CSLC. This will help to reduce impact to water quality by eliminating organotins, and also eliminate toxicity to marine organisms.

CEQA FINDING NO. WQ-6

WATER QUALITY DEGRADATION FROM ROUTINE VESSEL MAINTENANCE

Impact: **WQ-6: Routine vessel maintenance would have the potential to degrade water quality due to chronic spills during transfers of lubricating oils, resulting in adverse significant (Class II) impacts.**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

Minor repair and routine maintenance of vessels may occur at the Shore terminal. Most of these repairs have little effect on water quality. Vessels may take on lubricating oils at the wharf, which have a potential to spill into the water. All transfer areas, i.e., work areas around risers, loading arms, hydraulic systems, etc., are protected by berms and drain to sumps from which wastes are pumped onshore. No hull cleaning occurs at the Shore terminal. Routine vessel maintenance would have the potential to degrade water quality due to chronic spills during transfers of lubricating oils. The impact of chronic spills is adverse and significant (Class II).

Mitigation Measures for WQ-6:

WQ-6: Mitigation measure WQ-3 applies, which addresses preparation of a SWPPP for the marine terminal.

Aggressive implementation of marine terminal specific BMPs to reduce the input of chemicals to the Bay from operations on the wharf would reduce the Shore marine terminal's input of these substances to the environment and thereby reduce water quality degradation at the terminal.

CEQA FINDING NO. WQ-7

WATER DEGRADATION FROM WHARF STORMWATER RUNOFF

Impact: **WQ-7: Stormwater runoff from the Shore terminal may contribute pollutants to the Bay in concentrations that may adversely impact some benthic species within the local area, resulting in a significant adverse impact (Class II) to water quality.**

Class: II

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of the RWQCB and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING THE FINDING(S)

Stormwater runoff is the largest contributor of pollutants to San Francisco Bay (Davis et al. 2000). Hydrocarbons and other contaminants that accumulate on surfaces of the Shore terminal pier will run off to the ocean during storms. A 6-inch high curb surrounds the wharf deck and all materials on the surface drain into a 25-barrel capacity sump. The sump pumps the contents through a 2-inch oil slop line to an onshore oil-water separator. This is primarily a stormwater collection sump, though it can also serve to contain a product discharge. The sump is normally empty, but does collect flush down water and/or stormwater after rainfall. The sump is open to visual inspection, which is done daily by the wharf technician. During periods of rainfall, the sump is inspected frequently to ensure the float valve is operating properly. The terminal is manned 24 hours per day, which makes this a viable procedure to avoid overfilling the sump. Should the float valve fail, the technician would observe a rise in the level of the sump during his inspection, and the manual switch would be activated. Should the manual switch also fail, a vacuum truck would be used to empty the sump. The float valve is designed to activate when the sump contains approximately two feet, or 300 gallons, of impacted water. Should the switch fail to activate, the sump still has 150 percent additional capacity. In the worst case, the sump would overflow into the concrete curb containment system that surrounds the wharf. Hence, pollutants that accumulate on the

wharf deck should not enter the Bay and degrade water quality. However, there is the potential for contaminants to accumulate on the surface of other parts of the pier from routine vehicle use, maintenance activities, and other operations. The Shore terminal Storm Water Pollution Prevention Plan (SWPPP) does not that specifically address the potential for pollutant input from the wharf.

Concentrations of a number of contaminants in sediments at the Shore terminal are at levels that exceed the ER-L indicating that some adverse biological effects may occur to species sensitive to these contaminants (see DEIR Table 3.2-17). Several of these contaminants exceed the concentrations at a nearby reference site and also are above average levels for North Bay and San Francisco Estuary Ambient Sediment Concentrations. Therefore, contamination from the Shore terminal may be contributing pollutants to the Bay and concentrations may affect some benthic species adversely within the local area. Because contaminant levels in the vicinity of the Shore terminal exceed criteria, any runoff from the pier is considered to have a significant adverse impact to water quality.

Mitigation Measures for WQ-7:

WQ-7: As per mitigation measure WQ-3, Shore shall prepare a SWPPP for the marine terminal. Shore Terminals shall implement additional BMPs to reduce the input of chemicals to the Bay from the marine terminal, including (at a minimum) (1) conducting all vehicle maintenance on land not over water or marshland, (2) berming all areas on the pier where maintenance activities are being conducted and cleaning up all spilled contaminants before berms are removed, (3) washing the surface of the pier to the extent practical and directing washwater into sumps, (4) maintenance of sumps, and (5) posting signs to educate all workers to the importance of keeping contaminants from entering the Bay.

Aggressive implementation of marine terminal specific BMPs to reduce the input of chemicals to the Bay from operations on the wharf would reduce the Shore marine terminal's input of these substances to the environment and thereby reduce water quality degradation at the terminal.

CEQA FINDING NO. WQ-9

WATER DEGRADATION FROM SHORE TERMINAL OIL AND PRODUCT LEAKS AND SPILLS

Impact: **WQ-9: Potential impacts on water quality can result from leaks or spills. Small leaks or spills (less than 50 bbl) related to Shore operations could result in significant (Class II) impacts, while large spills (greater than 50 bbl) could result in significant adverse impacts (Class I).**

Class: I and II

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

A wide range of crude oil, feed stocks, additives, and processed petroleum products are transferred through the Shore terminal between its upland storage facilities and vessels that call at the pier. The Shore terminal also handles a variety of light and dark petroleum products and oxygenates. Light products handled by the facility include finished gasoline, gasoline components and blend stocks, jet fuels, diesel fuels, and cutter stocks. Dark products include crude oils, gas oils, residual materials, condensates and other refinery petrochemical feedstocks. Oxygenates have been handled at the Shore terminal, including MTBE, but have been phased out.

The fate of spilled oil in the marine environment is determined by a variety of complex and interrelated physical, chemical, and biological transformations. The physical and chemical processes involved in the "weathering" process of spilled oil include evaporation, dissolution and vertical mixing, photochemical oxidation, emulsification, and sedimentation. The rate of these weathering processes is influenced by a variety of abiotic factors, e.g., water temperature, suspended particulates, water clarity, physical-chemical properties inherent to the oil itself (e.g., vapor pressure, solubility, aromatic, asphaltene, and wax content), and the relative composition of the hydrocarbon source matrix, e.g., crude oil or refined products. The mass fraction of aromatic present in a crude oil is an important indicator of potential toxicity of a spill because aromatics are considered the most toxic hydrocarbons in oil. The asphaltene and wax content determines water-in-oil emulsion formation and is an indicator of how well crude oil will form a stable emulsion or mousse in seawater.

The biological processes involved in the weathering of spilled oil include microbial degradation and uptake of hydrocarbons by larger organisms and its subsequent metabolism. The biodegradation of petroleum by microorganisms is one of the principal mechanisms for removal of petroleum from the marine environment. Enhancement of natural biodegradation processes by microbes may be one of the least ecologically damaging ways of removing oil from the marine environment. Uptake of hydrocarbons by large organisms usually has adverse impacts in the biota because of the toxicity of petroleum hydrocarbons.

The duration of potential impacts to water quality is variable and depends on the type of oil spilled. The most toxic period for crude oil spilled is the first few days due to volatile,

low molecular weight hydrocarbons (BLM 1980). Product spills of gasoline and fuels may evaporate faster than crude oil, but are generally more toxic and more soluble. Toxicity tests performed on oil by the EPA have shown that aromatic constituents are the most toxic, naphthenes and olefins are intermediate in toxicity, and straight chain paraffins are the least toxic (Chambers Group 1988).

Most small leaks or spills (less than 50 bbl) related to operations at the Shore terminal could result in significant, adverse (Class II) impacts that can be mitigated to less than significant, because they could be easily contained. However, the severity of impact from larger leaks or spills (greater than 50 bbl) at the marine terminal depends on (1) spill size, (2) oil composition, (3) spill characteristics (instantaneous vs. prolonged discharge), (4) the effect of environmental conditions on spill properties due to weathering, and (5) the effectiveness of cleanup operations. In the event of an oil spill, the initial impacts would be to the quality of surface waters and the water column, followed by potential impacts to sedimentary and shoreline environments. Following an oil spill, hydrocarbon fractions would be partitioned into different regimes and each fraction would have a potential impact on water quality. Large spills (greater than 50 bbl) at the Shore terminal pier could result in significant adverse impacts (Class I) on water quality.

Mitigation Measures for WQ-9:

WQ-9: Mitigation measures OS-3a through OS-3d (Operational Safety/Risk of Upset) shall be implemented.

The measures would lower the probability of an oil spill by allowing for quick release of mooring lines (OS-3a), monitoring of tension of the mooring lines (OS-3b), collision avoidance (OS-3c), and ensuring through maintenance and inspection that damaged or aging wharf components are in proper operating condition (OS-3d). These measures help to reduce the potential for spills and their associated impacts. However, the impacts associated with the consequences of larger spills, greater than 50 bbls, could remain significant.

CEQA FINDING NO. WQ-10

WATER QUALITY DEGRADATION IN BAY OR OUTER COAST FROM ACCIDENTAL VESSEL SPILLS

Impact: **WQ-10: A significant impact to water quality (Class I or II impact) could result from leaks or an accidental spill of crude oil or oil product from a vessel spill along tanker routes either in San Francisco Bay or outer coast waters.**

Class: I and II

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

The fate and water quality impacts of oil from a spill associated with vessels servicing the Shore terminal would be similar to the impacts described above for a spill at the terminal. A significant impact to water quality (Class I or II impact) would result from an accidental spill of crude oil or oil product from a vessel transiting San Francisco Bay or outer coast waters. A larger oil spill is more likely from accidents associated with vessels in transit than a spill at the marine terminal. Most tanker spills/accidents and larger spills that cannot be quickly contained either in the Bay or along the outer coast would result in significant, adverse (Class I) impacts.

Mitigation Measures for WQ-10:

WQ-10: Shore Terminals shall implement mitigation measures OS-8a and OS-8b of the Operational Safety/Risk of Upset Section addressing potential participation in VTS upgrade evaluations, and Shore response actions for spills at or near the terminal.

Response capability for containment and cleanup of vessel spills while transiting the Bay or outer coast is not Shore's responsibility. Nevertheless, as a participant in any analysis to examine upgrades to the VTS (OS-8a), Shore can help to improve transit issues and response capabilities in general, which help to reduce the consequences of spills within the Bay. For a spill near the Shore terminal, Shore is more suited to provide immediate response (OS-8b) to a spill using its own equipment and resources, rather than waiting for mobilization and arrival of the vessel's response organization. The marine terminal staff is fully trained to take immediate actions in response to spills. Such action will result in a quicker application of oil spill equipment to any spill and improve control and recovery of such spill.

CEQA FINDING NO. BIO-3

BIOLOGICAL IMPACTS FROM MAINTENANCE DREDGING TO JUVENILE DUNGENESS CRABS AND YOUNG CHINOOK SALMON

Impact: **BIO-3: Loss of juvenile Dungeness crabs and young Chinook salmon would be a significant, adverse impact because dredging at the time when juveniles are moving through the area could disrupt the migration patterns of these species (Class II). Because of the low volume of material dredged, less than significant impacts (Class III) occur to plankton, other benthos, other fishes, and birds.**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

In order to maintain adequate depth for tankers, the berth on the north side of the Shore terminal pier must be dredged about every three years. Approximately 6,000 cubic yards (cy) of material were excavated in 2004. In the past this material has been disposed of at the Corps' Dredged Material Management Office (DMMO) designated disposal site SF-9 (Carquinez Strait). For this analysis it is assumed that Shore Terminals would continue to dispose of dredged wharf material to this site and/or other DMMO-approved sites, including upland reuse areas.

Juvenile Dungeness crabs could be subjected to a significant, adverse impact if dredging occurs at the time when juveniles are moving through the area, which could disrupt the migration patterns of the species (Class II). The impact could be mitigated to less than significant by avoiding dredging during September when first year Dungeness crabs are most abundant in Suisun Bay (Baxter et al. 1999).

Chinook salmon may be disturbed during maintenance dredging, primarily due to turbidity, although there is some potential that juvenile salmon could be entrained by the dredge. Turbidity during dredging is expected to occur only in the immediate vicinity of the dredging activity. However, because young Chinook salmon are known to occur in the vicinity of the terminal and because the winter and spring runs are so reduced, the impacts of maintenance dredging would be potentially significant (Class II). Impacts could be reduced to less than significant by conducting dredging in July and August, when winter and spring run smolt activity is lowest.

Mitigation Measures for BIO-3:

BIO-3a: In order to reduce the entrainment of juvenile Dungeness crab, Shore Terminals shall schedule dredging to avoid the month of September when juvenile Dungeness crabs are most abundant in the project area.

BIO-3b: Although chances of entrainment of salmon is relatively low, to protect the salmon, Shore Terminals shall schedule dredging in July and August when winter and spring run Chinook salmon smolt activity is lowest.

Avoidance of the times of the year when Dungeness crab and Chinook salmon smolt May be present would reduce impacts to these species to less than significant.

CEQA FINDING NO. BIO-4

INTRODUCTION OF NON-INDIGENOUS SPECIES FROM SEGREGATED BALLAST WATER

Impact: **BIO-4: Invasive organisms/introduction of non-indigenous species in segregated ballast water released in the Bay could have significant (Class I) impacts to plankton, benthos, fishes, and birds.**

Class: I

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

Tankers servicing the Shore marine terminal do not discharge unsegregated ballast water to the Bay. However, they may discharge segregated ballast water. Segregated ballast water is expected to be relatively free of chemical pollutants, but the ballast water may harbor exotic species that upon release may cause problems in the estuary's ecosystem. Exotic organisms have had a devastating effect on the estuary's planktonic ecosystem (Carlton 1979; Cohen 1998). For example, the Asian clam *Potamocorbula amurensis*, thought to have been introduced in ballast water, has depleted phytoplankton populations in Suisun Bay by its intensive feeding (San Francisco Estuary Project 1997). In addition to reducing the food base by feeding on phytoplankton, voracious feeding by the Asian clam also has directly reduced some zooplankton populations (Lehman 1998). Furthermore, introduced zooplankton species such as *Sinocalanus doerri* and *Pseudodiaptomus forbesi* appear to have outcompeted native species in Suisun Bay and the western Delta (Herbold et al. 1991). If a foreign species were introduced that could flourish in the Bay, impacts to the existing planktonic communities could be significant (Class I).

Introduction of exotic species, including the Asian clam introduced in 1986, has had a devastating effect on the benthic community of the estuary. Almost all of the dominant benthic invertebrate species in San Francisco estuary are introduced and extremely high densities of the Asian clam have been documented in Suisun Bay and the rate of invasions is increasing. The recently introduced green crab, for example, could affect benthic communities by preying on bivalves and outcompeting indigenous Dungeness crabs. Invasive organisms in ballast water could have a significant impact to the benthic community (Class I).

In addition to the introduction of invasive non-native species in ballast water, exotic organisms can be introduced to San Francisco Bay via transit on ship's hulls. Many species are thought to have been introduced to San Francisco Bay via ships' hulls (Carlton 2001). The phasing out of tributyltin (TBT) based paints to control ship fouling may increase the introduction of fouling species transported on vessel hulls. Introduction of non-indigenous species via hull fouling on ships servicing the Shore marine terminal also could have a significant adverse impact (Class I).

The introduction of exotic species to San Francisco Bay via ship traffic has not only devastated the San Francisco Bay ecosystem, it has resulted in the spread of exotic species to other areas of the west coast (Wasson et al. 2001). For example, San Francisco Bay is suspected of being an important source of introduction of exotic species to Elkhorn Slough (Wasson et al. 2001). The Australian reef-forming tubeworm (*Ficopomatus enigmaticus*), the European green crab, and the western Pacific tellin snail (*Philine auriformis*) all invaded San Francisco Bay, probably via international ship traffic, before spreading along the California coast.

The introduction of non-indigenous species in ballast water discharges or by hull fouling could have a number of adverse effects on fish populations in San Francisco Bay. The eggs, larvae, or adults of non-native fishes may be present in ballast water discharges. Non-native species compete with native fishes. In addition, non-indigenous aquatic species such as the Asian clam tend to destabilize food webs. Asian clams feed voraciously at multiple levels in the food chain, ultimately reducing the food available for fishes (Cohen and Carlton 1995). Furthermore, because of the ability of Asian clams to filter large volumes of water, this species tends to concentrate pollutants such as selenium and organotins in its tissues (Periera et al. 1999). Fishes that feed on the Asian clam have the potential to ingest large quantities of toxins. Finally, ballast water may introduce harmful algae. Harmful algal blooms have caused fish kills in a number of places (Committee on Environment and Natural Resources 2000). Introduction of non-indigenous species has the potential to have a significant adverse impact on fishes (Class I).

The introduction of non-indigenous species by ballast water discharges or hull fouling could have adverse effects on bird populations in San Francisco Bay. Some waterfowl, especially diving ducks, consume large numbers of Asian clams. Because they filter large amounts of water, Asian clams may have high concentrations of contaminants in

their tissues (Pereira et al. 1999). Birds that feed on this species thus may ingest large quantities of such harmful substances as selenium. In addition, toxic algae may be introduced in ballast water discharges. For example, more than 100 cormorants and California brown pelicans died in Monterey Bay in 1991 from domoic acid poisoning produced by the diatom *Pseudo-nitzschia* (Committee on Environment and Natural Resources 2000). The introduction of non-indigenous species from operations at the Shore marine terminal has the potential to have a significant adverse impact on water-associated birds in San Francisco Bay (Class I).

