Minute Item
02

04/09/07
W 25941
W 30151
M. Hays
D. Sanders

BHP BILLITON LNG INTERNATIONAL, INC. (APPLICANT)

Regular Item 02: The Commission listened to staff reports from various state and federal agencies and BHP Billiton. After hearing testimony from elected officials and concerned citizens the Commission voted on the item as follows:

The State Lands Commission, by a 2-1 vote, voted to not certify the final Environmental Impact Report and to deny a lease for the BHP Liquified Natural Gas terminal proposed off Oxnard/Malibu.

CALENDAR ITEM
02

A 37, 38, 41

S 17, 19, 23

04/09/07
W25941
W30151
M. Hays
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CONSIDER CERTIFICATION OF A FINAL ENVIRONMENTAL IMPACT REPORT (FINAL EIR) AND THE ISSUANCE OF A GENERAL LEASE – RIGHT OF WAY USE

APPLICANT:
BHP Billiton LNG International, Inc.
1360 Post Oak Boulevard, Suite 150
Houston, TX 77056

AREA, LAND TYPE, AND LOCATION:
126.61 acres, more or less, of sovereign lands in the Pacific Ocean, offshore of Ormond Beach, Ventura County as described on Exhibit C. The area, as described, includes the temporary construction work area.

AUTHORIZED USE:
Construction, operation, use and maintenance of two 24-inch diameter pipelines for the transport of natural gas.

LEASE TERM:
Beginning on April 9, 2007, and continuing until April 8, 2039, or 30 years from the date construction on the leased lands begins, whichever is earlier..

CONSIDERATION:
Base Rent: Base Rent of $155,000 for the first year, with rent each year thereafter adjusted upward by application of the Consumer Price Index (CPI), subject to the provision that the adjusted annual rent would never be lower than the base rent. This CPI adjustment would continue until the tenth anniversary of the lease, when a new base rent may be established.

Temporary Construction Rent: In addition to the Base Rent, a monthly rent in the amount of $36,000 for the use of the temporary construction area during the construction phase on the Lease Premises.

SPECIFIC LEASE PROVISIONS:
Insurance:
Liability Coverages: over $1,000,000,000 in Aggregate

Bonds (Non-Cancellable) :	
Surety -	$ 8,000,000
Construction Performance -	$47,000,000
Mitigation Monitoring Performance -	$ 2,000,000
Revegetation/Reclamation Performance -	$ 1,000,000
Parent Guarantee Agreement:	BHP LTD, Australia to provide a parent guarantee for the performance of the lease obligations of its subsidiary, BHP Billiton LNG International, Inc.

BACKGROUND INFORMATION:

I. PROJECT DESCRIPTION

A. LIQUIFIED NATURAL GAS:

Liquefied natural gas (LNG) is natural gas that, when cooled to a temperature of approximately minus 260°F, condenses into a liquid. Once the natural gas is converted to a liquid form, it can be shipped in specially designed refrigerated ships and delivered to ports equipped with specialized facilities. The LNG is then re-gasified and distributed to customers through pipelines in the same manner as any other natural gas. The considerable costs associated with processing and transporting LNG have previously made it an expensive source of fuel. However, evolving technology has reduced the costs for both liquefaction and transportation. Such lower cost, together with substantially increased prices that the natural gas market has seen in recent years, have made LNG a more viable delivery option.

B. PROPOSED PROJECT

Under the Applicant's proposal, LNG would be imported into California from overseas with the expected primary source to be gas fields off northwestern Australia. Once the natural gas is extracted, it would then be chilled through a liquefaction process at the export location. The LNG would then be loaded onto tank vessels owned and operated by the Applicant and transported to California.

Upon arrival offshore California in Federal waters, the LNG tank vessels would be moored alongside the Floating Storage and Regassification Unit (FSRU), approximately 12 nautical miles offshore in the Pacific Ocean as shown on Exhibit D. The LNG would be offloaded and stored in three Moss tanks aboard the FSRU. In order to regasify the LNG for delivery to market, the LNG would be sent from the Moss tanks through a closed, high-pressure piping system submerged in a tank of warm water on the FSRU.

The regasification tank would contain only fresh water warmed by burners fueled with boil-off gas from the delivered LNG. Once re-vaporized, the natural gas would then be transferred to shore via pipelines.

The natural gas would be transported to shore via two 24-inch diameter subsea pipelines. These two pipelines would be approximately 23 miles in length and would cross approximately 4.53 miles of State sovereign land as shown on Exhibit B. These two subsea pipelines would be directly laid approximately 100 feet apart on the ocean floor below the FSRU and would come to shore at Ormond Beach.

Utilizing horizontal directional boring (HDB) technology, approximately 4,265 feet of the near shore portion of the pipelines would be buried between 50 and 75 feet below the ocean bottom. The two subsea pipelines would come ashore and extend beneath the beach at a depth of approximately 50 feet to the endpoint at the proposed metering station located on the grounds of the Reliant Energy Generating Station at Ormond Beach and from the metering station connect with the Southern California Gas Company's (SoCalGasCo) natural gas pipeline system.

At the metering station, ownership of the natural gas would pass from the Applicant to SoCalGasCo. The gas would be transferred to a new 36-inch diameter pipeline that would be built between the Reliant metering station and the existing Center Road Valve Station. This new 36-inch pipeline would run north from the Reliant plant to Hueneme Road, run east along the South side of Hueneme Road for approximately two miles and then proceed in a generally northerly direction across land lying to the east of the city of Oxnard to the Center Road Station. This new pipeline, while paid for by the Applicant, would be constructed, owned and operated by SoCalGasCo as part of its existing natural gas pipeline network.