Mitigation Measures for BIO-4:

BIO-4: Implement Mitigation Measure WQ-2 addressing ballast water management.

As per the previous discussion of WQ-2, Shore has no facilities to treat segregated ballast water and it may not be economically feasible to construct a system for treating ballast water to remove exotic species. The measure provides an interim tracking mechanism until a feasible system to kill organisms in ballast water is developed.

CEQA FINDING NO. BIO-6

BIOTA IMPACTS FROM OIL SPILLS AT THE SHORE TERMINAL

Impact: **BIO-6:** The impacts of a spill on the biota at or near the Shore terminal have the potential to spread through the Carquinez Strait and into Suisun and San Pablo Bays. Vulnerable biota are plankton, benthos, eelgrass, fishes, marshes, birds, and mammals. Per Operational Safety/Risk of Accidents section, small spills at the terminal (less than 50 bbls) should be able to be contained (Class II impacts). However, spills larger than 50 bbls may not be able to be contained and Shore Terminals may not have adequate boom to protect all the sensitive areas at the most risk that could be oiled within 3 hours of a spill from the terminal. Impacts from large spills are considered to be significant adverse (Class I) impacts.

Class: I and II

- Finding(s):**
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of the CDFG and USFWS (for BIO-6d) and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

- c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

The analysis of the impacts to biological resources of an oil spill at the Shore marine terminal considers the sensitivity of each component of the biota to oil and the vulnerability of its populations in the project area to a spill. Sensitivity considers how sensitive the organisms are to oil while vulnerability considers how much of a population could be affected by a spill. This assessment of oil spill impacts relied on documented biological damages to resources from historic spill events as well as computer modeling to determine the vulnerability of the biological resources within the Bay.

Documented biological damage from an oil spill has ranged from little apparent damage in the Apex Galveston Bay spill (Greene 1991) to widespread and long-term damage, such as the 1969 West Falmouth spill (Sanders 1977). Some of the factors influencing the extent of damage caused by a spill are the dosage of oil, type of oil, local weather conditions, location of the spill, time of year, methods used for cleanup, and the affected area's previous exposure to oil. Other levels of concern are the possibility of food chain contamination by petroleum products and the impact of an oil spill on the structure of biological communities as a whole.

Oil spilled into marine waters gradually changes in chemical and physical makeup as it is dissipated by evaporation, dissolution and mixing, or dilution in the water column. Various fractions respond differently to these processes, and the weathered residue behaves differently from the material originally spilled. Toxicity usually tends to decrease as oil weathers.

Laboratory tests have demonstrated the toxicity of petroleum hydrocarbons for many organisms. Soluble aromatic compounds in crude oil are generally toxic to marine organisms at concentrations of 0.1 to 100 ppm. Planktonic larval stages are usually the most sensitive. Very low levels of petroleum, below 0.01 mg/L, can affect such delicate organisms as fish larvae (NRC 1985).

Biological impacts of oil spills include lethal and sublethal effects and indirect effects resulting from either habitat alteration and/or destruction or contamination of a population's food supply. Directly lethal effects may be chemical (such as poisoning by contact or ingestion) or physical (such as coating or smothering with oil). A second level of interaction is sublethal effects. Sublethal effects are those which do not kill an individual but which render it less able to compete with individuals of the same and other species.

Plankton

Impacts to plankton from an oil spill could range from direct lethal effects caused by high concentrations of oil in the surface layers of the water column after a major spill to a variety of sublethal effects such as decreased phytoplankton photosynthesis and abnormal feeding and behavioral patterns in zooplankton. Studies of oil spills have generally failed to document major damage to plankton, although lethal effects or severe oiling of individual zooplankton organisms in the immediate vicinity of a spill has been reported in a number of studies. Because plankton distribution and abundance are so variable in time and space, evidence of damage might be very difficult to document, even if it did occur.

Because the San Francisco Bay is a semi-enclosed system, plankton are more vulnerable to oil than on the open coast and are likely to be exposed to the oil for a longer period of time. Furthermore, recruitment from adjoining unoiled areas might be less available. Plankton communities in San Pablo and Suisun Bays would be particularly vulnerable to an oil spill because these areas are most isolated from recruitment from open ocean plankton populations. Furthermore, the phytoplankton populations in Suisun Bay have been decimated from heavy grazing by the Asian clam. Zooplankton species such as the copepod *Eurytemora affinis* and the opossum shrimp, *Neomysis mercedis* also would be particularly susceptible to an oil spill because they have restricted distributions centered on Suisun Bay and because populations have declined substantially in recent years. The most sensitive area for plankton within the San Francisco Bay estuary is in the entrapment zone where phytoplankton populations and important zooplankton species, such as the opossum shrimp, tend to concentrate. During periods of low river flow, the entrapment zone is located in the eastern part of Suisun Bay and the western Delta. During periods of high flow, it is located throughout Suisun Bay and into the Carquinez Strait. Within San Pablo and Suisun Bays, phytoplankton and zooplankton populations are most abundant over the shallow areas. The impacts to plankton of a spill at the Shore marine terminal have the potential to be significant (Class I or II).

Modeled oil spill Scenarios No. 5 and No. 6, within the Unocal EIR (Chambers Group 1994), both indicated that a 1,000 barrel spill in the vicinity of Shore Terminals could have a substantial adverse impact to plankton in Suisun Bay. Scenario No. 5 contacted 48.93 percent of the open water habitat in Suisun Bay and Scenario No. 6 contacted 16.97 percent of the open water habitat in Suisun Bay. Similarly, the trajectory analyses in the Shore Terminal Oil Spill Response Plan indicated that in the winter most of Suisun Bay west of Simmons Island and the eastern end of the Carquinez Strait would have greater than a 50 percent probability of contact with oil. Under summer conditions, the model indicated that much of Suisun Bay east of the Shore terminal pier would have a greater than 50 percent chance of contact with oil. Based on these analyses, plankton communities are judged to be at high risk of significant adverse impacts from a large spill at Shore Terminals.

Benthos

The impacts of an oil spill on the benthos within San Francisco Bay has the potential to be pervasive and long-lasting because oil can become entrapped within the semi-enclosed system of the Bay and repeatedly redistributed into the sediments. An oil spill would be likely to selectively affect more sensitive species such as amphipods, increasing the domination of hardy exotic species. Impacts to soft substrate benthos within San Francisco Bay would be most severe in intertidal mudflats where oil would wash ashore and become incorporated in the sediments. An oil spill within San Francisco Bay has the potential to cause significant impacts to the benthos in intertidal mudflat and shallow slough channels (Class I or II).

Impacts to the benthos were documented in the 1988 Shell Martinez Spill (Fischel and Robilliard 1991). Surveys after the spill determined that benthic organisms were absent in the most heavily oiled portions of Peyton Slough. The abundance and diversity of epibenthic invertebrates were lower in the oiled sloughs than in unoiled areas. Grass shrimp abundance was lowest in the heavily oiled Peyton and West Martinez mudflats. Clams from Peyton Slough had higher concentrations of petroleum aromatic hydrocarbons in their tissues than clams from other areas.

The most sensitive benthic invertebrate resource that would be at risk from an oil spill at Shore Terminals is Dungeness crab. The juvenile stages of Dungeness crab are found throughout San Francisco Bay, but especially in San Pablo Bay. The juvenile stages of this species might be particularly vulnerable to oil. An oil spill could have significant, adverse impacts on Dungeness crab because a spill at the time when juvenile Dungeness crab are moving through San Francisco Bay would interfere with migration patterns and because a large spill could substantially affect a year class and result in a population decline (Class I or II).

The oil spill trajectory analysis in Shore Terminals Oil Spill Response Plan indicates that much of the intertidal mudflat habitat in Suisun Bay has a greater than 50 percent probability of contact with oil during a reasonable worst case spill. The significant mudflat habitat at Suisun Shoal would be contacted within the first 3 hours of a spill. Under these oil spill scenarios, most of the Dungeness crab habitat in Suisun Bay also would be contacted by oil. In addition, under winter conditions, oil would spread into southeast San Pablo Bay where additional intertidal mudflats and juvenile Dungeness crab habitat would be contacted by oil.

Eelgrass

Another marine resource within San Francisco Bay that would be particularly vulnerable to oil spill impacts is eelgrass. Many studies on the biological impacts of oil spills have documented impacts to marine grasses. For example, eelgrass growth and reproduction appear to have been impaired by oil contamination from the Exxon Valdez spill (Holloway 1991). Under the 10,000 barrel spill trajectory analysis performed for Clean Bay, some eelgrass habitat in San Pablo Bay would be contacted by oil (Wickland Oil Martinez 1998). No eelgrass was oiled in the 1988 Shell Martinez spill. While eelgrass is at relatively low risk from a spill at Shore Terminals, impacts of an oil

spill on eelgrass would be significant (Class I or II).

Fishes

Particularly sensitive fish species within the San Francisco Bay estuary include those with a restricted distribution, such as the federal and State threatened Delta smelt, as well as the anadromous fishes that pass through the northern reach on their way to the Delta and Central Valley rivers to spawn. All these species are at particular risk not only because a large percentage of their populations might be contacted by a single oil spill, but also because their populations have been declining in recent years. The project area is designated Critical Habitat for Delta smelt, winter run and spring run Chinook salmon and Central Valley steelhead.

The juvenile stages of striped bass, steelhead and Chinook salmon tend to spend considerable time in the shallow waters of the North Bay before they pass out of the Golden Gate and into the open ocean. If oil became trapped in the shallow waters of the North Bay, young striped bass and young Chinook salmon might be particularly at risk. Potential impacts of a spill within the San Francisco Bay estuary on Delta smelt and anadromous fishes would be significant (Class I or II).

Fishes that spawn in the Bay also might be particularly vulnerable to an oil spill because the egg and larval stages are so sensitive to oil. Important fish species that spawn primarily in the Bay include Pacific herring, longfin smelt, yellowfin goby, plainfin midshipman, bay goby, and topsmelt. Impacts to Pacific herring, which lay thin eggs on the partially hard substrate within the estuary, would be particularly susceptible to oil and impacts of a spill in the Bay could be significant (Class I or II). Several studies documented lethal and sublethal effects of oil on the eggs and larvae of Pacific herring following the 1989 *Exxon Valdez* oil spill (Norcross et al. 1996, McGurk and Brown 1996, Hose et al. 1996). Similarly, impacts to longfin smelt, which spawn primarily in the fresh-water at the eastern end of the estuary, could be significant if oil got into this part of the estuary (Class I or II).

To determine the relative risk to fishes from an oil spill at Shore Terminals, the percentage of habitat of sensitive fish species contacted by Unocal EIR Scenarios No. 5 and 6, a 1,000 barrel spill near Shore Terminals, was analyzed. Although a large oil spill would have a significant (Class I or II) adverse impact on spring and winter run Chinook salmon and Central Valley steelhead because it would contaminate designated Critical Habitat, the risk of substantially affecting the population of these sensitive species is relatively low. Both of these scenarios also affected less than 10 percent of the preferred habitat of striped bass and white sturgeon, indicating a low risk to these anadromous species. However, Scenario No. 5 contacted 13.7 percent of American shad habitat and 10.7 percent of starry flounder habitat (Scenario No. 6 contacted less than 2 percent of the habitat of these species). Therefore, American shad and starry flounder could be considered to be at moderate risk from a spill at Shore Terminals.

The federal and state listed threatened Delta smelt is the sensitive species most at risk from a spill at the Shore marine terminal. Scenario No. 5 contacted 55 percent of the

shallow water habitat in Suisun Bay where a large portion of the Delta smelt population could come in contact with oil. In addition, as discussed above, Scenarios 5 and 6 indicate that the plankton assemblage, which includes the zooplankton prey of the Delta smelt, is at high risk from a spill at Shore Terminals.

The larger oil spills modeled in Shore Terminals' Oil Spill Response Plan and the 10,000 barrel spill trajectory analysis performed for Clean Bay are consistent with the relative risk to sensitive fish species derived from the Unocal spill scenarios except that Pacific herring spawning habitat in San Pablo Bay would be at some risk of contact from these larger spills and a larger percentage of habitat used by young Chinook salmon might be oiled.

Localized effects on fishes were observed in the Shell Martinez spill. Fish abundance was reduced in the oiled sloughs, but no region-wide impacts on fishes were detected (Fischel and Robilliard 1991). Studies following the Martinez spill showed that individuals of the staghorn sculpin (*Leptocottus armatus*) in the vicinity of the spill had enhanced hydrocarbon metabolizing enzymes (Spies 1989). These results suggest that the spill may have had localized sublethal effects on resident fish populations.

Tidal Marshes

Vegetated marshes within the San Francisco estuary are one of the habitats which would be most sensitive to an oil spill. In most oil spills that have contacted saltmarshes, damage has been noted to marsh vegetation (NRC 1985). When a large spill drifts ashore, tidal areas often are subjected to heavy oiling. In the case of saltmarshes, oil may become incorporated into sediments where it may persist for years. Furthermore, San Francisco Bay tidal marshes provide habitat for many sensitive species. Clearly any saltmarsh in San Francisco Bay would be likely to suffer significant impacts if it was contacted by oil from a spill associated with the Shore marine terminal (Class I or II). The Area Contingency Plan (USCG and OSPR 2000) identifies tidal marshes in San Francisco Bay as areas with high priority for protection in the event of an oil spill.

In Unocal Scenario No. 5, oil contacted 68.3 percent of the tidal marsh habitat in Suisun Bay and 12 percent in the entire San Francisco Estuary. In Scenario No. 6, 20.1 percent of the tidal marsh in Suisun Bay and 3.5 percent of the marsh in San Francisco Estuary were oiled. Marshes oiled in both these scenarios included Martinez Marsh, Peyton Slough/Bulls Head Marsh, Point Edith, Hastings Slough, Seal Island and Shore Acres Marsh. In addition, in Scenario No. 5, oil contacted Roe Island, Simmons Island, Freeman Island, Snag Island, and portions of Goodyear Sough. Project area marshes clearly are at high risk from a large spill at Shore Terminals. Sensitive plant species in these marshes also are at high risk from a spill at the Shore marine terminal. These sensitive plant species include the federal endangered Suisun thistle, the federal endangered and State rare soft bird's beak, the State rare Mason's lilaeopsis, the Delta tule pea (California Native Plant Society 1B list), Delta mugwort (California Native Plant Society List 2) and Suisun marsh aster (California Native Plant Society 1B list).

In the winter season oil trajectory run in Shore Terminals Oil Spill Response Plan, Hastings Slough, Point Edith, Seal Island, Bulls Head Marsh, Martinez Marsh and Benicia Marsh were all contacted by oil within 3 hours. Goodyear Slough, Southampton Bay, Ryer Island, and Roe Island were contacted by oil within 6 hours. For the summer season spill, Hastings Slough, Point Edith, Seal Island and Bulls Head Marsh were contacted by oil within 3 hours and Goodyear Slough, Benicia Marsh, Ryer Island, Roe Island and Martinez Marsh were contacted by oil within 6 hours. Other project area marshes were contacted by oil in these modeled spills but it took 12 hours or more for oil to reach them, indicating lower risk.

Approximately 148 acres of marsh shoreline were oiled by the 1988 Shell Martinez spill, of which 32 acres were heavily oiled (almost completely covered with oil), 15 acres were moderately oiled, and about 98 acres were lightly oiled (small isolated patches of oil) (Fischel and Robilliard 1991). The area of slough banks oiled was approximately 4 acres. The marsh vegetation was most heavily oiled along the shoreline east of Peyton Slough and at Ryer Island. Much of the heavily oiled vegetation was removed as part of clean up activities. By fall of 1989, areas that had been heavily oiled were recovering from the spill.

Avifauna

Oil spills can affect birds directly through oil contamination and indirectly through degradation of important habitat. The direct effect of oiling on birds is predominantly contamination of feathers, removing insulative qualities and reducing buoyancy (Holmes and Cronshaw 1977; Moskoff 2000). Oiling of feathers leads to elevated metabolic rate and hypothermia (Hartung 1967). Oiled birds may also ingest oil through preening of feathers or feeding on contaminated prey. Effects of ingested oil can range from acute irritation and difficulties in water absorption to general pathologic changes in some organs (Crocker et al. 1974; Fry 1987; Nero and Associates 1983). Ingestion of oil can also result in changes in yolk structure and reduction in number of eggs laid and egg hatchability (Hartung 1965; Grau et al. 1977). Oiled birds that are able to return to a nest can contaminate the exterior of eggs, reducing hatchability (Hartung 1965; Patten and Patten 1977).

Indirect effects result principally from contamination of habitat where feeding occurs. These effects may be significant in shallow waters of bays, mudflats, and estuaries where waterfowl, rails, wading birds, and shorebirds feed. For these birds, loss or reduction in food resources can affect survival during migration and success of nesting efforts.

Sensitive seabird species that occur in San Francisco Bay include the federal and State endangered California least tern, the State and federal endangered California brown pelican and the double crested cormorant, a California Species of Special Concern. These species spend much of their time out of contact with the water so they have a relatively low vulnerability to direct oiling. The impacts of an oil spill would be primarily loss of foraging habitat. Loss of foraging habitat for the California least tern is of particular concern because least terns breed at Pittsburg at the eastern end of the

project area. Loss of foraging habitat during the least tern breeding season would be a significant adverse impact (Class I or II). Double-crested cormorants also have a small colony on Wheeler Island in Suisun Bay east of the project area. All of the modeled oil spill scenarios resulted in a substantial amount of oil on the waters of Suisun Bay indicating that the foraging habitat of the small colonies of California least tern and double-crested cormorant would be contaminated from a spill of 1,000 barrels or more at Shore Terminals. Therefore, foraging habitat of the breeding colonies of these seabirds is at high risk from a spill at Shore Terminals. California brown pelicans do not breed in the project area and their major roosting sites are in the Central Bay. Therefore, important foraging habitat for the California brown pelican is at relatively low risk from a spill at Shore Terminals.

Large migrant or wintering populations of loons, grebes, and scoters are found in San Francisco Bay from about October through March. In the Bay, the migrant or wintering waterfowl also includes large populations of diving or dabbling ducks that spend most time on the water where they can be contacted by oil spills. The San Francisco Bay estuary is used by several hundred thousand waterfowl from late fall through spring as a critical feeding ground. Substantial mortality of wintering waterfowl or loss of essential habitat would likely result from oil spills and would constitute a significant impact (Class I or II).

All of the modeled oil spills resulted in 10 percent or more of the open water in Suisun Bay being contacted by oil. Therefore waterfowl are at relatively high risk of localized impacts from a spill at Shore Terminals. Unocal Scenario No. 5, a 1,000 barrel spill near Shore Terminals under winter conditions, resulted in oil contact with 5.3 percent of the waterfowl habitat in San Francisco Bay with an estimated mortality of 50 to 200 birds. Therefore although some birds would likely be lost, the number is relatively small. However, particularly high densities of canvasbacks are found in Grizzly Bay. Unocal Scenario No. 5 resulted in a substantial amount of oil entering Grizzly Bay. Of the oil spill trajectories modeled for Shore's Oil Spill Response Plan, the winter trajectory showed that oil had a 40 to 50 percent chance of entering Grizzly Bay and under the summer conditions the probability was greater than 50 percent. Based on these oil spill models, wintering canvasback are at substantial risk from a spill at Shore Terminals.

In San Francisco Bay, habitat of rails, terns, wading birds, and shorebirds could also be contacted by oil spills, e.g., the 1988 Shell Oil Refinery spill, Palawski and Takekawa 1988. Direct effects on these birds from oil spills are suspected but difficult to assess. Observations of oil-streaked shorebirds are common immediately following oil spills, but carcasses are rarely recovered (Larsen and Richardson 1990). It is likely that shorebirds and wading birds are able to avoid oiling to some extent by retreating from exposed habitat. Even if contacted, they may be able to avoid hypothermia from light oiling because they remain on land and may find some shelter in vegetation. Nevertheless, preening of oiled feathers would lead to ingestion of oil and resultant pathological effects. Another serious concern is secondary impacts from contamination of food resources on beaches and mudflats. Not only could oil ingestion take place during feeding, the presence of oil might substantially reduce the food available to

sustain these populations. The San Francisco Bay estuary is used by up to 1 million shorebirds as a critical feeding area in the Pacific Flyway. Substantial mortality of wintering shorebirds or loss of essential habitat would likely result from oil spills and would constitute a significant impact (Class I or II).

Less than 1 percent of the wintering shorebird population in San Francisco Bay occurs in Suisun Bay (Chambers Group 1994). Therefore, the risk of significant population impacts to shorebirds from a spill at Shore Terminals is low. However, based on the modeled oil spill scenarios, intertidal mudflat habitat within the project area is at moderate risk of contact with oil from a spill at Shore Terminals, suggesting that there may be localized impacts to shorebirds. Suisun Shoal, an important shorebird foraging and roosting location near the Shore terminal pier, is at particular risk from a spill at Shore Terminals. The oil trajectory analysis done for the Shore Terminals Oil Spill Response Plan indicated that Suisun Shoal would be contacted by oil from a spill at Shore Terminals within 3 hours.

The State threatened California black rail occurs in marshes throughout the project area. Based on recent surveys, close to 45 percent of the black rail population in San Francisco Bay occurs in marshes in the Carquinez Strait and Suisun Bay (Spautz and Nur 2002). As discussed above, trajectory analysis of large oil spills originating at or near Shore Terminals, indicate that project area marshes are at high risk from an oil spill at the terminal. Therefore, black rails are at high risk from a spill associated with operation of the Shore marine terminal. The federal and State endangered California clapper rail also would be affected if a spill at Shore Terminals fouled marshes in the project area. However, although some individual clapper rails might suffer adverse effects, most of the California clapper rail population in San Francisco Bay is located outside the project area and the overall risk of a Shore Terminals' spill to the California clapper rail population as a whole is low.

Marine Mammals

Significant impacts could occur if oil contacted a harbor seal haul out area (Class I or II). Oil on land and in the nearshore waters where harbor seals forage would produce greatest damage during the spring pupping season. Although adult harbor seals can die in oil spills, this would be relatively rare and have a minor effect on the population. From data in Mansfield (1970), heavy oiling of a haulout site might kill up to 5 percent of adult animals present. A more serious threat is oiling of newborn pups whose dense fur (lanugo) protects them from cold. Death could result from hypothermia, ingestion of oil, or starvation if separated from the mother. An oil spill from the Shore marine terminal has an extremely low probability of contacting a harbor seal haul out site. Therefore, harbor seals are at very low risk from a spill at the Shore marine terminal.

Ability to Protect Sensitive Resources from a Spill at Shore Terminals

Shore Terminals' Oil Spill Response Plan (Blue Water Consultants 2001) was evaluated in the context of the Area Contingency Plan (USCG and OSPR 2000) strategies to protect sensitive resources most at risk from a spill at Shore Terminals. Shore

Terminals' Oil Spill Response Plan recognizes sensitive resources at most risk from a spill at the terminal. These are listed in Table 2-11 of the Oil Spill Response Plan. Sensitive areas that could be impacted within three hours of a spill are the greatest concern for immediate protection. These resources include Suisun Shoal, Hastings Slough/Point Edith/Seal Island, Bulls Head Marsh/Pacheco Creek, Martinez Marsh and Benicia Marsh. To protect these areas according to the strategies in the Area Contingency Plan, a minimum of 10,000 feet of boom is required. Although, through its oil spill response contractor NRC, Shore Terminals has access to almost 65,000 feet of boom, it appears that only 5,100 feet of boom are available from locations where they can be deployed within 3 hours. Therefore, Shore Terminals may not have adequate boom available to protect all the sensitive areas that may be oiled within 3 hours of a spill at the terminal. Furthermore, the Area Contingency Plan recommends using sonic devices to scare birds away from Suisun Shoal if this area becomes oiled. The Shore Terminals' Oil Spill Response Plan does not identify a source of such sonic devices, although it does identify a contractor for rehabilitating oiled wildlife.

Mitigation Measures for BIO-6:

The following mitigation measures shall be implemented by Shore Terminals to mitigate oil spill impacts to the maximum extent feasible:

- BIO-6a:** Implement all the mitigation measures included in OS-3 through OS-6 in Operational Safety/Risk of Accidents to either lower the probability of an oil spill or increase response capability.
- BIO-6b:** Demonstrate to the satisfaction of the CSLC that Shore Terminals can successfully implement its Oil Spill Response Plan and can deploy within 3 hours all the boom necessary to simultaneously protect all the sensitive resources at risk of contact with oil within 3 hours from a spill at Shore Terminals.
- BIO-6c:** Identify a source of sonic hazing devices to scare birds away from Suisun Shoal and demonstrate to the CSLC that these devices can be deployed within 3 hours of a spill at Shore Terminals.
- BIO-6d:** When a spill occurs, develop procedures for clean up of any sensitive biological areas contacted by oil, in consultation with biologists from CDFG and USFWS, to avoid damage from clean up activities.
- BIO-6e:** If damage occurs, the last resort is restoration and compensation. Any loss of resources shall be documented as soon as possible after a large spill. The sampling methods and design should be determined beforehand, and the plan should include provisions for getting resources onsite as soon as possible so that post-spill studies can begin immediately.

Containment of small spills and protection of sensitive resources may reduce biological impacts to less than significant (Class III) for small spills. For large spills, significant impacts are likely. Sensitive areas that could be impacted within three hours of a spill are the greatest concern for immediate protection including Suisun Shoal, Hastings

Slough/Point Edith/Seal Island, Bulls Head Marsh/Pacheco Creek, Martinez Marsh and Benicia Marsh. Implementing measures OS-3 through OS-6 help increase response capability and reduce risk of accidents. The measures would lower the probability of an oil spill by allowing for quick release of mooring lines that would allow a vessel to depart the wharf quickly in the event of a fire (OS-3a), monitoring of tension of the mooring lines (OS-3b), allision avoidance (OS-3c), and ensuring through maintenance and inspection that damaged or aging wharf components are repaired or replaced (OS-3d). OS-4 implements measures OS-3d, GEO-11a (requirement for a pipeline analysis) and GEO-11b (pipelines must meet MOTEMS for pipeline integrity). These measures help to reduce the potential for spills and their associated impacts. However, the impacts associated with the consequences of larger spills, greater than 50 bbls, could remain significant even after all feasible mitigation. OS-5 requires that Shore update their Wharf Operations Manual. OS-6 requires Shore to implement OS-3a for quick release mooring devices that would allow a vessel to depart the wharf quickly would help in the event of a fire; OS-6b requires that Shore develop procedures for dealing with tank vessel fires and tanker explosions; and OS-6c shall ensure that the fire detection/suppression system conforms to the MOTEMS, Section 8.0.

The Area Contingency Plan strategies require a minimum of 10,000 feet of boom for protection. Although, through its oil spill response contractor NRC, Shore Terminals has access to almost 65,000 feet of boom, it appears that only 5,100 feet of boom are available from locations where they can be deployed within 3 hours. Shore Terminals, therefore, by providing adequate boom available to protect all the sensitive areas that may be oiled within 3 hours of a spill at the terminal, would be providing the maximum feasible mitigation to aid in oil containment. In addition, the Area Contingency Plan recommends using sonic devices to scare birds away from Suisun Shoal if this area becomes oiled. The Shore Terminals' Oil Spill Response Plan does not identify a source of such sonic devices; thus, by identifying a source (assuming one is available locally), sonic devices should then be able to be used to scare birds away during cleanup actions. Consultation for cleanup actions with CDFG and USFWS will avoid damage that can occur during cleanup operations. Immediate documentation of any damage from oil spills is critical to the determination of compensation and methods for data collection determined prior to a spill aids in the effectiveness of documentation.

CEQA FINDING NO. BIO-7

IMPACTS TO BIOLOGICAL RESOURCES IN BAY OR OUTER COAST FROM ACCIDENTAL SPILLS

Impact: **BIO-7: A significant impact to biological resources (Class I or II impact) could result from spills of crude oil or product from a vessel in transit along tanker routes either in San Francisco Bay or outer coast waters.**

Class: I

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

The impacts to biological resources of oil from a spill associated with vessels servicing the Shore marine terminal would be similar to the impacts described above for a spill at the terminal. A significant impact to biological resources (Class I or II impact) probably would result from an accidental spill of crude oil or oil product from a vessel spill along tanker routes either in San Francisco Bay or outer coast waters. A larger oil spill is more likely from a vessel accident than a spill at the marine terminal. Most tanker spills/accidents and larger spills that cannot be quickly contained either in the Bay or along the outer coast would result in significant, adverse (Class I) impacts.

Based on sensitivity, vulnerability, and the extent to which a tanker spill could contact a substantial portion of the resource, resources most likely to suffer substantial impacts from a tanker spill include:

- Rocky intertidal habitat
- Juvenile Dungeness crabs
- Wintering waterfowl (if spill occurs in winter)
- Double-crested cormorant
- California clapper rails and black rails
- Marsh sandwort (if spill occurs near Golden Gate)
- California least tern
- California brown pelican

Mitigation Measures for BIO-7:

BIO-7: Shore Terminals shall implement mitigation measures OS-8a and OS-8b of the Operational Safety/Risk of Upset section addressing potential participation in VTS upgrade evaluations, and Shore response actions for spills at or near the terminal.

Response capability for containment and cleanup of vessel spills while transiting the Bay or outer coast is not Shore's responsibility. Nevertheless, as a participant in any analysis to examine upgrades to the VTS (OS-8a), Shore can help to improve transit issues and response capabilities in general which help to reduce the consequences of spills within the Bay. For a spill near the Shore terminal, Shore is more suited to provide immediate response (OS-8b) to a spill using its own equipment and resources, rather than waiting for mobilization and arrival of the vessel's response organization. The marine terminal staff is fully trained to take immediate actions in response to spills. Such action will result in a quicker application of oil spill equipment to any spill and improve control and recovery of such spill. Impacts to biological resources from spills near the terminal caused by transiting vessels may be able to be reduced to less than significant with containment by Shore Terminals with implementation of OS-8b.

CEQA FINDING NO. FSH-2

IMPACTS ON FISH AND HABITAT FROM BALLAST WATER DISCHARGE

Impact: FSH-2: Invasive species discharged from ballast water could impair water quality (Impact WQ-2) and biological resources (Impact BIO-4) that would also impair commercial and sports fishing activities in the Bay and outer coast, resulting in significant adverse (Class I) impacts.

Class: I

- Finding(s):**
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

Impacts on fish and habitat will likely continue from discharge of ballast water, stormwater runoff, and maintenance dredging. Water Quality (impact WQ-2) concludes that discharges of ballast water from tankers at Shore terminal may contain harmful microorganisms that could impair fishing activities, estuarine habitat, fish migration, preservation of rare and endangered species, and fish spawning. Biological Resources (impact BIO-4) concludes that discharged ballast water and non-indigenous species that attach to ship hulls can continue to have devastating effects on benthic resources. The

invasive species could out-compete Dungeness crabs and other species important to the food web. Introduction of non-indigenous species, such as the Asian clam, may compete with native fishes and may reduce available food. Asian clams also tend to concentrate pollutants such as selenium and organotins in its tissues. Fishes that feed on the Asian clam, that include bottom feeders such as sturgeon, may have the potential to ingest quantities of toxins. Invasive species' adverse effects on fish and habitat have the potential to impair sport and commercial fisheries in the Bay and on the outer coast and likely cause significant adverse impacts.

Mitigation Measures for FSH-2:

FSH-2: Shore Terminals shall implement the mitigation measure WQ-2 for completion of a ballast water reporting form for each vessel and adhere to the current "Ballast Water Management for Control of Nonindigenous Species".

As previously discussed under WQ-2., the measure provides an interim tracking mechanism until a feasible system to kill organisms in ballast water is developed.

CEQA FINDING NO. FSH-3

FISH CONTAMINATION FROM WHARF STORMWATER RUNOFF

Impact: **FSH-3: Shore contributes incrementally to water quality contamination and thus fish contamination, which could result in a loss of fishing opportunities because anglers prefer to stay away from contaminated fishing area. This is a significant adverse (Class II) impact.**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

Stormwater run-off may increase adverse biological effects on species sensitive to contaminants. In addition, impact WQ-7 concludes that constituents in runoff, such as arsenic, copper, lead, mercury, zinc, fluorine and phenanthrene are at elevated levels near Shore Terminals and are probably causing adverse effects on benthic organisms. As a result, contamination from the terminal may incrementally contribute pollutants to the Estuary that are accumulating at levels high enough to degrade beneficial uses, including fishing and enjoyment of Estuary resources. Of particular concern is the effect of mercury and other pollutants on anglers who consume white croaker, leopard shark,

striped bass, sturgeon and other fish species caught in the area. Shore's contribution of runoff is small, but because water quality contaminant levels exceed water quality criteria, Shore contributes incrementally to area fish contamination. This could result in a loss of fishing opportunities because many anglers prefer to stay away from areas known to contain contaminated fish, and results in a significant adverse impact (Class II).

Mitigation Measure for FSH-3:

FSH-3: Shore Terminals shall implement Mitigation Measure WQ-7.

A feasible system to kill organisms in ballast water has not been developed. Mitigation Measure WQ-7 adds additional BMP's to the Shore Terminals SWPPP to address stormwater runoff from the wharf. Impacts from contaminants in stormwater runoff from Shore Terminals can be reduced to less than significant by limiting future discharges.

Aggressive implementation of marine terminal specific BMPs to reduce the input of substances to the Bay from operations on the wharf would reduce the Shore marine terminal's input of these substances to the environment and thereby reduce water quality degradation at the terminal and thus fish contamination.

CEQA FINDING NO. FSH-4

SPACE USE CONFLICTS ON BAY SHRIMP FISHERS FROM TRANSITING VESSELS

Impact: FSH-4: Space use conflicts between transiting vessels serving the Shore marine terminal could occur if commercial shrimp trawlers operate 12 hours or more per day during the fishing season. A significant adverse (Class II) impact could result.

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

In the Carquinez Strait, vessels servicing the Shore terminal would be expected to continue transiting directly through the shrimp trawl grounds. Due to the location of the trawl grounds, area available to transiting vessels and the .25 mile buffer, shrimp trawlers would likely continue to avoid fishing in the vicinity of a transiting vessel during its journey through the Strait. The vessel transit route would continue to block nearly all of the 2.7 square mile shrimp trawl area for the next 20 years. However, about

.35 square mile (or about 13 percent of the trawl grounds) would likely be blocked at any one time, as a vessel steams through the area. However, the time factor that a vessel travels through the area must be considered. On average, a vessel would be in the fishery area about 24 minutes for a one-way trip. Round trip transit times through the shrimp fishing area would range from six to eleven days per year depending on the number of vessels servicing the terminal. Assuming shrimp trawling occurs year round, over the next 20 years, the shrimp fishery would be blocked from about 1.6 percent to 3 percent of the time, resulting in a less than significant impact (Class III). If fishing occurs 12 hours per day, the percentage of time commercial trawlers would not have available to fish due to vessel transits through the fishing area would likely increase to 3.2 percent to 6 percent of the time available during the year, resulting in a significant adverse impact (Class II).