A second pipeline, approximately 7.71 miles in length, would be built in the city of Santa Clarita between the Honor Rancho Valve Station and the Quigley Valve Station. The purpose of this 30-inch diameter pipeline would be to ensure that deliveries of new natural gas from the proposed Project to the Los Angeles basin are not constrained by deliveries in existing pipelines between the San Joaquin Valley and Los Angeles. As with the onshore pipeline in Ventura County, this pipeline would be paid for by the Applicant and constructed, owned and operated by SoCalGasCo.

Although the onshore pipelines would be constructed, owned and operated by SoCalGasCo, both SoCalGasCo and the Applicant have agreed that neither would seek reimbursement of those construction costs through increased gas rates. SoCalGasCo would not pay the Applicant for the onshore facilities, so there would be no costs to pass on. Furthermore, SoCalGasCo has agreed to buy the natural gas that would be delivered by the Applicant's proposed Project at market rate; i.e., at the rate it would pay for similar gas from any source, without any premium for having it delivered through the Project. The cost to State consumers of the natural gas passing through the Project

would therefore be comparable to the cost for natural gas delivered by any other means. If the Applicant were to ask a higher price for its natural gas, it would not be competitive, and potential buyers would likely seek competing suppliers.

The Applicant is willing to pay for the cost of construction for the onshore pipelines because the Applicant's stated purpose of the Project is to provide a means of delivering to market the natural gas it is producing from fields off northwestern Australia. The Applicant may use the proposed Project to deliver gas from other sources, but the stated purpose for its construction is to deliver the Applicant's own gas production to buyers in California. The cost of the proposed Project would be borne by the Applicant as a cost of marketing and delivery.

The delivery of the natural gas through the pipelines and to SoCalGasCo's existing network would essentially be the same as any other natural gas in the State. The fact that the natural gas was once in a liquid state, in and of itself, does not give rise to any differences, once re-vaporized, between it and other natural gas produced in or delivered into the State through traditional means.

C. ACTION REQUESTED OF THE COMMISSION

In order to carry out the proposed Project, the Applicant will need a right of way across State-owned sovereign lands for construction, use, operation and maintenance of the two proposed 24-inch pipelines. While the 4.53-mile long right of way is just a small portion of the overall Project, it is essential. The natural gas cannot be brought ashore from the FSRU at this location without use of pipelines crossing State-owned lands. Since the right of way is a property interest that the Applicant needs before obtaining other State and local permits, the Commission is also serving as Lead Agency for purposes of the California Environmental Quality Act (CEQA). Two actions are therefore required of the Commission: 1) determine whether to certify that the Final Environmental Impact Report (EIR) prepared for the proposed Project fully conforms to the requirements of the CEQA, and 2) determine whether to approve issuance of the lease for the right of way. Pursuant to Section 6501.2 of the Public Resources Code and Article 2, Section 2000(b) of the California Code of Regulations, the Commission must consider whether issuance of the lease the terms thereof are in the best interests of the State.

II. THE ENVIRONMENTAL IMPACT REPORT (EIR)

Because the Project requires approvals from Federal, State and local governmental entities, both an EIR under CEQA and an environmental impact statement (EIS) under the National Environmental Protection Act (NEPA) are required. The United States Coast Guard (USCG) and Maritime Administration (MARAD) are acting as lead agencies under NEPA. In order to facilitate the review, the Commission, the USCG and

MARAD agreed to prepare jointly a combined EIS/EIR. As indicated above, the Commission must now determine if the EIR meets the requirements of the CEQA.

A. ENVIRONMENTAL PROCESS/PUBLIC PARTICIPATION – FEBRUARY 2004 TO MARCH 2007

Preparation of the October 2004 Draft EIS/EIR began on February 3, 2004. A Notice of Intent/Notice of Preparation (NOI/NOP) was provided to the California State Clearinghouse for release on February 24, 2004, and was published in the Federal Register (Vol. 69, No. 39) on February 27, 2004. During the scoping period, which ended on March 31, 2004, MARAD, the USCG and the Commission held three open houses and three scoping meetings: two in Oxnard on March 15, 2004, and one in Malibu on March 16, 2004. All scoping meetings were held in wheelchair-accessible sites, and the NOI/NOP provided information for requesting special accommodations for the scoping meetings, such as simultaneous Spanish translation. The informal open house format allowed meeting participants to review displays, maps, and literature and to meet agency staff, members of the EIS/EIR project team, and the Applicant's personnel for one-on-one discussions. Repositories were provided to receive written comments. Approximately 305 persons attended the scoping meetings and open houses in Oxnard and Malibu.

Due to the number of Spanish-speaking residents in the Project area, fact sheets and other information about the proposed Project were provided in both English and Spanish throughout the scoping process. The Project public-access website (http://www.cabrilloport.ene.com) includes English and Spanish versions of the NOI/NOP and related information regarding the proposed Project, LNG, the Deepwater Port Act (DWPA), and the open houses and scoping meetings. Spanish-speaking individuals were available at all three open houses and scoping meetings for participants who required translations, and literature provided at the open houses was available in both English and Spanish. Several participants made public, oral comments in Spanish, which the Spanish-speaking EIS/EIR Project team translated and recorded.

In addition to comments received during these scoping meetings, the USCG and the Commission received more than 150 electronic-mail messages, postcards, and letters from elected officials, agencies, organizations, and private citizens.