Mitigation Measures for FSH-4:

FSH-4: Shore Terminals shall notify the shrimp trawlers operating in the Carquinez Strait of increases in vessel transits associated with terminal operations. In addition, Shore shall inform incoming vessel operators of shrimp trawling activities near the terminal.

By providing information to shrimp trawlers and increasing the awareness of vessel operators to trawling activities, potential space conflicts can be sufficiently reduced or avoided.

CEQA FINDING NO. FSH-5

SPACE USE CONFLICTS ON BAY HERRING FISHERY FROM TRANSITING VESSELS

Impact: **FSH-5: Space use conflicts between transiting vessels serving the Shore marine terminal and commercial herring operators could occur resulting in interference or displacement of herring fishing activities. A significant adverse (Class II) impact could result.**

Class: II

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of the CDFG and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING THE FINDING(S)

Herring fishing and shipping activities, in particular, would likely conflict because vessels servicing the Shore terminal would pass through active fishing areas, thus interfering with or displacing herring fishing activities. CDFG works with concerned parties to minimize conflicts; however, some fishing areas may be inaccessible to fishermen. Herring fishing currently occurs predominantly within CDFG blocks 488 (Central Bay) and 489 (South Bay). In block 488, the fishing area currently totals nearly 18 linear miles. Fishing in South Bay takes up more than double the amount of area, about 40 linear miles. In all, herring fishing areas occupy about 56 linear miles compared to spawning habitat that occupies about 268 linear miles. In any year, fishing could occur anywhere in the habitat areas.

In block 488, shipping corridors used by vessels servicing the Shore terminal pass through current herring fishing areas around Angel Island, off Alcatraz, and along portions of the Tiburon shore. In block 489, lightering operations at Anchorage 9 could continue to interfere with herring fishing operations. At any one time, a vessel would likely pass through about 10 percent of the fishing area for 13 percent to 24 percent of the time that fishing is occurring, and could result in be significant adverse (Class II) impacts. In the future, impacts on herring fishing activities may vary because the fish change their spawning locations. Future interference with herring fishing activities could result in significant adverse impacts ranging from Class II to Class III.

Mitigation Measures for FSH-5:

FSH-5: Shore Terminals shall notify the herring fishery during the herring season of vessel transits. Shore shall also participate in the Pacific herring commercial fishery annual public scoping and hearing process, part of CDFG's annual review of herring commercial fishing regulations. CDFG has the authority to modify or develop regulations to address space use conflicts between the fishery and Shore's operations.

The use of notification during the 1-3 week herring season would serve as a warning system to herring fisherman of the transiting vessels, which would enable them to better plan their activities in affected areas. This would reduce or avoid interference between transiting vessels and herring fishing activities. Participation in the CDFG review of herring regulations will help keep Shore up-to-date on space use conflict regulations and their potential effects on vessel transits to and from the terminal.

CEQA FINDING NO. FSH-8

FISHERIES IMPACTS FROM ACCIDENTAL SPILLS AT SHORE TERMINALS OR ALONG BAY TRANSIT ROUTES

Impact: FSH-8: Shrimp, herring and sport fisheries in central and north San Francisco Bay, San Pablo Bay, the Carquinez Strait, Napa River and Honker Bay are at highest risk of spill contamination. Depending on spill location, size and water and weather conditions, areas upstream of the confluence of the Sacramento and San Joaquin rivers may also suffer harm. In addition the Bay marinas, launch ramps and fishing access points may be threatened, contaminated or closed. Significant adverse impacts (Class I and II) to Bay commercial and sport fisheries would result from oil spill accidents originating at the Shore marine terminal or from transiting tankers that service the terminal.

Class: I and II

- Finding(s):**
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of the CDFG (BIO-6d, FSH-8c) and the USFWS (BIO-6d), not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

A significant adverse impact to fisheries will likely result from an accidental spill of crude oil or product that could occur in the Estuary during the 20 year life of the Proposed Project. The severity of the impacts will depend on the following: size of the spill, composition of the product, characteristics of the spill (instantaneous vs. prolonged discharge, surface vs. subsurface spill, and so forth), environmental conditions and effect of weathering on spill properties and effectiveness of response and clean-up operations.

Oil spill clean-up and response is fairly effective in containing a spill of 50 bbl or less (Class II). Although larger spills have a fairly low chance of occurring, when they occur fisheries would likely be impacted in many different ways: by physical presence of oil on water, fishing restrictions imposed by public agencies to ensure that no tainted seafood reaches consumers, harbor closures to keep oil in or out, spatial conflicts with clean-up operations, long and short-term biological effects on fish and habitat, changes in

seafood markets due to public fears of eating contaminated seafood, fishing interests avoiding areas for fear of contaminating gear and catching tainted fish, fishing area closures forcing fishermen to other areas, thus crowding uncontaminated areas and reducing overall catches and public reluctance to return to an area for sport fishing after a spill.

The DEIR concluded that fisheries in the Estuary that are especially vulnerable to oil spills are:

- Commercial shrimp (Carquinez Strait and eastern San Pablo Bay) and herring (central San Francisco Bay);
- Sport salmon, sturgeon, and bass (San Pablo, San Francisco Bays, the Carquinez Strait and Napa River), western Suisun Bay fisheries, halibut and rockfish (central Bay), smelt (Tiburon, Angel Island and Berkeley Pier), perch (San Pablo and central Bays, Angel Island, Berkeley Pier, Tiburon) and clam beds (Richmond); and
- Herring spawning (southern San Pablo and central Bays, Oakland/Alameda).

In particular, Mare Island Strait and the Napa River are vulnerable to spills and support salmon, sturgeon and bass fishing, in addition to several fishing access facilities. Honker Bay and the Sacramento River have a high vulnerability to 10,000 bbl spills; however the risk of such a spill occurring is low.

The DEIR, Section 3.3.3.2, Biological Resources, provides detail on effects of modeled spills on fish and habitat. To summarize, the section concludes that spills from the Shore terminal and elsewhere in the Bay would have significant adverse impacts (Class I and II) on plankton, the benthos (specifically Dungeness crab and eelgrass), anadromous fishes (salmon and steelhead trout), and fishes that spawn in the Bay, particularly Pacific herring and longfin smelt.

Significant adverse impacts (Class I and II) to commercial and sport fisheries in the Estuary would result from oil spill accidents originating at the Shore marine terminal or from transiting tankers that service the terminal. The extent of impact (Class I or Class II) would depend on the extent of damage and effectiveness of containment and rapid cleanup, and residual impacts. Shrimp, herring and sport fisheries in central and north San Francisco Bay, San Pablo Bay, the Carquinez Strait, Napa River and Honker Bay are at highest risk of spill contamination. Depending on spill location, size and water and weather conditions, areas upstream of the confluence of the Sacramento and San Joaquin rivers may also suffer harm. In addition, the 140 marinas, launch ramps and fishing access points in the region may be threatened, contaminated or closed.

Mitigation Measures for FSH-8:

The following mitigation measures shall be applied by Shore Terminals to minimize the areas precluded to fishing during a spill and subsequent cleanup, and to help offset the losses to fishing interests and businesses dependent on fishing activities.

- FSH-8a:** Implement mitigation measures OS-3 through OS-6 in Operational Safety/Risk of Accidents, and mitigation measures BIO-6b through BIO-6d to lower the probability of an oil spill and increase response capability.
- FSH-8b:** Notifications shall be posted at spill sites and marinas, launch ramps and fishing access points to warn fishing interests of locations of contaminated sites. Notices shall be written in English and Spanish, and be posted in areas most likely to be seen by fishing interests.
- FSH-8c:** Provide financial compensation in accordance with the California Oil Spill Prevention and Response Act.
- FSH-8d:** Contribute to independent public or private organizations, acceptable to the CSLC, who evaluate the effectiveness of mitigation measures (results of the evaluation would be available to public decision-makers to ensure refinement, if necessary, modification of mitigation measures). Evaluation would be done only after an accident and would include monitoring using scientifically accepted protocols. Contributions would be determined by the level of impact and in cooperation with the various organizations, agencies, and the CSLC.

Containment of small spills and protection of resources may reduce impacts to fisheries to less than significant for small spills. For large spills, significant impacts are likely to occur even with containment. Posting of notices provides information to protect the public from contact with contaminated fish, providing compensation helps to pay for the costs of cleanup, and contributing to evaluations of the effectiveness of mitigation measures would help to refine such measures to increase effectiveness for future spill events. Over the short term (less than a year) some fishing interests may not be compensated, and opportunities would be lost while fishing areas are inaccessible. These impacts may be especially acute for anglers who depend on fishing for a major source of food. Over the long term, impacts could result if, for example, areas remain closed due to contamination, or public fears of eating contaminated fish result.

The OS-3 measures would lower the probability of an oil spill by allowing for quick release of mooring lines (OS-3a), monitoring of tension of the mooring lines (OS-3b), allision avoidance (OS-3c), and ensuring through maintenance and inspection that damaged or aging wharf components are in proper operating condition (OS-3d). These measures help to reduce spills and their associated impacts. However, the impacts associated with the consequences of larger spills, greater than 50 bbls, could remain significant. OS-4 implements measures OS-3d, GEO-11a (requirement for a pipeline analysis) and GEO-11b (pipelines must meet MOTEMS for pipeline integrity). These measures help to reduce spills and their associated impacts. However, the impacts associated with the consequences of larger spills, greater than 50 bbls, could remain significant. OS-5 requires that Shore update their Wharf Operations Manual. OS-6 requires Shore to implement OS-3a for quick release mooring devices that would allow

a vessel to depart the wharf quickly would help in the event of a fire; OS-6b requires that Shore develop procedures for dealing with tank vessel fires and tanker explosions; and OS-6c shall ensure that the fire detection/suppression system conforms to the MOTEMS, Section 8.0. Previous discussions of each of these measures are incorporated herein by this reference.

CEQA FINDING NO. LU-3

IMPACTS ON SHORELINE AND WATER-RELATED USES FROM SPILLS AT OR NEAR THE TERMINAL

Impact: **LU-3: A number of recreational facilities (designated parks, wildlife preserves, open space, etc.) and recreational uses (nature viewing, boating, fishing, surfing, etc.) are within the potential area that could be impacted by the spread of oil. Shoreline and water-related uses would be disrupted by oil on the shoreline and in the water and could result in significant adverse (Class I and II) impacts.**

Class: I and II

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of the CDFG (BIO-6d, FSH-8c) and the USFWS (BIO-6d), and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

Impacts from oil releases could degrade the environment and preclude the use of shoreline land and associated recreational activities at the site of the release and the areas affected by the spread of the oil. The degree of impact, however, is influenced by many factors including, but not limited to, spill location, spill size, type of material spilled, prevailing wind and current conditions, the vulnerability and sensitivity of the resource, and response capability.

The greater risk of spills occurs at the Shore terminal, where small spills could occur during normal operations, as well as from leaks at pipe fittings and valves. There is less chance of a spill occurring from a tankering accident; however, such an event generally can result in a much larger and more severe spill.

Crude oil and refined products would be shipped to/from the Shore terminal. Light product spills generally volatilize relatively rapidly, and little remains within 24 to 48 hours after a spill. Heavy crude oil may disappear over a period of several days, with remaining heavy fractions lasting from several weeks to several months floating at or near the surface in the form of mousse, tarballs, or mats.

No recreational facilities or activities are directly associated with the Shore terminal; however, there are a number of recreational facilities (designated parks, wildlife preserves, open space, etc.) and recreational uses (nature viewing, boating, fishing, surfing, etc.) associated with the study area. Shoreline and water-related uses would be disrupted by oil on the shoreline and in the water. For a spill at the Shore wharf, tankering and operations at the marine terminal would be stopped for a period of time depending on the amount of oil present and the amount of cleanup required.

The capability to immediately respond and deploy appropriate containment booms would also influence the extent of affected shoreline. Because it is impossible to predict with any certainty the potential consequences of spills, impacts are considered to be adverse and significant (Class I or II), because severe spills could have residual impacts that could affect shoreline and/or recreational uses. Any residual impacts remaining after first response efforts would be considered to be significant adverse impacts (Class I).

Mitigation Measures for LU-3:

LU-3: Mitigation measures for spills at the Shore terminal would be the responsibility of Shore Terminal operations. Specific measures are those presented in Operational Safety/Risk of Upset; Water Quality; Biological Resources; and Commercial and Sport Fisheries.

Those measures presented in other sections provide improved oil spill capabilities, oil spill containment measures and protection of resources. With implementation of those measures the risk to shoreline and recreational resources can be reduced to less than significant for small spills. Previous discussions of each of these measures are incorporated herein by this reference.

CEQA FINDING NO. LU-4

LAND USE/RECREATIONAL IMPACTS OF OIL SPILLS FROM VESSELS IN TRANSIT

Impact: **LU-4: Spills that beach along sensitive land use areas or heavily used areas including recreational areas would limit or preclude such uses and result in significant adverse (Class I or II) impacts, depending on the various characteristics of a spill and its residual effects.**

Class: I and II

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

Depending on spill size and location, a spill within the Bay and the Carquinez Strait shipping lanes could affect tankering and other boating in the vicinity of the spill and its area of spread. In either case, depending on wind and current conditions and size of the spill, shoreline and land and water-recreation uses could be affected. Oil spill modeling conducted for the Unocal terminal (Chambers Group 1994) showed the potential extent of oil spread based on various scenarios of spill size, wind, tide, and current conditions. Given the right conditions, virtually all shoreline areas are vulnerable. Shoreline uses affected by a spill include marinas and park and recreation uses, as well as other marine terminals and port and harbor operations. Examples include passenger and cargo vessels, commercial fishing vessels, and others that may have to slow, reroute, or halt operations during cleanup and containment. Nearshore uses may also be affected because they may be temporarily closed during cleanup operations for public safety purposes. Land access to coastal areas may also be affected by cleanup operations.

Compared to the Bay, existing land uses and recreational areas along the outer coast are more diverse, ranging from heavily used areas to areas that are undeveloped and fairly inaccessible, especially along the northern coast. Spills that beach along heavily used areas and recreational points would limit or preclude such uses and result in significant adverse (Class I or II) impacts, depending on the various characteristics of a spill and its residual effects. Oil that spreads to beaches, sand dunes, tidepools,

shoreline reserves, harbors, marinas, and other recreational boating and fishing facilities would limit access to these areas where there is oil, containment equipment, or cleanup activities. Spills that reach the more remote portions of the shoreline may not necessarily decrease the availability of recreational uses because use may be minimal, but would result in other impacts to biological resources and water quality as discussed in other sections of the EIR. Portions of coastline would also be visually affected by spills as discussed in Visual Resources.

Over the life of the proposed new lease, as more areas of the coastline are developed or made accessible to the public, the likelihood that an established land use or recreational amenity may be affected by a spill would also increase.

Because it is impossible to predict with any certainty the potential consequences of spills, impacts are considered to be adverse and significant (Class I or II), because severe spills could have residual impacts that could effect shoreline and/or recreational uses. Any residual impacts remaining after first response efforts would be considered to be significant adverse impacts (Class I).

Mitigation Measures for LU-4:

LU-4: Mitigation measures for accidents in the shipping lanes would not be Shore Terminals responsibility, but would fall to the vessel operator/owner. Shore Terminals shall implement measures OS-8a and OS-8b in Operational Safety/Risk of Upset.

Response capability for containment and cleanup of land areas oiled is not the responsibility of Shore Terminals for spills in the shipping lanes. Nevertheless, as a participant in any analysis to examine upgrades to the VTS (OS-8a), Shore can help to improve transit issues and response capabilities in general, which help to reduce the consequences of spills within the Bay. For a spill near the Shore terminal, Shore is more suited to provide immediate response (OS-8b) to a spill using its own equipment and resources, rather than waiting for mobilization and arrival of the vessel's response organization. The marine terminal staff is fully trained to take immediate actions in response to spills. Such action will result in a quicker application of oil spill equipment to any spill and improve control and recovery of such spill.

CEQA FINDING NO. AQ-5

EMISSIONS ASSOCIATED WITH CONTINUED OPERATIONS WITH INCREASED FUTURE THROUGHPUT

Impact: **AQ-5: Tanker pumping, transit, and/or tug combustion emissions could allow for an increase in throughput at the marine terminal. Thus, future operational emissions (both indirect and direct) have the potential to exceed daily and yearly significance thresholds**

(existing permit limits) and result in a significant adverse (Class II) impact.

Class: II

- Finding(s):
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of the BAAQMD and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

FACTS SUPPORTING THE FINDING(S)

Over the term of the 20-year lease, market conditions could drive the need to increase throughput through the marine terminal to a maximum of 325 annual vessel calls. No modifications to the wharf are proposed as the wharf is capable of handling the increased number of vessels. The 325 maximum vessel calls would be based on an associated increase in upland tankage storage, which would be limited to an additional 2 million barrels (including the 300,000 bbls of tankage currently under construction) over existing capacity due to limited available land. Future tank additions at the upland facility would create the potential for increased emissions indirectly associated with increased wharf activity. Construction and operation of increased upland facilities would be subject to local (city of Martinez) CEQA review and BAAQMD permitting.

To address potential emissions increases associated with increases in wharf throughput, the maximum throughput was calculated that would allow the facility to operate before exceeding the significance criteria. A similar methodology was used in the *Wickland Oil Martinez Marine Terminal Expansion DEIR* (Thomas Reid Associates 1994, Appendix C). Based on the quantity of product transferred (total product in/out) at the marine terminal in 2000 and 2001, between 2.2 and 3.4 tons NO_x are emitted per each million barrels transferred. Assuming an average of 2.8 tons NO_x per million barrels transferred, to maintain non-permitted emissions below the significance criteria of 15 tons/year, the increase in throughput would need to remain below 5.3 million barrels per year (Refer to DEIR Appendix D-2 for detailed calculations). However, limiting tanker pumping, transit, and/or tug combustion emissions could allow for an increase in throughput at the marine terminal. Thus, future operational emissions (both indirect and direct) have the potential to exceed daily and yearly significance thresholds and result in a potentially significant adverse (Class II) impact.

Mitigation Measures for AQ-5:

AQ-5: Mitigation should be focused on the use of best available control technology (BACT) available at the time of any expansion of the upland facility. Increased operations would require additional permitting through the BAAQMD, which

would set limitations on allowable emissions levels and require offsets as necessary.

Use of BACT incorporating improved technology, the preparation of environmental documentation by the city of Martinez, and compliance with BAAQMD limitations would reduce the potential for the exceedance of pollutant limitations to allow Shore Terminus to increase throughput through the marine terminal to a maximum of 325 annual vessel calls.

CEQA FINDING NO. VR-2

VISUAL EFFECTS FROM ACCIDENTAL RELEASES OF OIL AT OR NEAR THE TERMINAL

Impact: VR-2: The visual impacts of a spill could last for a long period of time, depending on the level of physical impact and cleanup ability, and are considered to be adverse and significant (Class I or II).

Class: I and II

- Finding(s):**
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - b) Such changes or alterations are within the responsibility and jurisdiction of the CDFG (BIO-6d, FSH-8c) and the USFWS (BIO-6d), and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

The EIR analysis considers the occurrence of accidental spills separate from routine operations. In general, the potential impacts resulting from such an occurrence would tend to degrade the visual quality of the water and shoreline. The degree of impact is influenced by factors, including, but not limited to, location, spill size, type of material spilled, prevailing wind and current conditions, the vulnerability and sensitivity of the shoreline, and effectiveness of early containment and cleanup efforts.

The greatest risk of a spill is from small accidents at the terminal during normal operations. While there is less risk of spill during tankering, the size of a spill that could result is much greater. The following discusses the visual impacts expected to occur in the event of a spill.

Generally, small leaks and spills (50 bbls) would be easily contained with contingency measures employed at the terminal (Class II impacts). However, the Shore wharf is located in an area of rapidly moving current. Thus, if a spill is not detected immediately, or if a moderate- or large-size spill at or near the terminal occurred at a rate unable to be quickly contained due to the rapid current, then the spill could spread over a large area. Oil spill modeling (Chambers Group 1994, Wickland 1998) shows that spills originating in the vicinity of the marine terminal have the potential to affect a good portion of the area from West Pittsburg (near the mouth of the Delta) to the west shore of San Pablo Bay.

Visually, oiling conditions could range from light oiling, which appears as a surface sheen, to heavy oiling, including floating lumps of tar. Light product spills generally volatilize relatively rapidly, and little remains within 24 to 48 hours after a spill. Heavy crude oil may disappear over a period of several days, with remaining heavy fractions lasting from several weeks to several months floating at or near the surface in the form of mousse, tarballs, or mats. Therefore, the presence of oil on the water would change the color and, in heavier oiling, textural appearance of the water surface. Oil on shoreline surfaces or nearshore marsh areas would cover these surfaces with a brownish-blackish, gooey substance.

Such oiling would result in a negative impression of the viewshed. The public, becoming aware of a spill, may react negatively to its visual effects. Sensitivity heightens and awareness of the negative change in the environment increases with time. Without rapid containment by immediate booming and cleanup, the visual effects of even a small spill of 50 bbls can leave residual impacts, and they can be significant (Class I).

In the immediate area of the Shore terminal are Bulls Head Marsh and Pacheco Creek. As per the OSPR Area Contingency Plan, protection of this area is a high priority. The Plan proposes a protection strategy that includes booming. This is discussed in more detail in Biological Resources.

The impact of a spill (whether Bulls Head Marsh, Pacheco Creek, or other sensitive areas) could last for a long period of time, depending on the level of physical impact and cleanup ability. In events where light oiling would disperse rapidly, significant adverse (Class II) impacts are expected. In events where medium to heavy oiling occurs over a widespread area, and where first response cleanup efforts are not effective, leaving residual effects of oiling, significant adverse (Class I) impacts would be expected. The physical effort involved in cleanup itself, including the equipment used, would contribute to a negative impression of the environment and the visual impact. It is impossible to predict with any certainty the potential consequences of spills; therefore, visual impacts can be considered to be adverse and significant (Class I or II), depending on the effectiveness of first response containment and cleanup.

Mitigation Measures for VR-2:

VR-2: Mitigation measures for oil spill impacts include those measures for contingency planning and response as presented in Operational Safety/Risk of Upset and Biological Resources.

Those measures presented in other sections provide improved oil spill capabilities, oil spill containment measures and protection of resources. Previous discussions of each of these measures are incorporated herein by this reference. With implementation of those measures the risk to the visual environment can be reduced to less than significant for small spills.

CEQA FINDING NO. VR-3

VISUAL EFFECTS OF OIL SPILLS FROM VESSELS IN TRANSIT

Impact: **VR-3: Spills would change the color and texture of water and shoreline conditions. The level of public sensitivity and expectations of viewers would result in a negative impression of the viewshed and result in significant adverse (Class I or II) impacts, depending on the various characteristics of a spill and its residual effects.**

Class: I and II

- Finding(s):**
- a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
 - c) Specific economic, legal, social, technological or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

FACTS SUPPORTING THE FINDING(S)

Vessels transiting the shipping lanes also pose a risk of spills from accidents. A moderate to large spill has the potential to spread within a large area, with floating oil and oil contacting sensitive shoreline resources given the right wind and current conditions, and the size and origin of the spill. For example, oil spill modeling from the Unocal EIR (Chambers Group 1994) showed that if a large spill (100,000 bbls) were to occur in the shipping lanes near Alcatraz Island, oil could spread and beach at almost all shoreline points within the Central Bay and San Pablo Bay areas, as well as affect portions of the South Bay and the Carquinez Strait (Bay Scenarios No. 9 and No. 10,

100,000-bbl crude oil spills from Unocal document). While spills would be significant, responsibility for spills for those vessels enroute to the Shore wharf would be the responsibility of the ship's operators/owners and not Shore Terminals LLC, as Shore does not own any vessels.

Spills along the outer coast could result in significant adverse (Class I or II) impacts, where spills would be visible in the nearshore zone or at the shoreline. Spills would change the color and texture of water and shoreline conditions. The level of public sensitivity and expectations of views along the outer coast are more varied than within the Bay. Along many portions of the outer coast, public usage is low. In such areas, the public perception and expectations of viewers would not change as much as those areas where the public frequents. In high use areas, such as coastal park and beach areas, ecological preserve areas, communities and harbors, and other areas where a higher number of viewers would be present, visual sensitivity would be high where cleanup efforts and residual effects were occurring.

It is impossible to predict with any certainty the potential consequences of spills; therefore, visual impacts can be considered to be adverse and significant (Class I or II), depending on the effectiveness of first response containment and cleanup.

Mitigation Measures for VR-3:

VR-3: Mitigation measures for accidents in the shipping lanes would not be Shore Terminals responsibility, but would fall to the vessel operator/owner. Shore Terminals shall implement measures OS-8a and OS-8b in Operational Safety/Risk of Upset.

Response capability for containment and cleanup is not the responsibility of Shore Terminals for spills in the shipping lanes. Nevertheless, as a participant in any analysis to examine upgrades to the VTS (OS-8a), Shore can help to improve transit issues and response capabilities in general which help to reduce the consequences of spills within the Bay. For a spill near the Shore terminal, Shore is more suited to provide immediate response (OS-8b) to a spill using its own equipment and resources, rather than waiting for mobilization and arrival of the vessel's response organization. The marine terminal staff is fully trained to take immediate actions in response to spills. Such action will result in a quicker application of oil spill equipment to any spill and improve control and recovery of such spill.

CEQA FINDING NO. GEO-2

IMPACTS ON WHARF FROM GROUNDSHAKING

Impact: GEO-2: The impact of berth dredging, natural scour or accumulation of soil in steep slopes near or adjacent to wharf piles should be considered in soil-structure interaction. In addition, liquefaction and

lateral spreading resulting from any moderate earthquake may create a significant adverse impact (Class II).

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

The wharf and trestle are located within a seismically active area with several faults capable of inducing strong ground shaking. Such shaking would result in associated shaking of the structures, including interaction between the soil and structural foundations.

The bathymetry in the wharf and trestle vicinity is relatively flat, and lateral spreading of soils at or near the ground surface caused by ground shaking is unlikely. The impact of berth dredging, natural scour or accumulation of soil in steep slopes near or adjacent to wharf piles should be considered in soil-structure interaction. In addition, liquefaction and lateral spreading resulting from any moderate earthquake may create a significant adverse impact (Class II).

Mitigation Measures for GEO-2:

GEO-2a: In the event that such scour has been noted, then Shore shall conduct additional analysis to evaluate the potential for lateral spreading. Loss of lateral support and laterally induced additional loads should be incorporated into the overall analysis and/or design. This analysis should be conducted concurrently with a site specific liquefaction analysis (see Impact GEO-3).

GEO-2b: Seismic evaluation of the structures and their foundations should be included in the structural analysis and geotechnical investigation in compliance with Section 6 of the approved MOTEMS. The results and recommendations of the evaluation shall be coordinated with the mooring analysis recommendations and implementation of corrections (see GEO-10).

These studies would determine whether lateral spreading caused by groundshaking would cause any loss of lateral support on the structure. The seismic evaluation would identify any additional corrections that may be needed to ensure structural integrity during credible events affecting the terminal.

CEQA FINDING NO. GEO-3

LIQUEFACTION AND SEISMICALLY INDUCED SETTLEMENT

Impact: **GEO-3: The site has not had an industry standard liquefaction evaluation performed. As such, the potential for impacts from seismically induced settlement are unknown and this is considered a significant adverse (Class II) impact.**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

Liquefaction is a phenomenon whereby insufficiently dense saturated granular soil temporarily loses strength and bearing capacity during seismic shaking. If the granular soil is unconfined and on a slope, it tends to spread or flow as mentioned above. Liquefaction usually results in volume reduction that is manifested in ground settlement. Loose, clean sand at relatively shallow depths (low overburden or confining pressures) is most susceptible to liquefaction. Most of the sand from this site appears to be older Pleistocene age sand that is medium dense to dense, based on limited data. As stated in the existing conditions section, the Woodward Lungdren sampling tools and protocols used during the exploration program are outdated and did not include the standard penetration test (SPT), an industry standard for evaluating liquefaction potential. If sand liquefies it could result in volume changes that in turn could result in soil settlement and downdrag on the piles. Because the site does not have an industry standard liquefaction evaluation, the potential for impacts on the structural integrity of the wharf from seismically induced settlement would be considered significant adverse (Class II) impacts.

Mitigation Measures for GEO-3:

GEO-3: Shore shall comply with the approved MOTEMS. As such, a site specific liquefaction evaluation shall be required to be completed within 6 months after start of the lease. The results and recommendations of the evaluation shall be coordinated with the mooring analysis recommendations and implementation of corrections (see GEO-10).

The liquefaction evaluation would identify if liquefaction is a problem and would identify engineering corrections that would address potential damage to the wharf. Protection of the wharf would then help to prevent damage to pipelines and resultant oil leaks, as well as damage from vessel and wharf interaction.

CEQA FINDING NO. GEO-4

POTENTIAL FOR TSUNAMI IMPACTS

Impact: **GEO-4: Shore operators may not have adequate warning time to allow a vessel to depart from the wharf to avoid damage to the vessel and/or the wharf from a tsunami. Impacts are considered significant adverse (Class II) impacts.**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

The maximum expected wave return height near the Shore marine terminal for the 100-year tsunami event would be about 3.3 feet and up to 4.0 feet for the 500-year event. Potential damage to the wharf and/or vessel from these events could occur and impacts are considered significant adverse (Class II) impacts. As tsunamis can be generated either by a distant or near source, the Shore operators may or may not have adequate warning time for which to allow the vessel to depart from the wharf to avoid damage.

Mitigation Measures for GEO-4:

GEO-4a: As soon as possible, after notification of a tsunami, Shore operators shall release the vessel from its mooring and the vessel shall move away from the wharf.

GEO-4b: Shore shall comply with Section 5 of the approved MOTEMS mooring analysis (see GEO-10).

The mitigation measures would reduce, to the maximum extent feasible, the potential for damage that could occur to a vessel and/or the wharf during a tsunami. By moving away from the wharf as soon as possible after notification of a tsunami, damage to both the wharf and vessel may be prevented or minimized. The requirement for a mooring analysis, per MOTEMS, will also help to identify and correct deficiencies in the Shore terminal's current mooring capabilities and enable a quicker response to notification of a tsunami.

CEQA FINDING NO. GEO-8

TRESTLE STRUCTURAL ADEQUACY – BATTER PILE TO BENT CAP CONNECTIONS

Impact: **GEO-8: During an earthquake damage could occur in the batter pile to bent cap connections and could damage the trestle. This would result in a significant adverse impact (Class II).**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

The majority of the trestle bents are two-dimensional structures designed to resist only vertical and transverse forces. During an earthquake, high forces develop in the two 1-1/2 inch bolts at the batter pile to bent cap connections. It appears probable that these connections do not have the capacity to transfer the calculated forces and significant adverse impacts (Class II) could result.

Mitigation Measures for GEO-8:

GEO-8: Within one year of the new lease, Shore shall reevaluate the loads on the bents, check the batter pile bolt connections, and adopt corrective mitigation measures.

A reevaluation of the batter pile bolt connections and implementation of corrective measures, acceptable to the CSLC, will minimize earthquake damage to the trestle by improving its structural integrity.

CEQA FINDING NO. GEO-9

TRESTLE STRUCTURAL ADEQUACY – ANCHOR BENTS

Impact: **GEO-9: The anchor bent batter pile to bent cap bolts are not capable of transmitting the predicted transverse seismic loads that could result in a loss of support for the petroleum pipelines and a spill could occur. This would result in a significant adverse impact (Class II).**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

The second type of trestle bents are anchor bents, of which there are twelve. The anchor bent batter pile to bent cap bolts are not capable of transmitting the predicted transverse seismic loads. One 1-inch bolt transmits the full tension load from two batter piles into the 12-inch by 12-inch bent cap. The ultimate bolt capacity is less than 10 kips, while the demand, based on maximum pile tension, is roughly 40 kips. The loads indicate that these connections will fail during an earthquake resulting in a significant adverse impact (Class II). The bolted connection in the anchor pile bents could result in loss of support for the petroleum lines and potentially generate an oil spill. Some of these pipelines contain petroleum products at all times (they are not "stripped" following fuel handling), and structural failure of the trestle could result in an oil spill of up to 1,500 barrels (Gerwick 2001).

Mitigation Measures for GEO-9:

GEO-9: Shore shall reevaluate the loads in the anchor bents and batter pile connections within one year of the new lease. The anchor bents' inadequacy should be addressed and corrective measures implemented within 2 years.

The required evaluation would assure that the anchor bent batter pile to bent cap bolts can transmit the predicted seismic loads such that there would be no support loss of the petroleum pipelines. This would reduce the risk of an oil spill due to broken pipelines from a seismic event.

CEQA FINDING NO. GEO-10

BERTHING/MOORING LOAD CAPACITY

Impact: **GEO-10: The last mooring analysis used data from sites nearby that may not reflect actual wharf conditions. There could be potentially significant direct and indirect impacts (Class II) associated with berthing and mooring capacity under actual currents, tides, and winds, with the potential for oil releases.**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

GKO Messinger & Associates (1994) indicates that there are significant berthing and mooring limitations for large vessels to limit the load to the existing dolphins. These

limitations restrict the load on the dolphins to the pile allowable capacities. Based on these limitations, berthing and mooring forces are less onerous than the seismic loading conditions. However, the report performed was a structural appraisal and not a detailed mooring analysis. As no mooring analysis as detailed in the MOTEMS has been performed for the Shore marine terminal, and since there could be potential direct and indirect impacts associated with berthing and mooring stresses on the facility, with potential for oil releases if an accident were to occur, impacts are potentially significant adverse impacts (Class II).

Mitigation Measures for GEO-10:

- GEO-10a:** Shore shall collect 12 months of data on currents, tide levels, and wind speed/direction at the wharf.
- GEO-10b:** If data analysis shows that currents, tides and wind speeds are significantly different (as assessed by CSLC) from that assumed in the previous analysis, Shore shall conduct a new mooring analysis consistent with the approved MOTEMS Section 5 requirements within 12 months.
- GEO-10c:** Within 12 months of the start of the new lease, Shore shall conduct a passing vessel study for vessels navigating within 500 feet of the wharf, as per MOTEMS requirements.

The mitigation measures would provide a mooring analysis with current data appropriate to the Shore facility. The last mooring analysis used data from sites nearby that may not reflect actual wharf conditions. The passing vessels study will also provide specific data important to Shore's mooring procedures. The mooring analysis would determine if the existing mooring system on the wharf is in compliance with the MOTEMS requirements, and would identify any needed corrections. With implementation of the corrections, the potential for damage to both the wharf and vessels would be reduced, thus also lessening the potential for accidents that could result in spills/leaks of oil.