On October 29, 2004, the USCG submitted the October 2004 Draft EIS/EIR to the United States Environmental Protection Agency (USEPA) for inclusion in the Federal Register, and the Commission submitted a Notice of Completion and the Draft EIS/EIR to the State Clearinghouse. On November 5, 2004, the Notice of Availability was published in the Federal Register (Vol. 69, No. 214). The public comment period initiated by the Notice of Availability (45 days) and Notice of Completion (52 days) ended on December 20, 2004. In addition to the USEPA headquarters and the State

Clearinghouse, copies of the EIS/EIR were distributed to Federal, State, and locally elected officials; Federal and State agencies, regional regulatory boards, local planning staffs, and the public.

The following list summarizes examples of the types of public communication activities conducted by the USCG, MARAD, and the Commission:

- Mailed more than 1,330 postcards announcing the availability of the October 2004 Draft EIS/EIR and the dates for the public meetings and open houses;

- Mailed the Notice of Availability, scoping meetings, and open houses announcement to 981 interested parties;

- Published paid advertisements in local newspapers: the Malibu Surfside News; the Malibu Times; the Signal (Santa Clarita); the Ventura County Star (Notice published in English and Spanish); and Vida Newspaper (a bilingual Spanish and English newspaper distributed in Ventura County);

- Posted the October 2004 Draft EIS/EIR on the Commission and Project public-access websites.

Due to the number of Spanish-speaking residents in the Project area, fact sheets and other information about the proposed Project were provided in both English and Spanish. The October 2004 Draft EIS/EIR was translated into Spanish and was available to anyone who requested it.

During the comment period, the USCG, MARAD, and the Commission held four open houses and four public meetings:

- One open house and one public meeting in Santa Clarita at the City Council Chambers on November 29, 2004;

- Two each in Oxnard at the Performing Arts Center on November 30, 2004; and

- One each in Malibu at the Webster Elementary School on December 1, 2004.

The format of the informal open houses allowed meeting participants to review displays, maps, and literature and to meet agency staff, members of the EIS/EIR Project team, and the Applicant's personnel for one-on-one discussions. Approximately 676 persons attended the public meetings and open houses in Santa Clarita, Oxnard, and Malibu, and 195 people gave oral comments at these meetings.

All public meetings were held in wheelchair-accessible sites, and the Notice of Availability provided information for requesting special meeting accommodations, such as simultaneous Spanish translation. No one requested simultaneous Spanish translation services for these public meetings. Spanish-speaking individuals were available at all four open houses and public meetings for participants who required translations, and literature provided at the open houses was available in both English and Spanish.

In addition to the 195 people who gave oral comments during the public meetings on the October 2004 Draft EIS/EIR, the USCG and the Commission received more than 500 electronic-mail messages, postcards, and letters from elected officials, agencies, organizations, and private citizens on the October 2004 Draft EIS/EIR. All of the comments received during the scoping process and comment period for the October 2004 Draft EIS/EIR were reviewed by the lead agencies, and the March 2006 Revised Draft EIR (and the Final EIR) addresses environmental issues raised by public comments during the review period for the October 2004 Draft EIS/EIR. Table 1.4-1 at the end of Chapter 1 of the Final EIR identifies the sections of this document where the issues are addressed.

The State CEQA Guidelines Section 15088.5(a) states, "A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review under Section 15087 but before certification." As State lead agency, the Commission determined that the Project modifications and potential impacts thereof constituted "significant new information" as defined in the State CEQA Guidelines § 15088.5(b). However, MARAD and the USCG determined that there was not a need to recirculate the Draft EIS under NEPA. Therefore a Revised Draft EIR was published in March 2006.

On March 13, 2006, the Commission submitted a Notice of Availability and the Revised Draft EIR to the California State Clearinghouse. The public comment period initiated by the Notice of Availability (45 days) was subsequently extended and ended on May 12, 2006. In addition to the USEPA headquarters and the State Clearinghouse, copies of the Revised Draft EIR were distributed to Federal, State, and locally elected officials and agencies; regional regulatory boards; local planning staffs; and the public. A Spanish translation of the Revised Draft EIR was published and made available upon request.

The following list summarizes examples of the types of public communication activities conducted by the USCG, MARAD, and the Commission:

- Mailed more than 2,600 postcards announcing the availability of the March 2006 Revised Draft EIR and the dates for the public meetings;

- Published paid advertisements in local newspapers announcing the availability of the March 2006 Revised Draft EIR and the dates for the public meetings: the Malibu Surfside News, The Malibu Times, The Signal (Santa Clarita), the Ventura County Star (Notice published in English and Spanish), and Vida Newspaper (a bilingual Spanish and English newspaper distributed in Ventura County); and

- Posted the Revised Draft EIR in both English and Spanish on the Commission and Project public-access websites.

During the public comment period, the Commission held four public meetings attended by the USCG and MARAD, as follows:

- One in Santa Clarita at the Santa Clarita Activities Center, Santa Clarita Room, on April 17, 2006;

- One in Malibu at the Malibu High School on April 18, 2006; and

- Two in Oxnard at the Performing Arts Center, Oxnard Room, on April 19, 2006.

More than 1,000 persons attended the public meetings in Santa Clarita, Malibu, and Oxnard, and 214 people gave oral comments at these meetings.