CEQA FINDING NO. GEO-11

PIPELINE STRESSES AND POTENTIAL FOR LEAKS

Impact: **GEO-11: Pipeline stresses on the 30-inch pipeline in relation to movement of the loading platform and trestle, and on the pipeline expansion loop support interface along the trestle are unknown. The potential may exist for damage to the pipeline and oil leakages that would result in a significant adverse impact (Class II).**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

Gerwick (2001) identified concerns with regard to the 30-inch pipeline and differential movement of the loading platform and the trestle. If it is assumed that the maximum displacement demand for each structure occurs in the opposite direction at the same time, then the pipeline will be overstressed. In addition, about halfway between the loading wharf and the land, the pipelines go through an expansion loop. The behavior of the pipeline/support interface has not been evaluated (Gerwick 2001), and thus, the pipeline seismic stresses at this interface are unknown. A significant adverse impact (Class II) results, as pipelines could be stressed to the point where damage and leaks could result.

Mitigation Measures for GEO-11:

GEO-11a: Within 6 months of the start of the lease, Shore shall conduct a pipeline analysis on the 30-inch pipeline and the pipeline loop.

GEO-11b: Shore shall ensure that pipelines for oil transfer meet MOTEMS and CSLC regulations in CCR Title 2, Division 3, Chapter 1, Article 5.5, Sections 2564 through 2570 for ensuring pipeline integrity.

The pipeline analysis would determine the need for engineering modifications to the 30-inch pipeline and the pipeline loop. Ensuring pipeline integrity reduces the potential for leaks or spills of oil.

CEQA FINDING NO. EJ-1

ENVIRONMENTAL JUSTICE

Impact: **EJ-1: Overall water quality, biological, and commercial and sport fisheries impacts would affect resources used by the entire Bay community, whether or not they are minority or low-income, and would therefore not have a disproportionate impact on a minority of low-income population. Environmental justice impacts are considered less than significant (Class III) for all except sport fisheries which is Class II.**

Class: II

Finding(s): a) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

FACTS SUPPORTING THE FINDING(S)

Overall water quality, biological, and commercial and sport fisheries impacts would affect resources used by the entire Bay community, whether or not they are minority or low-income, and would therefore not have a disproportionate impact on a minority or low-income population. Environmental justice impacts are considered less than significant (Class III) for all except sport fisheries, which is a Class II impact.

Based upon the analysis conducted for the EIR, significant adverse impacts resulting from the routine operation of the Shore terminal includes, Operational Safety/Risk of Upset, Water Quality, Biological Resources, Commercial and Sport Fisheries, and Visual Impacts. A discussion of whether these impacts would have a disproportionate effect on a minority or low-income population is provided below.

Operational Safety/Risk of Upset

Findings from Operation Safety/Risk of Upset concluded that if a fire or explosion were to occur at the Shore terminal, it would not pose a significant hazard to the public because there are no areas of public assemblage within 1,500 feet of the wharf area. However, the continued operation of the Shore Terminal would result in adverse and significant impacts relating to potential oil spills. The potential disproportionate effect of those impacts on minority or low-income populations is addressed under each resource category below.

Water Quality

As detailed in Water Quality, the continued operation of the Shore terminal would result in potentially significant adverse impacts to water quality (Class I) that cannot be mitigated. One significant adverse impact relates to the routine discharge of ballast water that contains harmful microorganisms that could impair several of the project area's beneficial uses, including commercial and sport fishing, estuarine habitat, fish migration, preservation of rare and endangered species, water contact recreation, non-contact water recreation, fish spawning, and wildlife habitat.

A second significant adverse water quality impact relates to the use of marine anti-fouling paints to reduce nuisance algal and marine growth on ships. These anti-fouling paints are biocides that contain copper, sodium, zinc, and tributyltin (TBT) as the active ingredients. All of these are meant to be toxic to marine life that would settle or attach to the hull of ships. Because of the high toxicity of organotins to marine organisms, the

use of these substances on vessels associated with the Shore terminal is considered to be a significant adverse impact to water quality that cannot be mitigated to less than significant (Class I).

A third possible significant adverse water quality impact would occur in the event of a large oil spill (greater than 50 bbl) at the Shore terminal or transiting tankers that visit the terminal with the duration of potential impacts to water quality dependent on the quantity and type of oil spilled.

Overall water quality impacts would affect resources used by the regional community, whether or not they are minority or low-income, and would therefore not have a disproportionate impact on a minority of low-income population. Environmental justice impacts related to water quality impacts are considered less than significant (Class III).

Biological Resources

As with water quality impacts, Proposed Project impacts on biological resources would result in significant adverse impacts associated with the discharge of ballast water, and the potential for large oil spills to occur at the facility. As described in Section 3.3.3 of the EIR, Biological Resources, the discharge of segregated ballast water or hull fouling could introduce exotic species to the aquatic ecosystem of the San Francisco Estuary. Continued introduction of exotic species would have a significant adverse impact on planktonic and benthic communities (Class I), fishes (Class I), water-associated birds, marine mammals, and listed species through direct competition, destabilization of the food web, accumulation of toxins in the tissues of the voraciously filter-feeding Asian clam, or the introduction of disease organisms or toxic algae.

Biological resources that would be significantly affected by a large oil spill at the Shore terminal include plankton communities in Suisun Bay, natural rocky shores in Central Bay, intertidal mudflats, Dungeness crab, eelgrass, Pacific herring, striped bass, American shad, white sturgeon, tidal marshes, waterfowl, shorebirds, harbor seals, double-crested cormorants, long-billed curlew, common loon, Barrow's goldeneye, and all listed species. As a result, impacts to biological resources would have adverse effects on commercial and sport fishing and recreation resources. Overall biological impacts would affect resources used by the regional community, whether or not they are minority, Hispanic origin, or low-income. Therefore, project impacts to biological resources would not result in a disproportionate impact to a minority or low-income community and the impact is considered less than significant (Class III).

Land Use and Recreation

As described in Land Use and Recreation, impacts from an accidental oil release at the Shore terminal or from transiting tankers that visit the terminal could degrade the environment and preclude the use of shoreline land and associated recreational activities at the site of release and the areas affected by the spread of the oil. Because it is impossible to predict with any certainty the potential consequences of spills, impacts were considered adverse and significant, with severe spills having residual impacts that could affect shoreline and/or recreational uses. However, project impacts would effect

recreational resources used by the entire community, whether or not they are minority, Hispanic origin, or low-income. Therefore, no disproportionate impact would occur, and the impact is considered less than significant (Class III).

Visual Impacts

As described in Visual Resources, impacts from an accidental oil release at or near the Shore terminal could degrade the surface of the water and shoreline. As above, because it is impossible to predict with any certainty the potential consequences of spills, impacts were considered adverse and significant with severe spills having residual impacts that could affect the visual environment. Study area census block 3200.01-3 was determined to have a disproportionate population of Hispanic origin in relation to the Community of Comparison. The Shore terminal is a heavy industrial facility with the nearest residential area located approximately 1.5 miles to the southwest; thus, no residences would see a spill from their homes. As determined by oil spill modeling (Appendix B), a moderate size spill would have the potential to spread through a wide area of the Carquinez Strait/Suisun Bay, potentially affecting all shoreline areas. Thus, spill impacts would effect the entire community, whether or not they are minority, Hispanic origin, or low-income. Therefore, no disproportionate impact would occur, and the impact is considered less than significant (Class III).

Commercial and Sport Fisheries

Findings in Commercial and Sport Fisheries, indicate that the continued operations at the Shore terminal could result in significant adverse impacts to fish and habitat, shrimp fisheries, herring fisheries and sport fisheries as a result of an oil spill at the terminal or from transiting tankers that visit the terminal. Overall impacts to fisheries would affect resources used by the regional community, whether or not they are minority, Hispanic origin, or low-income. With regard to local sport fisheries, a 0.5-mile buffer around the terminal includes less than 5 percent of the sport boat fishing area in block CDFG 308 and no shoreline fishing occurs within 0.5 mile of the wharf. Therefore, due to the limited sport fishing near the Shore terminal, impacts to study area Census Block Group 3200.01-3 would not be considered disproportionate, even though the block group has a greater Hispanic origin population, and impacts are considered less than significant (Class III).

However, should the spill affect areas beyond the .5 mile buffer, the potential exists for fisheries resources and fishing locations used by populations within Census Block Group 3200.01-3 for subsistence fishing to be adversely affected as described in Biological Resources. Preclusion of affected populations from fishing areas over an extended period of time could result in a disproportionate impact, particularly if such populations do not have the ability to go to uncontaminated areas nearby and depend on fishing as a food source (Class II).

Mitigation Measures for EJ-1:

EJ-1: Should an oil spill from Shore Terminals extend beyond .5 mile from the terminal and preclude sport fishing activities for more than two days, Shore Terminals shall contribute either funds or food stuffs to a local food bank in an amount sufficient, as determined in conjunction with the CSLC, to replace food sources that would have been supplied by fishing activities within the affected areas.

By contributing funds or food to a local food bank, Shore would be providing its fair contribution to the welfare of the affected community. This fair share would serve to compensate for the loss of food sources that would result from preclusion of subsistence fishing activities from the defined area as a result of an oil spill event.

ACRONYMS

AAS	Allison Avoidance System
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BMP	Best Management Practice
CCC	California Coastal Commission
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CMISA	California Marine Invasive Species Act
Corps	U.S. Army Corps of Engineers
CSLC	California State Lands Commission
DMMO	Dredged Material Management Office
EIR	Environmental Impact Report
IMO	International Maritime Organization
MARPOL	International Convention for the Prevention of Pollution from Ships
MOTEMS	Marine Oil Terminal Engineering and Maintenance Standards
MSRC	Marine Spill Response Corporation
MTBE	Methyl Tertiary Butyl Ether
NRC	National Response Center
OCS	Outer Continental Shelf
OPA 90	Oil Pollution Act of 1990
OSPR	Office of Spill Prevention and Response
PRC	Public Resources Code
RWQCB	Regional Water Quality Control Board
SWPPP	Storm Water Pollution Prevention Plans
TBT	Tributyltin
USCG	U.S. Coast Guard
VTS	Vessel Traffic Safety

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EXHIBIT D – SHORE TERMINALS MITIGATION MONITORING, COMPLIANCE AND REPORTING PROGRAM

As the Lead Agency under the CEQA, the CSLC is required to adopt a program for reporting or monitoring regarding the implementation of mitigation measures for this project, if it is approved, to ensure that the adopted mitigation measures are implemented as defined in this EIR. This Lead Agency responsibility originates in Public Resources Code Section 21081.6(a) (Findings), and CEQA Guidelines Sections 15091(d) (Findings) and 15097 (Mitigation Monitoring or Reporting).

MONITORING AUTHORITY

The purpose of a Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) is to ensure that measures adopted to mitigate or avoid significant impacts are implemented. A MMCRP can be a working guide to facilitate not only the implementation of mitigation measures by the project proponent, but also the monitoring, compliance and reporting activities of the CSLC and any monitors it may designate.

The CSLC may delegate duties and responsibilities for monitoring to other environmental monitors or consultants as deemed necessary, and some monitoring responsibilities may be assumed by responsible agencies, such as OSPR. The number of monitors assigned to the project will depend on the number of concurrent mitigation measure requirements. The CSLC or its designee(s), however, will ensure that each person delegated any duties or responsibilities is qualified to perform such duties.

The CSLC or its designee will also ensure that any deviation from the procedures identified under the monitoring program is approved by the CSLC. Any deviation and its correction shall be reported immediately to the CSLC or its designee by the environmental monitor assigned to the project.

ENFORCEMENT RESPONSIBILITY

The CSLC is responsible for enforcing the procedures adopted for monitoring through the environmental monitor assigned to the project. Any assigned environmental monitor shall note problems with monitoring, notify appropriate agencies or individuals about any problems in accordance with designated protocols, and report the problems to the CSLC or its designee.

MITIGATION COMPLIANCE RESPONSIBILITY

Shore Terminals, LLC is responsible for successfully implementing all the mitigation measures in the MMRP, and for assuring that these requirements are met whether by Shore staff or vessel operators. Standards for successful mitigation also are implicit in many mitigation measures that include requirements such as obtaining permits or avoiding a specific impact entirely. Other mitigation measures include detailed documentation of success criteria. Additional mitigation success thresholds could be established by applicable agencies with jurisdiction through any later permit processes and through the review and approval of specific plans for the implementation of mitigation measures, such as future improvement to Shore upland facilities that indirectly affect operation of the marine terminal.

GENERAL MONITORING PROCEDURES

Environmental Monitors. The CSLC and the environmental monitor(s) are responsible for overseeing mitigation monitoring, and for ensuring that all procedures specified in the monitoring program are followed and meet specified deadlines.

General Reporting Procedures. Site visits and specified monitoring procedures performed by other individuals will be reported to the environmental monitor assigned to the project. A monitoring record form will be submitted to the environmental monitor by the individual conducting the visit or procedure so that details of the visit can be recorded and progress tracked by the environmental monitor. A checklist will be developed and maintained by the environmental monitor to track all procedures required for each mitigation measure and to ensure that specified deadlines are met. The environmental monitor will note any problems that may occur and take appropriate action to rectify the problems.

Public Access to Records. The public is allowed access to records and reports used to track the monitoring program. Monitoring records and reports will be made available for public inspection by the CSLC or its designee, on request.

MITIGATION MONITORING TABLE

The following sections present the mitigation monitoring tables for the project. Each table lists the following information, by column:

Impact (impact number, title, and impact class).

Mitigation Measure (title only; full text of the measure is presented in Section 3.0).

Monitoring/reporting action (the action to be taken by the monitor or Lead Agency).

Effectiveness criteria (how the agency can know if the measure is effective).

Responsible agency.

Timing (before, during, or after construction; during operation, etc.).

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**Table D-1
Operational Safety/Risk of Upset**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>OS-3: Shore's response capability for containment of spills during transfer operations would be adverse and significant for spills greater than 50 bbls, and range from spills that can be contained during first response efforts with rapid cleanup (Class II), to those complex spills that result in a significant impact (Class I) with residual effects after mitigation.</p>	<p>OS-3a: Provide quick release devices that would allow a vessel to leave the wharf as quickly as possible in the event of an emergency (fire or accident that could lead to a spill) that could impact the wharf or the vessel.</p>	<p>CSLC monitor to observe devices after installation.</p>	<p>Reduces potential for damages and spills. In the event of an emergency, the wharf will be able to quickly release a vessel to prevent spread of oil.</p>	<p>CSLC</p>	<p>Within 12 months of lease implementation.</p>
	<p>OS-3b: Install tension monitoring devices on the wharf that would avoid excess strain on mooring lines and avoid damage that could result in spills.</p>	<p>CSLC monitor to observe devices after installation.</p>	<p>Reduces potential for damages and spills.</p>	<p>CSLC</p>	<p>Within 12 months of lease implementation.</p>
	<p>OS-3c: Install Allision Avoidance System (AAS) at the terminal to prevent damage to the pier and/or vessel during docking operations. Prior to implementing this measure, Shore shall consult with the San Francisco Bay Bar Pilots, the U.S. Coast Guard, and the staff of the CSLC and provide information that would allow the CSLC to determine, on the basis of such consultations and information regarding the nature, extent and adequacy of the existing berthing system, the most appropriate application and timing of an AAS at Shore terminal.</p>	<p>CSLC monitor to observe devices after installation.</p>	<p>Reduces potential for damages and spills.</p>	<p>CSLC</p>	<p>Within 12 months of lease implementation.</p>
	<p>OS-3d: Develop a comprehensive preventative maintenance program for the wharf that includes periodic inspection of all components related to transfer operations. The program shall be subject to CSLC review and approval.</p>	<p>Shore shall submit program for review and approval to CSLC.</p>	<p>Reduces potential for damages and spills.</p>	<p>CSLC</p>	<p>Within 12 months of lease implementation.</p>
<p>OS-4: Spills from the terminal during non-transfer periods would be associated with pipelines and are considered a significant (Class II) impact if spills are less than 50 bbls, or significant (Class I) impacts for spills greater than 50 bbls.</p>	<p>OS-4: Implement measure OS-3d. (See also GEO-11.)</p>	<p>See OS-3d.</p>	<p>See OS-3d.</p>	<p>See OS-3d.</p>	<p>See OS-3d.</p>
<p>OS-5: Shore Terminals Wharf Operations Manual requires minor revisions to become current.</p>	<p>OS-5: Shore Terminals shall update and bring the Wharf Operations Manual current. Revise the manual by providing current names of responsible persons at the terminal and the names of the current response contractors. Submit the Manual to the CSLC for review and approval within 6 months of lease implementation.</p>	<p>Shore to update Wharf Operations Manual to current. Submit for USCG and CSLC review.</p>	<p>Assures that correct and current information is contained in the manual</p>	<p>CSLC and USCG</p>	<p>Submit for review and approval within 6 months of lease implementation.</p>

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**Table D-1 (Continued)
Operational Safety/Risk of Upset**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>OS-6: Public areas are beyond the hazard footprint boundary, thus fires and explosions would not cause a public safety risk. However, the wharf Operations Manual does not address fire emergency procedures and the wharf does not meet detection/suppression system requirements.</p>	<p>OS-6a: Shore shall implement mitigation measure OS-3a to provide for quick release devices that would allow a vessel to depart the wharf quickly would help in the event of a fire.</p>	<p>See OS-3a.</p>	<p>See OS-3a.</p>	<p>See OS-3a.</p>	<p>See OS-3a.</p>
	<p>OS-6b: Shore Terminals shall develop a set of procedures for dealing with tank vessel fires and explosions for tankers berthed at the Shore terminal. The procedures should include the steps to follow in the event of a tank vessel fire and describe how Shore and the vessel will coordinate activities. The procedures shall also identify other capabilities that can be procured if necessary in the event of a major incident.</p>	<p>Shore shall prepare and submit procedures to CSLC for review and approval.</p>	<p>Provides planning and procedures for emergency response.</p>	<p>CSLC</p>	<p>Submit to CSLC within 6 months of lease implementation.</p>
	<p>OS-6c: Shore Terminals shall ensure that the fire detection/suppression system conforms to the proposed MOTEMS, Section 8.0.</p>	<p>Shore to review system and make necessary corrections. Monitor to observe devices after installation.</p>	<p>Reduces the risk of fire by providing necessary fire detection/suppression systems.</p>	<p>CSLC</p>	<p>Submit to CSLC within 6 months of least implementation.</p>
<p>OS-8: Spills from accidents in the Bay could result in impacts to water quality or biological resources that could be significant adverse (Class II) impacts for those that can be contained during first response efforts; or significant adverse (Class I) impacts that would have residual impacts. While Shore does not have legal responsibility for tankers, it does have responsibility to participate in improving general response capabilities.</p>	<p>OS-8a: As a lease condition, Shore shall agree to participate in an analysis to determine the adequacy of the existing VTS in the Bay Area, if such a study is conducted by a federal, state, or local agency during the life of the lease. Agencies such as the San Francisco Bay Harbor Safety Committee often conduct studies of safety issues within the Bay Area. As vessel traffic increases in and around the Bay Area and as technology improves, it may be necessary and feasible to upgrade and expand the VTS in and around the Bay Area. Shore shall designate a representative(s) to participate in this analysis toward the upgrade or expansion of the VTS per terms, including financial to be agreed upon with the other study participants.</p>	<p>This shall be implemented as a lease condition. Shore shall demonstrate to CSLC their participation in program strategies to protect sensitive resources.</p>	<p>Reduces potential damage to resources.</p>	<p>CSLC</p>	<p>Life of lease.</p>
	<p>OS-8b: As a lease condition, Shore shall agree to respond to the spill 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.</p>	<p>This shall be implemented as a lease condition. CSLC monitor to observe emergency actions.</p>	<p>Reduces potential damage to resources.</p>	<p>CSLC</p>	<p>Life of lease.</p>

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**Table D-2
Water Quality**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>WQ-2: Discharge of ballast water that contains harmful microorganisms could impair several of the project area's beneficial uses, including commercial and sport fishing, estuarine habitat, fish migration, preservation of rare and endangered species, water contact recreation, non-contact water recreation, fish spawning, and wildlife habitat.</p>	<p>WQ-2: Shore shall ensure that any vessel using its terminal comply with the California Marine Invasive Species Control Act (Public Resources Code Sections 71200 through 71271). Vessels must exchange their ballast water in mid-ocean waters before entering the waters of the state or they must retain all ballast water on board the vessel (Public Resources Code Section 71204.2). Shore will advise agents representing vessels that have called at the Shore Marine Terminal as of the date of adoption of the cited Mitigation Monitoring Program, and agents representing vessels that would be likely to call at the Shore Marine Terminal in the future about the California Marine Invasive Species Control Act. Shore will ensure that a Questionnaire containing the following questions is provided to the Vessel Operator, and inform the Vessel Operator that the Questionnaire should be completed on behalf of the vessel, by its Master or authorized representative, and provided to the CSLC's Marine Facilities Division, either electronically or by facsimile, 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 Shore Marine Terminal.</p> <p>The Questionnaire shall solicit the following information:</p> <ol style="list-style-type: none"> 1. Does the vessel intend to discharge ballast water in San Francisco Bay, the Carquinez Strait or any other location(s) in a Delta waterway on its transit to the Shore Marine Terminal? 2. Does the vessel intend to discharge ballast water at the Shore Marine Terminal? 3. Which of the following means specified in the California Marine Invasive Species Act (CMISA) has the vessel operator used or intend to use on the current voyage to manage the vessel's ballast water: a mid-ocean exchange (as defined in Section 71200(g)); retain all ballast on board; or discharge the ballast water at the same location (as defined in Section 71204.2(c)(2)) where ballast originated, provided ballast water was not mixed with ballast water taken on in an area other than mid-ocean waters? 	<p>Shore shall complete a ballast water reporting form for each vessel using the terminal and fax it to the Ballast Water Program within 24 hours. This reporting form shall state the ballast water source and where the vessel discharged ballast water. Shore Terminals and CSLC staff shall meet annually every March throughout the lease term, discuss the effectiveness of this mitigation measure, and make adjustments to the implementation of this measure.</p>	<p>Shore Terminals shall adhere to the current "Ballast Water Management for Control of Nonindigenous Species" as a part of Public Resources Code Section 71200 until January 1, 2010 or any date extension thereof. This measure will provide a tracking mechanism and shall remain in effect until such time that more stringent requirements are developed.</p>	<p>CSLC</p>	<p>Life of lease</p>

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**Table D-2 (Continued)
Water Quality**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
WQ-3: Spills of sanitary wastewater, bilge water and non-segregated ballast water could have the potential to degrade water quality.	WQ-3: Shore shall prepare a SWPPP for the marine terminal. The SWPPP shall include Best Management practices (BMPs) specifically to prevent leaks and spills during transfer of liquids between vessels and trucks on the wharf.	Shore shall prepare a SWPPP for CSLC review and approval, and update as necessary..	Aggressive implementation of BMPs to reduce the input of chemicals to the Bay from operations on the wharf would reduce the Shore's input of these chemicals.	CSLC	Prepare SWPPP within 6 months of lease implementation. Maintain annually for life of lease.
WQ-5: Marine anti-fouling paints are highly toxic containing copper, sodium, zinc, and tributyltin (TBT) and their use on vessels associated with the Shore terminal is considered significant.	WQ-5: Shore will advise agents representing vessels that have called at the Shore Marine Terminal as of the date of adoption of the cited Mitigation Monitoring Program, and agents representing vessels that would be likely to call at the Shore Marine Terminal in the future about the requirements of the 2008 IMO prohibition of TBT applications to vessel hulls. Following the effective date of the IMO prohibition, Shore will ensure that the Master or authorized representative of vessels intending to call at the Shore Marine Terminal certify that their vessel is in compliance and provide a copy of such certification to the CSLC's Marine Facilities Division, either electronically or by facsimile, 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 Shore Marine Terminal.	Shore shall require vessels to document that they have no new TBT applications (per IMO mandate). Documentation shall be kept at Shore, available for CSLC inspection.	Until all TBT is phased out by 2008, vessels with old applications of TBT on their hulls will visit Shore. Shore cannot feasibly require vessels to remove TBT from their hulls (until the IMO mandate is effective). Therefore, until all TBT is gone from vessels using the Shore marine terminal, impacts of organotins will remain.	CSLC	Life of lease.
WQ-6: Routine vessel maintenance would have the potential to degrade water quality due to chronic spills during transfers of lubricating oils.	WQ-6: Implement WQ-3 for preparation of a SWPPP.	See WQ-3.	See WQ-3.	See WQ-3.	See WQ-3.

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**Table D-2 (Continued)
Water Quality**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>WQ-7: Stormwater runoff from the Shore terminal may contribute pollutants to the Bay in concentrations that may adversely affect some benthic species within the local area.</p>	<p>WQ-7: Implement WQ-3, plus additional BMPs to reduce the input of chemicals to the Bay from the marine terminal, including (at a minimum) (1) conducting all vehicle maintenance on land not over water or marshland, (2) berming all areas on the pier where maintenance activities are being conducted and cleaning up all spilled contaminants before berms are removed, (3) washing the surface of the pier to the extent practical and directing washwater into sumps, (4) maintenance of sumps, and (5) posting signs to educate all workers to the importance of keeping contaminants from entering the Bay.</p>	<p>These BMPs shall be detailed in a SWPPP that Shore shall prepared specifically for the marine terminal and submit to CSLC for approval.</p>	<p>Aggressive implementation of BMPs to reduce the input of chemicals to the Bay from operations on the wharf would reduce Shore's input of these chemicals.</p>	<p>CSLC</p>	<p>Prepare SWPPP within 12 months of lease implementation. Maintain SWPPP, update as necessary for life of lease.</p>
<p>WQ-9: Potential impacts on water quality can result from leaks or spills and result in significant, adverse impacts.</p>	<p>WQ-9: Implement OS-3a through OS-3d (Operational Safety/Risk of Upset).</p>	<p>See OS-3a through OS-3d.</p>	<p>See OS-3a through OS-3d.</p>	<p>See OS-3a through OS-3d.</p>	<p>See OS-3a through OS-3d.</p>
<p>WQ-10: A significant impact to water quality could result from leaks or an accidental spill of crude oil or oil product from a vessel spill along tanker routes either in San Francisco Bay or outer coast waters.</p>	<p>WQ-10: Shore Terminals shall implement mitigation measures OS-8a and OS-8b of the Operational Safety/Risk of Upset Section addressing potential participation in VTS upgrade evaluations, and Shore response actions for spills at or near the terminal.</p>	<p>See OS-8a and OS-8b.</p>	<p>See OS-8a and OS-8b.</p>	<p>See OS-8a and OS-8b.</p>	<p>See OS-8a and OS-8b.</p>

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**Table D-3
Biological Resources**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria`	Responsible Agency	Timing
<p>BIO-3: Loss of juvenile Dungeness crabs and young Chinook salmon would be significant if dredging occurs when juveniles are migrating through the area.</p>	<p>BIO-3a: Shore shall schedule dredging to avoid the month of September when juvenile Dungeness crabs are most abundant in the project area. In the event that, due to circumstances beyond lessee's control, dredging must occur in September (Dungeness Crab) or in months other than July and August (Chinook Salmon smolts) to maintain a depth for safe navigation and operation of the terminal, lessee shall consult with the Department of Fish and Game (DFG) regarding the potential effects of such dredging on juvenile Dungeness Crabs and Chinook salmon smolts. Such consultation may occur directly with DFG personnel in Region 3 or with DFG personnel during the consideration of lessee's application to the Dredged Material Management Office (DMMO). If the DFG concurs with dredging as proposed by the lessee, documentation of which shall be provided to Lessor, it shall be conclusively presumed that juvenile Dungeness Crabs and Chinook salmon smolts will not be significantly affected and dredging may proceed as provided herein and in conformance with mitigation and monitoring measures set forth in Exhibit D to this Lease.</p>	<p>Shore shall coordinate with the CSLC and U.S. Army Corps of Engineers (Corps) who are the dredging permit holders on the scheduling of dredging operations.</p>	<p>Reduces potential impacts to juvenile Dungeness crabs.</p>	<p>CSLC</p>	<p>Prior to dredging.</p>
	<p>BIO-3b: Shore shall schedule dredging in July and August when winter and spring-run Chinook salmon smolt activity is lowest.</p>	<p>Shore shall coordinate with the CSLC and the Corps, who are the dredging permit holders on the scheduling of dredging operations.</p>	<p>Reduces potential impacts to Chinook salmon smolt.</p>	<p>CSLC</p>	<p>Prior to dredging.</p>
<p>BIO-4: Invasive organisms/introduction of non-indigenous species in segregated ballast water released in the Bay could have significant impacts to plankton, benthos, fishes, and birds.</p>	<p>BIO-4: Implement WQ-2, in Water Quality, requires that Shore comply with the California Marine Invasive Species Act and the Ballast Water Management for Control of Non-indigenous Species Act.</p>	<p>See WQ-2.</p>	<p>See WQ-2.</p>	<p>See WQ-2.</p>	<p>See WQ-2.</p>

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**Table D-3 (Continued)
Biological Resources**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria`	Respon- sible Agency	Timing
<p>BIO-6: Oil spills could have significant adverse impacts on biological resources.</p> <p>The resources at the most immediate risk of oiling from a spill at the Shore marine terminal are Suisun Shoal, Hastings Slough/Point, Edith/Seal Island, Bulls Head Marsh/Pacheco Creek, Martinez Marsh, and Benicia Marsh. Depending on conditions at the time of the spill, these areas could be contacted within 3 hours of a spill at the Shore marine terminal.</p>	<p>BIO-6a: Implement all the mitigation measures included in OS-3 through OS-6 in Operational Safety/Risk of Accidents to either lower the probability of an oil spill or increase response capability.</p>	<p>See OS-3 through OS-6.</p>	<p>See OS-3 through OS-6.</p>	<p>See OS-3 through OS-6.</p>	<p>See OS-3 through OS-6.</p>
	<p>BIO-6b: Shore shall demonstrate to the satisfaction of the CSLC that Shore Terminals can successfully implement its Oil Spill Response Plan and can deploy within 3 hours all the boom necessary to simultaneously protect all the sensitive resources at risk of contact with oil from a spill at Shore terminal.</p>	<p>CSLC monitor to observe that Shore has the boom deployment capability.</p>	<p>Reduces spread of spill and damages to resources.</p>	<p>CSLC</p>	<p>Within 12 months of lease implementation.</p>
	<p>BIO-6c: Shore shall identify a source of sonic hazing devices to scare birds away from Suisun Shoal and demonstrate to the CSLC that these devices can be deployed within 3 hours of a spill at terminal.</p>	<p>CSLC monitor to observe that Shore has sonic hazing devices.</p>	<p>Reduces potential damages to birds.</p>	<p>CSLC</p>	<p>Within 12 months of lease implementation.</p>
	<p>BIO-6d: Procedures should be developed for clean up of any sensitive biological areas contacted by oil. In many oil spills, clean up has done at least as much damage as the spill itself. Decisions about clean up of sensitive areas should be made in consultation with biologists from CDFG and USFWS.</p>	<p>Shore shall develop and present plan for clean up to CSLC, CDFG and USFWS.</p>	<p>Reduces potential damage from oil spills. For large spills, significant impacts may remain.</p>	<p>CSLC, CDFG, and USFWS</p>	<p>Within 12 months of lease implementation.</p>
	<p>BIO-6e: If damage occurs, the last resort is restoration and compensation. Any loss of resources shall be documented as soon as possible after a large spill. The sampling methods and design should be determined beforehand, and the plan should include provisions for getting resources onsite as soon as possible so that post-spill studies can begin immediately.</p>	<p>Shore shall provide sampling methods and a design protocol plan to CSLC for review and approval.</p> <p>Shore shall provide documentation of damage as soon as possible after a large spill to CSLC, CDFG and USFWS.</p>	<p>This will ensure that the loss of resources is documented as soon as possible after a large spill event.</p>	<p>CSLC</p>	<p>Sampling methods and protocol within 12 months of lease implementation and update every 2 years.</p> <p>Documentation of damage as soon as possible after a spill.</p>
<p>BIO-7: A significant impact to biological resources could result from spills of crude oil or product from a vessel in transit along tanker routes either in San Francisco Bay or outer coast waters.</p>	<p>BIO-7: Implement OS-8a and OS-8b of the Operational Safety/Risk of Upset section addressing potential participation in VTS upgrade evaluations, and Shore response actions for spills at or near the terminal.</p>	<p>See OS-8a and OS-8b.</p>	<p>See OS-8a and OS-8b.</p>	<p>See OS-8a and OS-8b.</p>	<p>See OS-8a and OS-8b.</p>

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**Table D-4
Commercial Fisheries**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>FSH-2: Invasive species discharged from ballast water could impair water quality (Impact WQ-2) and biological resources (Impact BIO-4) would also impair commercial and sports fishing activities in the Bay and outer coast.</p>	<p>FSH-2: Implement WQ-2 for ballast water management.</p>	<p>See WQ-2.</p>	<p>See WQ-2.</p>	<p>See WQ-2.</p>	<p>See WQ-2.</p>
<p>FSH-3: Shore contributes incrementally to water quality contamination and thus fish contamination, which could result in a loss of fishing opportunities because anglers prefer to stay away from contaminated fishing areas.</p>	<p>FSH-3: Implement WQ-3 and WQ-7 for preparation of a SWPPP and additional BMP's.</p>	<p>See WQ-3 and WQ-7.</p>	<p>See WQ-3 and WQ-7.</p>	<p>See WQ-3 and WQ-7.</p>	<p>See WQ-3 and WQ-7.</p>
<p>FSH-4: Space use conflicts between transiting vessels serving the Shore marine terminal could occur if commercial shrimp trawlers operate 12 hours or more per day during the fishing season.</p>	<p>FSH-4: Shore Terminals shall notify the shrimp trawlers operating in Carquinez Strait of increases in vessel transits associated with terminal operations. In addition, Shore shall inform incoming vessel operators of shrimp trawling activities near the terminal.</p>	<p>Shore shall demonstrate to CSLC their activities by providing copies of notices.</p>	<p>Reduces Shore-bound vessels potential for conflict.</p>	<p>CSLC</p>	<p>Annual reporting for life of lease.</p>
<p>FSH-5: Space use conflicts between transiting vessels serving the Shore marine terminal and commercial herring operators could occur resulting in interference or displacement of herring fishing activities.</p>	<p>FSH-5: Shore Terminals shall notify the herring fishery during the herring season of vessel transits. Shore shall also participate in the Pacific herring commercial fishery annual public scoping and hearing process, part of CDFG's annual review of herring commercial fishing regulations. CDFG has the authority to modify or develop regulations to address space use conflicts between the fishery and Shore's operations.</p>	<p>Shore shall demonstrate to CSLC their activities by providing copies of notices.</p>	<p>Reduces the potential damage to the Pacific herring commercial fishery.</p>	<p>CSLC and CDFG</p>	<p>Annual reporting for life of lease.</p>