All public meetings were held in wheelchair-accessible sites, and the Notice of Availability provided information for requesting special meeting accommodations. Simultaneous Spanish translation services were provided for the Oxnard public meetings in response to the request of the Oxnard City Manager's Office. Spanish-speaking individuals were available at all four public meetings for participants who required translations, and literature provided at the public meetings was available in both English and Spanish

The Commission received more than 500 electronic-mail messages, postcards, and letters from elected officials, agencies, organizations, and private citizens on the March 2006 Revised Draft EIR.

All of the comments received during the comment period for the March 2006 Revised Draft EIR were reviewed by the lead agencies, and the Final EIR identifies and addresses environmental issues raised in the comments. Table 1.4-1 at the end of Chapter 1 of the Final EIR summarizes the issues that were raised by public comments during the review period for the March 2006 Revised Draft EIR and identifies the sections of this document where the issues are addressed. Responses to all comments on the March 2006 Revised Draft EIR (and the October 2004 Draft EIR/EIS) are provided in Volume IV of the Final EIR.

B. PREDOMINANT ENVIRONMENTAL ISSUES AND COMMENTS ON THE MARCH 2006 DRAFT EIR.

1. Air Quality

Ambient air quality and air pollutant emissions from stationary and mobile sources are managed under a framework of Federal, State, and local rules and regulations. The USEPA is the principal administrator responsible for overseeing enforcement of the Federal Clean Air Act (CAA) and implementing regulations. The California Air Recourses Board (CARB) is the primary administrator for the State's air pollution and air quality management rules and regulations. The Ventura County Air Pollution Control District (VCAPCD) is the administrator of Ventura County air pollution rules, and the South Coast Air Quality Management District (SCAQMD) is the administrator of air pollution rules for the South Coast Air Basin, which includes the non-desert portion of Los Angeles County.

Project-related activities that would occur onshore within Ventura County or the South Coast Air Basin would be subject to all pertinent Federal and State regulations, as well to the applicable VCAPCD or SCAQMD air pollution rules. The administration of air quality regulations and permits for Project activities in Ventura County and Los Angeles County would be under the jurisdiction of the VCAPCD and the SCAQMD, respectively.

Pursuant to the Deepwater Port Act, the USEPA has jurisdiction to administer air quality regulations and issue required air quality permits for applicable Project activities that occur outside of the seaward boundaries of California counties, including operation of the FSRU. The Deepwater Port Act deems the law of the "nearest adjacent coastal state" to be Federal law and requires it to be applied to the deepwater port "to the extent applicable and not inconsistent with any" Federal law or regulation (33 U.S.C. § 1518(b)). Thus, in addition to enforcing the CAA, the USEPA is required to apply the applicable law of California with respect to air pollution control when issuing air permits for deepwater ports. California has created local air pollution districts and, pursuant to California Health & Safety Code, Division 26, Part 3, each district establishes and enforces local air pollution control regulations to attain and maintain all State and Federal ambient air quality standards. To apply the applicable law of California with respect to air pollution therefore requires determination of the appropriate air pollution control district. For purposes of the Project, the USEPA has determined that the VCAPCD portion of the California State Implementation Plan (SIP) contains the applicable air permitting regulations. The FSRU would be located 12.01 NM (13.83 miles or 22.25 km) offshore the mainland of Ventura County.

In an action that has generated controversy, the USEPA proposes to permit Cabrillo Port in the same manner as sources in the federal attainment area would be permitted, i.e., in the same manner as stationary sources on the Channel Islands. Under current

federal law, mobile emission sources, such as the LNG carriers, tugs and supply boats, are not regulated.

Several of the Channel Islands are in the geographic jurisdiction of Ventura County. The USEPA further concludes, "Because EPA is permitting the FSRU in the same manner as sources in the federal attainment area, the emission units onboard the FSRU are not subject to the provisions of Rule 26.2" (USEPA 2006b). VCAPCD Rule 26 outlines new source review (NSR) requirements and the applicability of requirements to offset relevant emission types should they reach prescribed levels.

In September 2005, the VCAPCD staff concurred with the USEPA's interpretation of VCAPCD Rule 26 that exempted the Project from emission offset and best available control technology (BACT) requirements. However, the VCAPCD has since changed its position on the applicability of VCAPCD Rule 26 (primarily on the exemptions listed under VCAPCD Rule 26.3) and now disagrees with the USEPA's interpretation of Rule 26.

In November 2006, the VCAPCD issued a letter to USEPA Region 9 that objects to the USEPA's Statement of Basis for the Proposed CAA Permit as it relates to NSR. The letter concludes, "...based on the information and analysis above, the APCD is now of the opinion that Rule 26.2 (the requirements including Best Available Control Technology and emission offsets) applies to the proposed Cabrillo Port project..." and "...on November 14, 2006, the Ventura County Air Pollution Control Board went on record as strongly supporting the current APCD staff interpretation that Rule 26.2 applies and Rule 26.3 does not apply to the Cabrillo Port project..." (Villegas 2006). The boundaries of the Ventura County APCD are coincident with the area contained in Ventura County (1845 square miles) and Anacapa and San Nicolas Islands, which are "unclassified/attainment" and part of Ventura County.

The document takes special note of the above regulatory disagreement and states, "However, the lead agencies have confirmed that regardless of whether Rule 26.2 applies, all Project emissions have been properly quantified and disclosed in this document. Additionally, as has been stated throughout the document, any MARAD license issued would contain conditions requiring compliance with all applicable Federal, State, and local laws, which could include VCAPCD Rule 26.2, if the USEPA determines that it is applicable."