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**Table D-4 (Continued)
Commercial Fisheries**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>FSH-8: Significant impacts to commercial and sport fisheries in the Bay Estuary would result from oil spill accidents at Shore Terminals or from transiting tankers that service the terminal.</p>	<p>FSH-8a: Implement mitigation measures OS-3 through OS-6 in Operational Safety/Risk of Accidents, and mitigation measures BIO-6b through BIO-6d to lower the probability of oil spills and increase response capability.</p>	<p>See OS-3 through OS-6; BIO-6b through BIO-6d.</p>	<p>See OS-3 through OS-6; BIO-6b through BIO-6d.</p>	<p>See OS-3 through OS-6; BIO-6b through BIO-6d.</p>	<p>See OS-3 through OS-6; BIO-6b through BIO-6d.</p>
	<p>FSH-8b: Post notifications at spill sites and marinas, launch ramps and fishing access points to warn fishing interests of the locations of contaminated sites. Notices shall be written in English and Spanish and be posted in areas most likely to be seen by fishing interests.</p>	<p>CSLC monitor to observe notice postings.</p>	<p>Provides notification to local anglers of potential areas of contamination.</p>	<p>CSLC</p>	<p>Life of lease.</p>
	<p>FSH-8c: Provide financial compensation in accordance with the California Oil Spill Prevention and Response Act.</p>	<p>As per OSPR, to be commensurate with Shore's contribution of impacts.</p>	<p>Helps to fund programs for restoration or compensation.</p>	<p>OSPR</p>	<p>After a spill event, as warranted.</p>
	<p>FSH-8d: Contribute to independent public or private organizations acceptable to the CSLC, who evaluate the effectiveness of mitigation measures (results of the evaluation would be available to public decision-makers to ensure refinement, if necessary, modification of mitigation measures). Evaluation would be done only after an accident and would include monitoring using scientifically accepted protocols.</p>	<p>Shore shall demonstrate to CSLC their participation in relevant programs. Contributions would be determined by the level of impact and cooperation with the various organizations, agencies, and the CSLC.</p>	<p>Helps to develop more effective mitigation measures.</p>	<p>CSLC</p>	<p>Life of lease.</p>

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**Table D-5
Land Use**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria`	Responsible Agency	Timing
LU-3: Shoreline and water-related uses would be disrupted by oil on the shoreline and in the water and result in significant adverse impacts.	LU-3: Mitigation measures for spills at the Shore terminal would be the responsibility of Shore Terminals operations. Measures applies are those which are presented in other sections (Operational Safety/Risk of Upset; Water Quality; Biological Resources; and Commercial and Sport Fisheries).	Shore shall implement measures presented in Operational Safety/Risk of Upset; Water Quality; Biological Resources; and Commercial and Sport Fisheries.	Any residual impacts remaining after first response efforts would be considered to be significant impacts.	As per referenced measures.	As per referenced measures.
LU-4: Oil spills from vessels in transit through the Bay and outer coast could impact shoreline and water-related uses.	LU-4: Shore Terminals shall implement measures OS-8a and OS-8b in Operational Safety/Risk of Upset. Other mitigation measures for accidents in the shipping lanes would not be Shore Terminals responsibility, but would fall to the vessel operator/owner.	See OS-8a and OS-8b.	See OS-8a and OS-8b.	See OS-8a and OS-8b.	See OS-8a and OS-8b.

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**Table D-6
Air Quality**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria`	Responsible Agency	Timing
AQ-5: Tanker pumping, transit, and/or tug combustion emissions could allow for an increase in throughput at the marine terminal. Thus, future operational emissions (both indirect and direct) have the potential to exceed daily and yearly significance thresholds (existing permit limits).	AQ-5: Mitigation should be focused on the use of best available control technology (BACT) available at the time of any expansion of the upland facility. Increased operations would require additional permitting through the BAAQMD, which would set limitations on allowable emissions levels and require offsets as necessary.	Shore shall apply to abide by BAAQMD requirements for revisions to the existing permit or for new permitting.	Through the use of improved technology and BAAQMD requirements, the impact would be reduced to less than significant.	BAAQMD	At the time of increases in upland tankage capacity.

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**Table D-7
Visual Resources**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria`	Responsible Agency	Timing
<p>VR-2: Spills would change the color and texture of water and shoreline conditions. The visual impacts of a spill could last for a long period of time, depending on the level of physical impact and cleanup ability.</p>	<p>VR-2: Mitigation measures for oil spill impacts include those measures for contingency planning and response, as presented in Operational Safety/Risk of Upset and Biological Resources.</p>	<p>Shore shall implement measures presented in Operational Safety/Risk of Upset; Water Quality; Biological Resources; and Commercial and Sport Fisheries.</p>	<p>The measures provide for enhanced response capability and protection and would help to contain and cleanup small spills. Impacts may remain significant depending on the effectiveness of first response containment and clean-up.</p>	<p>As per referenced measures.</p>	<p>As per referenced measures.</p>
<p>VR-3: Spills would change the color and texture of water and shoreline conditions. The level of public sensitivity and expectations of viewers would result in a negative impression of the viewshed and result in significant impacts, depending on the various characteristics of a spill and its residual effects.</p>	<p>VR-3: Shore Terminals shall implement measures OS-8a and OS-8b in Operational Safety/Risk of Upset. Other mitigation measures for accidents in the shipping lanes would not be Shore Terminals responsibility, but would fall to the vessel operator/owner.</p>	<p>See OS-8a and OS-8b.</p>	<p>See OS-8a and OS-8b.</p>	<p>See OS-8a and OS-8b.</p>	<p>See OS-8a and OS-8b.</p>

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**Table D-8
Geotechnical Resources/Structural Stability**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria`	Responsible Agency	Timing
<p>GEO-2: The impact of berth dredging, natural scour or accumulation of soil in steep slopes near or adjacent to wharf piles should be considered in soil-structure interaction. In addition, liquefaction and lateral spreading resulting from any moderate earthquake may create a significant adverse impact.</p>	<p>GEO-2a: In the event that such scour has been noted, then Shore shall conduct additional analysis to evaluate the potential for lateral spreading. Loss of lateral support and laterally induced additional loads should be incorporated into the overall analysis and/or design. This analysis should be conducted concurrently with a site specific liquefaction analysis (see Impact GEO-3).</p>	<p>CSLC monitor to review and approve analysis recommendations and corrections.</p>	<p>Reduces potential for lateral spreading.</p>	<p>CSLC</p>	<p>Within 12 months of lease implementation.</p>
	<p>GEO-2b: Seismic evaluation of the structures and their foundations should be included in the structural analysis and geotechnical investigation in compliance with Section 6 of the proposed MOTEMS. The results and recommendations of the evaluation shall be coordinated with the mooring analysis recommendations and implementation of corrections (see GEO-10).</p>	<p>CSLC monitor to review and approve analysis recommendations and corrections.</p>	<p>Reduces potential for damage to wharf by implementation of corrections.</p>	<p>CSLC</p>	<p>Within 12 months of lease implementation.</p>
<p>GEO-3: The site has not had an industry standard liquefaction evaluation performed. As such, the potential for impacts from seismically induced settlement are unknown but potentially significant.</p>	<p>GEO-3: Shore shall comply with the proposed MOTEMS. As such, a site specific liquefaction evaluation shall be required to be completed within 6 months after start of the lease. The results and recommendations of the evaluation shall be coordinated with the mooring analysis recommendations and implementation of corrections (see GEO-10).</p>	<p>CSLC monitor to review and approve recommendations and corrections.</p>	<p>Reduces potential damage to structure from liquefaction.</p>	<p>CSLC</p>	<p>Within 6 months of lease implementation.</p>

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**Table D-8 (Continued)
Geotechnical Resources/Structural Stability**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria`	Responsible Agency	Timing
<p>GEO-4: Shore operators may not have adequate warning time to allow a vessel to depart from the wharf to avoid damage to the vessel and/or the wharf from a tsunami.</p>	<p>GEO-4a: As soon as possible, after notification of a tsunami, Shore operators shall release the vessel from its mooring and the vessel shall move away from the wharf.</p>	<p>Shore shall report to CSLC after a tsunami event.</p>	<p>Reduces damage to wharf and vessels from tsunami events.</p>	<p>CSLC</p>	<p>After a tsunami event.</p>
	<p>GEO-4b: Shore shall comply with Section 5 of the proposed MOTEMS mooring analysis (see GEO-10).</p>	<p>See GEO-10.</p>	<p>See GEO-10.</p>	<p>See GEO-10.</p>	<p>See GEO-10.</p>
<p>GEO-8: During an earthquake damage could occur in the batter pile to bent cap connections and could damage the trestle.</p>	<p>GEO-8: Shore shall re-evaluate the loads on the bents, check the batter pile bolted connections, and adopt corrective measures.</p>	<p>Shore shall submit evaluation to CSLC for review, and schedule and implement any required corrections.</p>	<p>Reduces potential for damage due to poor batter pile bolted connections.</p>	<p>CSLC</p>	<p>Within 12 months of lease implementation.</p>
<p>GEO-9: The anchor bent batter pile to bent cap bolts are not capable of transmitting the predicted transverse seismic loads and could fail during an earthquake resulting in a significant adverse impact. The bolted connection in the anchor pile bents could result in loss of support for the petroleum lines and potentially initiate an oil spill.</p>	<p>GEO-9: The loads in the anchor bents should be re-evaluated and batter pile connections checked within 1 year. The anchor bents' inadequacy should be addressed and corrective measures implemented within 2 years.</p>	<p>Inspection by CSLC monitor to approve corrections.</p>	<p>Reduces potential for damage and oil spills.</p>	<p>CSLC</p>	<p>Timing as stated in measure.</p>

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**Table D-8 (Continued)
Geotechnical Resources/Structural Stability**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria`	Responsible Agency	Timing
GEO-10: The last mooring analysis used data from sites nearby that may not reflect actual wharf conditions. There could be impacts associated with berthing and mooring capacity under actual currents, tides and winds, with the potential for oil releases.	GEO-10a: Shore shall collect 12 months of data on currents, tide levels, and wind speed/direction at the wharf.	Shore shall submit data to CSLC.	Provides knowledge of the conditions proximate to the terminal.	CSLC	Within 12 months of lease implementation.
	GEO-10b: If data analysis shows that currents, tides and wind speeds are significantly different (as assessed by CSLC) from that assumed in the previous analysis, Shore shall conduct a new mooring analysis consistent with the proposed MOTEMS Section 5 requirements.	Shore shall submit mooring analysis report to CSLC. Determine with CSLC schedule for any required corrections.	Reduces potential for damage to wharf and vessels.	CSLC	Within 12 months of lease implementation.
	GEO-10c: Shore shall conduct a passing vessel study for vessels navigating within 500 feet of the wharf, as per MOTEMS requirements.	Shore shall submit report to CSLC. Determine with CSLC schedule for any required corrections.	Reduces potential for damage to wharf and vessels.	CSLC	Within 12 months of lease implementation.
GEO-11: Pipeline stresses on the 30-inch pipeline in relation to movement of the loading platform and trestle, and on the pipeline expansion loop support interface along the trestle are unknown. The potential may exist for damage to the pipeline and oil leaks.	GEO-11a: Shore shall conduct a pipeline analysis on the 30-inch pipeline and the pipeline loop.	Shore shall submit pipeline analysis to CSLC for review, and schedule and implement any required corrections.	Reduces potential for damage to pipeline or trestle.	CSLC	Within 6 months of lease implementation.
	GEO-11b: Shore shall ensure that all pipelines for oil transfer meet MOTEMS and CSLC regulations in CCR Title 2, Division 3, Chapter 1, Article 5.5, Sections 2564 through 2570 for ensuring pipeline integrity.	CSLC to provide oversight by periodic inspections.	Assures pipeline integrity.	CSLC	Life of lease.

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**Table D-9
Environmental Justice**

Impact	Mitigation Measure	Monitoring/ Reporting Action	Effectiveness Criteria`	Responsible Agency	Timing
<p>EJ-1: Overall water quality, biological, and commercial and sport fisheries impacts would affect resources used by the entire Bay community, whether or not they are minority or low-income, and would therefore not have a disproportionate impact on a minority of low-income population, except for sport fisheries.</p>	<p>Should an oil spill from Shore Terminals extend beyond .5 mile from the terminal and preclude sport fishing activities for more than two days, Shore Terminals shall contribute either funds or food stuffs to a local food bank in an amount sufficient, as determined in conjunction with the CSLC, to replace food sources that would have been supplied by fishing activities within the affected areas.</p>	<p>Shore shall contribute funds or food stuffs to be determined in conjunction with the CSLC as per the mitigation measure.</p>	<p>Reduces impacts by replacing food sources.</p>	<p>CSLC</p>	<p>After an oil spill.</p>

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EXHIBIT E – SHORE TERMINALS STATEMENT OF OVERRIDING CONSIDERATIONS

The CSLC adopts this Statement of Overriding Considerations with respect to the impacts identified in the final EIR that cannot be reduced, with application of all feasible mitigation, to a level of insignificance for routine operations and accidental oil spills. Impacts of routine operations include ballast water discharge and use of marine anti-fouling paints that effects water quality, marine biota, and fisheries. Accidental oil spills greater than 50 bbl from hydrocarbon transfers at the Terminal, hydrocarbon releases from tankers or barges in route to the Terminal, and their effects on water quality, biological resources, fisheries, visual resources, and land use/recreational resources are within this category.

The CSLC hereby finds that the provision of a lease to Shore Terminals LLC (Shore Terminals) to continue its marine terminal operations will have numerous benefits to the State of California (State) and the region served by the Terminal.

The following material is excerpted from "Integrated Energy Policy Report" (2003. Publication # 100-03-019F/ pages 16-18) adopted by the California Energy Commission (CEC):

California has two distinct refining centers, one in Northern and one in Southern California. In the S.F. Bay Area, the marine petroleum infrastructure, concentrated in the northeastern parts of the Bay -- Richmond, San Pablo Bay and the Carquinez Strait, handles nearly 40 percent of the State's total refinery production capacity of two million barrels per day. Since no pipelines connect these two key refining centers, reliance on coast barges to move petroleum products between them demands more of existing marine infrastructure requirements.

Tankers, carrying an average volume of 275,000 barrels per vessel, are an important source of petroleum product supply to California as is Shore's contribution. For the period 1999 to 2002, throughput for the Shore marine terminal, governed by the upland storage capacity, ranged from 15 million to 26 million barrels per year (bpy).

Since 1996, consumer demand has grown faster than the California petroleum refining capacity, which has grown an average 1.5 percent per year. Northern California refineries and terminals provide roughly 55 million barrels of storage capacity, Southern California, roughly 61 million barrels. An estimated 1.4 million barrels of capacity expansion are in various stages of planning and construction in California, all of which have been undertaken through existing permits. Preserving existing facilities that currently meet all environmental requirements is paramount. Even with these new projects the state's petroleum product infrastructure may be inadequate, and future constructions of additional storage could require extensive environmental assessment and time.

Shore Terminals is an independent, privately owned transshipper of crude oil and petroleum products, which has operated its Martinez Marine Terminal since 1974 and currently employs fifteen (15) people. Shore Terminals operates the marine terminal and storage facilities in an industrial area of the city of Martinez and, in 2004, paid \$555,482 in property taxes to Contra Costa County. Shore Terminals owns none of the product that is transshipped through this facility, but warehouses for customers to store and transport petroleum to and from the site. Shore Terminals leases storage to various companies who use vessels and pipelines to deliver and ship out crude oil and products. The primary service area for this facility is the San Francisco Bay-Sacramento region.

The Shore Martinez Terminal serves adjacent refineries and forms part of the logistical chain associated with refinery inbound and outbound shipments. This activity would not change during the proposed lease period. Inbound marine shipments of crude are expected to continue because the development of new inland crude sources within California, such as Bakersfield, to replace marine shipments is not expected. Refinery storage needs for refined products are also expected to continue. Accordingly, Shore Terminals projects that crude and refined products will continue to be stored and handled at the terminal in approximately the same quantities and ratios as they are now.

If the lease for the Marine Terminal were not granted, other area marine terminals would be required to provide access to the region's energy infrastructure to tankers that are currently served by Shore Terminals in order to continue to meet future growing regional refining demands. It is possible that such action could tax the capacity of the other terminals, causing congestion at the terminals and/or increases in pumping rates, which in turn would increase the risk of significant leaks/spills. In addition, with no marine terminal, the Shore upland facility would continue to operate to store hydrocarbons, but only via pipelines. If this were to occur, the upland facility would be underutilized, which would exacerbate the insufficiency of the petroleum storage capacity of the region, contrary to the needs recognized by the CEC.

If, due to the loss of the marine terminal, it became uneconomical to operate the upland facility, direct and indirect consequences could result locally and regionally if no other operator would be willing or able to replace the functions of Shore's operations. The shortage of tankage capacity could result in regional hydrocarbon shortages and higher gasoline prices.

The CSLC further finds that all mitigation measures identified in the final EIR have been imposed to avoid or lessen impacts to the maximum extent feasible and, furthermore, finds that the No Project Alternative and the other alternatives: Increased Use of Existing Pipelines for Continued Operation of Upland Facility Alternative, and Modification to Existing Pipelines for Continued Operation of Upland Facility Alternative, are infeasible because they: 1) only partially offset significant impacts; 2) potentially transfer environmental impacts to other marine terminal locations in the region; 3) do not provide beneficial impacts; 4) do not meet the objectives of the Project; or 5) have

adverse, potentially significant social and economic consequences locally and regionally.

Based on the above discussion, the CSLC finds that the benefits of the Proposed Project outweigh the unavoidable adverse environmental effects, and considers such effects acceptable.