In addition, by a memorandum of October 4, 2005, to Commission staff, the staff of the California Air Resources Board (CARB), indicated, "It is the position of the ARB staff that it has jurisdiction within California Coastal Waters as discussed in the documents, 'Report to the California Legislature on Air Pollutant Emissions from Marine Vessels, June 1984, Volume 7, Appendix H and Appendix J'." The staff of CARB further indicated that, "With the proposed LNG project, vessel emissions of visiting tankers are direct emissions. These emissions must be counted in determining the impact of the

proposed project and whether the impact has the potential to have a significant adverse affect on air quality." California Coastal Waters at the project location extend approximately 90 nautical miles offshore and in which, as determined by the CARB, any "..emissions that are released, are transported on-shore."

The memorandum advised the staff of the Commission that, "For purposes of this project, ARB staff believes it is appropriate to mitigate emissions that occur within 24 nautical miles of the California mainline coastline. We believe this will address the majority of emissions from this project and maximize the potential on-shore benefits." The analysis of air quality within the March 2006 Revised Draft EIR is consistent with the above guidance.

While offsets to Project emissions are not required under the above described regulatory determination of the USEPA, the Applicant has reached an agreement with the USEPA to "offset" the NO_x emissions associated with the operations of the FSRU and a carrier offloading its cargo, which are regarded as a stationary source as the FSRU will be anchored at the proposed location 12.01 nautical miles offshore. The Applicant has submitted an emissions reduction program, which it believed, in combination with modifications to the proposed Project described below, would provide sufficient emission reductions to compensate for all offshore NO_x emissions of the proposed Project (FSRU and off-loading carrier, as well as emissions of the LNG carriers within California Coastal Waters and the tugs and service vessel associated with FSRU operations) to the USEPA and the CARB for their analysis.

Subsequent to the release of the March 2006 Revised Draft EIR, the Applicant proposed the following modifications to reduce the emissions associated with the proposed Project:

- Reduction in the Number of LNG Carriers and Change in Crew Vessel Trips: The number of dockings is reduced and would range from 65 to 99 per year, depending on the size of the LNG carriers that are used. Previously the Applicant had proposed up to 130 LNG carrier dockings per year. Since a crew vessel would be present during the berthing and deberthing of every LNG carrier, crew vessels would travel twice from Port Hueneme to Cabrillo Port for each LNG carrier docking;

- Use of Natural Gas to Power LNG Carriers in California Coastal Waters: LNG carriers that would operate in California Coastal Waters, as designated by the CARB, instead of only within 24 NM of the coastline as endorsed by the staff of the CARB, would be fueled with a 99 percent natural gas/1 percent diesel mixture; and

- Diesel-Fueled Support Vessels with Emission Controls: Instead of fueling tugboats and the crew/supply vessel with LNG during Project operations, the

Applicant would use diesel engines equipped with air pollution control technology that would reduce emissions of carbon monoxide, oxides of nitrogen, and reactive organic compounds below levels that would have resulted from the use of natural gas-fueled engines.

The analyses of the emission reduction package by the USEPA and the CARB come to different conclusions as to the levels to which the reductions compensate for the offshore emissions of the proposed Project. Specifically, each agency's analysis of the engine performances of the two offshore tugs that the Applicant proposes to reconvert to achieve emission reductions in coastwise voyages over a 15-year period of Project operations allow different amounts of reductions to be applied to the proposed Project. In spite of these differing calculations, the USEPA and the CARB agree that there are sufficient reductions available to compensate for all of the emissions of the stationary sources, specifically the FSRU and an unloading carrier.

When the remaining emission reductions are applied to the emissions of the LNG carriers within California Coastal Waters, the two onsite tugs and the service vessels associated with the proposed Project, the reductions are 61.2 tons annually less than all vessel emissions according to the USEPA's analysis and 19.5 annually less than all vessel emissions according to the analysis of the CARB. For those vessel emissions of primary concern to the CARB, i.e., those occurring within 24 NM of the coastline (LNG carriers, tugs, and service vessel), the reductions are, according to the USEPA, 23.2 tons annually less than produced emissions, while under the CARB's calculations, the reductions are the same as such emissions, therefore fully compensating. In its February 9, 2007, memorandum to staff of the Commission, CARB states, "BHP's mitigation proposal provides all but about 19 tons per year (TPY) of NO_x emissions pursuant to ARB calculations and <u>represents more than what would otherwise be required by the current determination of applicable regulations</u>." (<u>Emphasis added</u>)

On Thursday, March 22, 2007, the Applicant provided information submitted to the USEPA that documents that no further emission control technology can be implemented to further reduce emissions through the application of selective catalytic reduction technology to the submerged combustion vaporizors (SCVs) on the FSRU. However, through a redesign of the SCV technology, the Applicant has identified a modification to the SCV burners, which would further reduce emissions of NO_x (as well as other air pollutants). The new burners in the SCV are certified for a maximum NO_x emission concentration (4-hour average) of 15 ppm at 3% oxygen. Use of this equipment would result in a reduction of annual NO_x emissions from the FSRU (including emissions attributable to powering of the LNG transfer pumps) to 61.3 tons per year, a reduction of 15 tons per year.

The Table below accounts for the above additional emission reduction and contains a comparison of NO_x emissions from all project vessels to the level of proposed emission

reductions remaining after the emissions/reductions associated with the FSRU and an unloading LNG carrier are accounted for.

COMPARISON OF EMISSIONS OF OXIDES OF NITROGEN FROM PROJECT VESSELS TO PROPOSED EMISSION REDUCTIONS (Does not include the FSRU and LNG Carriers while offloading at the FSRU)				
Parameter	**Basis for Emission Reduction Estimate[1]**	**Within 24 Nautical Miles of Shore** (LNG carriers and service vessels/tugs)	**From 24 to 90 Nautical Miles to Shore** (LNG carriers only)	**TOTAL: Within 90 Nautical Miles of Shore** (LNG carriers and service vessels/tugs)
NO_x Emissions - Project Vessels	-	49.2 tpy	35.5 tpy	84.7 tpy
NO_x Emission Reductions[2]	CARB	49.2 tpy	29.9 tpy	79.1 tpy
	USEPA	37.4 tpy	0 tpy	37.4 tpy
Balance of Unmitigated NO_x Emissions	CARB	0 tpy	4.7 tpy	4.7 tpy[2]
	USEPA	11.8 tpy	35.5 tpy	47.3 tpy

Key:
CARB = California Air Resources Board
NO_x = oxides of nitrogen
Tpy = tons per year
USEPA = United States Environmental Protection Agency

Notes:

1. The reported NOx emission reductions were calculated by subtracting the following values from the total NOx emission reduction estimates: (i) any emission reductions proposed for the Bay Area Air Quality Management District and (ii) emissions from FSRU equipment and LNG offloading equipment on LNG carriers.

2. This figure includes an additional reduction of .9 tpy, as determined by the staff of the California Air Resources Board, from the conversion of auxiliary engines on the two ocean going tugs for which BHP will convert main engines in their proposed Emissions Reduction Program.

2. Public Safety

The site-specific independent risk assessment (IRA) for the EIR applies only to the proposed Project FSRU at its proposed offshore location. The results and conclusions from that assessment do not apply to any other offshore or onshore LNG import and regasification facility.

On behalf of the Commission, the USCG, and MARAD, the consultant hired to help prepare the EIS/EIR, Ecology and Environment, Inc. (E&E), sponsored a security and vulnerability assessment (SVA) workshop and a hazard identification and analysis (HAZID) workshop for the proposed Project. The purpose of the workshops was to identify and analyze potential hazards related to the proposed Project. The workshops represent one component of the early agency consultation process the Project team used to identify issues to be addressed in the October 2004 Draft EIS/EIR. The Project team invited Federal, State, and local agencies to nominate representatives with expertise in key disciplines such as engineering, hazard response, marine transportation, terrorism, fire protection, emergency response, security, safety, and risk-related expertise to attend and participate in the workshops.

More than 55 technical specialists and engineers were invited to attend the workshops. In addition to the EIS/EIR team, 21 agency participants attended the SVA workshop, and 17 agency participants attended the HAZID workshop. These participants included representatives from the City of Oxnard, Port of Long Beach, the Commission, the California Energy Commission (CEC), the California Public Utilities Commission (CPUC), the California Department of Fish and Game (CDFG), the USCG, the U.S. Department of Energy, and the Federal Bureau of Investigation. Representatives of the Applicant and SoCalGasCo also attended specific sessions to answer questions about the design and operations of the proposed Project.

The one-day SVA workshop was held on April 5, 2004. The Applicant provided a general overview of security measures planned for the proposed Project and was then excused from further participation in the SVA workshop. The workshop participants then explored a wide range of potential security scenarios along with current and potential preventive and mitigative risk-reduction measures.

Following the SVA, the EIS/EIR team held a three-day HAZID workshop on April 6–8, 2004, to identify safety and environmental hazards, focusing on those concerns that could potentially affect members of the public. A representative from the University of California at San Diego's Scripps Institution of Oceanography provided an introduction to offshore meteorology conditions in the vicinity of the proposed DWP location. The Applicant described specific systems and operations of the proposed facility to familiarize the workshop participants and was then excused from further participation in the workshop sessions. A consensus listing of accident scenarios was recorded, which formed the basis of the IRA for the proposed DWP.

The workshop participants also discussed concerns identified through the public scoping process, including various terrorist scenarios, e.g., use of airplanes from local airports or shoulder-fired missiles to attack the facility, or LNG-vessel hijacking, the potential for catastrophic and smaller LNG releases due to equipment failure and human error, the integrity of the offshore and onshore pipelines, accidents involving other vessels, earthquakes, emergency response, validation of computer modeling, and other topics.

The security and vulnerability and hazard identification workshops focused on identifying and documenting possible security threats and accidental hazards that potentially could impact the public and/or environment. Representative examples of the threats that were considered include delivery of a bomb by small craft; use of a commercial airliner, fixed wing airplane or helicopter to strike the FSRU; a diver assault with a shape charge to the FSRU; and an intentional release of LNG. Each threat was evaluated as to its likelihood of success and the nature of the potential damage it could cause.

Some events were not considered further. The possibility of a deliberate attempt to disconnect the FSRU from its mooring was considered not to be credible because intentional disassembly of the mooring system would require heavy equipment and/or demolition support and would be detected and intercepted by the crew of the FSRU or the one or two boats patrolling the safety zone with enough time to deter the attack. Similarly, the takeover of an LNG carrier or a deliberate collision of an LNG carrier with the FSRU was not considered credible by the USCG and others due to recent changes in security in the maritime industry as well as the fact that LNG carriers would be in frequent communication using secure channels, making early detection of an attempted takeover very likely.

Representative events that were evaluated during the hazard identification workshop included an LNG spill overboard, loading arm failure, the presence of an ignition source in the submerged combustion vaporizers, a ship collision with the FSRU, a ballast system malfunction, and fires on LNG carriers or the FSRU. The group evaluated the potential consequences of each event using a structured process, reviewed any existing safeguards, and prepared recommendations and comments. One event that was evaluated was the potential for the FSRU to lose one or more mooring lines or become disconnected from the mooring system as a result of an operational incident, which could result in drifting of the FSRU toward the shipping lanes or shore. This event was considered to be very unlikely due to visual inspection to detect failed mooring lines, the availability of at least one standby tug to rescue the drifting FSRU, and response by the USCG.

The technical information provided with the FSRU's design concept was adequate for purposes of hazard identification, but the design has not been finalized and would be

subject to further review. An underlying assumption was that the classification rules, USCG rules, and standards of practice would be met.

Based on the results of the security and hazard identification workshops discussed above, five main scenarios and several variations were identified for consequence analysis of LNG spills. They represented a range of both accidental and intentional events that could produce breaches of the LNG tanks and ranged from several smaller but potentially more frequent events to the simultaneous release of the entire contents of all three LNG storage tanks on the FSRU. The 2004 IRA concluded that none of the releases would produce consequences to the public, for example, at either the coastwise Traffic Separation Scheme (TSS) or the shore.

The 2004 IRA for the proposed Project was prepared prior to the December 2004 publication of the Sandia National Laboratories (Sandia) report entitled "Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water" (Sandia 2004). The Commission and USCG commissioned the authors of the Sandia guidance report to conduct a third-party technical review of the 2004 IRA. "The goal of Sandia's technical evaluation of the Cabrillo Port IRA was to assist the USCG in ensuring that the hazards to the public and property from a potential LNG spill during transfer, storage, and regasification operations were appropriately evaluated and estimated" (Sandia 2006).

Sandia reviewed the scenarios studied in the 2004 IRA and recommended that the proposed breach and spill conditions be reassessed, stating that "more credible threats exist and may be more likely than the catastrophic total release scenario originally considered in the Cabrillo Port IRA" (Sandia 2006). Sandia agreed to discuss its findings to date on cascading issues including foam insulation degradation and to provide open access information on ship impact analysis and intentional event threat analysis that could be used to formulate scenarios for consideration in the 2006 IRA.

Sandia (2006) found that the three-tank simultaneous release was not credible:

> The intentional breach analysis originally in the IRA considered only a catastrophic, simultaneous, three-tank release, which may be unrealistic based on the current understanding of credible events, as identified by intelligence agencies and the Department of Homeland Security (DHS). Therefore, Sandia recommended that the intentional threats be reexamined based on emerging guidance from DHS and from the intelligence community and noted in the recent Sandia report and the associated classified report on possible intentional threats. (Sandia 2006)

Sandia evaluated the potential size of breaches of the FSRU based on a range of possible credible threats. The exact type and scale of these threats is discussed in a recent classified report by Sandia, but included a range of insider and external attacks

from sea and air with a range of weapons. Based on considering this range of threats and the physical characteristics of the FSRU, including hull and storage tank design and standoff, Sandia suggested a range of potential hole-sizes to use for spill and dispersion analyses; however, a massive LNG release, as described above, was not considered to be credible.

The 2006 Revised IRA studied several scenarios involving the release of LNG to the marine environment in the immediate vicinity of the FSRU, including vessel collisions and intentional events. Based on the technical review conducted by Sandia and on current knowledge and modeling techniques for collisions, breaches, and potential spills for double-hulled vessels, the following scenarios were addressed in the IRA. Each of these is explained in the IRA, including a description of the scenario, consequence modeling, and frequency estimation, where applicable:

- Accidental explosion in hull void;
- Accidental explosion in Moss tank;
- Accidental explosion between vessels;
- Intentional two Moss tank breach;
- Accidental/intentional cascading multiple (two or three) Moss tank release (escalation); and
- Accidental/intentional marine collision.

Sandia concluded, "...the accidental breach scenarios and analyses for the FSRU were reasonable relative to the current knowledge and modeling techniques for collisions, breaches, and potential spills for double-hull vessels" (Sandia 2006).

Of the six scenarios analyzed in the IRA, the first two and the accidental explosion between vessels are limited in scope and were determined to not affect the general public. Evaluation of the first scenario (accidental explosion in a hull void) determined that it produced only a localized effect. The second includes representative accidents that would affect only one tank that could have a number of causes. For example:

> Overall, the processing system layout and safety considerations in the conceptual design suggest that the potential threats from off-normal events in the processing area would probably impact initially only one FSRU storage tank. (Sandia 2006)

Similarly, the accidental explosion between the vessels did not cause a breach of an LNG storage tank.

Sandia agreed that the intentional two-Moss-tank breach scenario was the case that resulted in the greatest distance to the lower flammable limit. Because of timing issues and the fact that the results of other scenarios initially identified by Sandia were believed to be bracketed by the marine collision and intentional/accidental scenarios, Sandia agreed to the final scenarios.

The intentional two-Moss-tank breach (a simultaneous release of LNG from two tanks) was calculated to have the potential to affect the greatest distance from the FSRU with a vapor cloud (flash) fire resulting from dispersion. The escalation case involving failure of all three cargo tanks produces the greatest distance at which serious injuries from a pool fire could occur; these results are discussed in more detail below. No vapor cloud dispersion or vapor cloud (flash) fire would result from the escalation case since immediate ignition is presumed for this scenario.

The evaluations identified two governing intentional events that should be considered for spill and hazard analyses. One event includes the possibility of the breach of two tanks with up to a 7 m^2 hole in each tank. The other event suggests the possibility of a breach of one tank of up to 12 m^2. These events, depending on the location of the hole, may not lead to the full release of all the LNG from each tank onto the water, but for conservative estimates of hazard distances, full tank volume releases could be assumed.

Although it is not one of the governing cases, the marine collision scenario is summarized below because it has the potential to affect one of the vessel traffic lanes. Since the consequence distances were found to be less than those for the intentional event, the other marine collisions initially recommended by Sandia were not analyzed.

The worst credible case scenario involved an intentional event resulting in the release of 53 million gallons (200,000 m^3) of LNG to the ocean surface. As discussed in the Final EIR, subsequent to the release, there would be three likely potential consequences: a pool fire, vapor cloud dispersion with no ignition, or a vapor cloud (flash) fire. Each is discussed below.

Pool Fire: Under the escalation scenario, a release of 53 million gallons (200,000 m^3) of LNG would form a pool on the ocean surface approximately 0.4 NM (0.5 miles or 0.8 km) in diameter. The entire amount of LNG stored on the FSRU is not released because with immediate ignition; some of the LNG would remain in the storage tanks instead of spilling out. With immediate ignition, a significant amount of LNG remaining in the tanks would be burned within the tanks without spilling or otherwise contributing to the pool fire on the water. This scenario addresses both an intentional event and an accident in which one tank is breached causing one or both of the others to fail. For

example, Sandia concluded that "...the processing system layout and safety considerations in the conceptual design suggest that the potential threats from off-normal events in the processing area would probably impact initially only one FSRU storage tank"(Sandia 2006).

Beyond the limits of the pool, methane would be present in the atmosphere above the ocean surface. Assuming ignition of the gas would occur at the time of the release, computer modeling calculates that a pool fire capable of causing injury to a person, i.e., a heat flux value of 5 kW/m^2 or greater, could occur at a distance of about 1.7 NM (2.0 miles or 3.2 km) from the FSRU.

This distance is less than the proposed Area to be Avoided (ATBA) of 2 NM (2.3 miles or 3.7 km) around the FSRU. Therefore, under this scenario a pool fire would not be expected to impact either the nearest point on the mainland or the nearest marine vessel traffic lane, the closest of which is about 2 NM (2.3 miles or 3.7 km) from the FSRU. Sandia noted that its results are in close agreement with the results from the IRA, and concluded that "The model used is appropriate given the absence of obstacles. The assumptions made are reasonable given the current knowledge of the required input parameters and should provide a conservative estimate of thermal hazard distances."

Vapor Cloud Dispersion: Dispersion modeling was used to determine the distance from the FSRU at which a vapor cloud, having a methane content of at least 5 percent and therefore in the flammable range, would extend under three different wind speeds, i.e., 2, 4, and 6 meters per second (m/s) (4.5, 8.9, and 13.4 mph or 7.2, 14.4, and 21.6 km/hr). These wind speeds were selected as they represent the typical lower, average, and upper velocities experienced in the vicinity of the FSRU based on available weather data from a nearby buoy.

For the worst credible intentional or accidental event release of 53 million gallons (200,000 m^3) from two tanks of LNG, it was determined that a wind speed of 2 m/s (4.5 mph) resulted in the worst case in which the flammable vapor cloud extended about 6.3 NM (7.3 miles or 11.7 km) downwind from the FSRU. (Higher wind speeds would cause the gas to dissipate more quickly to below the lower flammable limit; therefore, the potential impact distance would not be as great.) If the wind were blowing toward the northeast, the vapor cloud would not reach shore but would extend across both the Southbound and Northbound Coastwise Traffic Lanes.

For this same scenario, Sandia's results were significantly less than those calculated in the IRA—about 7,000 m versus about 11,000 m. Sandia attributes this to differences in the size and speed of computing power:

> The 2-tank, 7-m^2 hole case was performed by ACE with a relatively coarse, stretched mesh with a minimum of 20 m width cells in each

> direction. Sandia performed a simulation of this case using FDS but with a finer uniform mesh, 10 m cell widths in each direction for a total of 22.4 million computational cells, and found results for vapor dispersion to be somewhat less than the ACE results. Thus, the final result from ACE for 2-tank, 7-m^2 hole case appears to be reasonable and should provide a conservative estimate of dispersion distances. (Sandia 2006)

For purposes of transparency, and to permit members of the public to replicate the analysis if desired, the lead agencies directed the consulting team to use only models that are in the public domain, and that could be run without extraordinarily large or fast computing power. Thus, the IRA modeling overestimates the impact distances when compared with Sandia's results due to differences in the computational cell resolution.

Further, Sandia confirmed that the Fire Dynamics Simulator (FDS) (a computational fluid dynamic model of fire-driven fluid flow) is an appropriate model for dispersion analysis:

> FDS simulations performed by Sandia to date, as well as evaluation of the mathematical models of the code indicate that FDS is capable of simulating LNG dispersion, but a large number (10 million to 100 million) computational cells are required. It would be optimum to perform these dispersion simulations with finer resolution, however lower resolution simulations result in longer distances to lower flammable limit due to the turbulent mixing being under resolved. Therefore, the current FDS analyses provide a conservative assessment of safety hazard distances.

Vapor Cloud (Flash) Fire: A vapor cloud fire could occur if the released LNG were to evaporate and disperse downwind before encountering an ignition source but then was subsequently ignited. The fire would be expected to burn back to the FSRU. Again, under the worst case wind conditions of 2 m/s (4.5 mph or 7.2 kph), computer modeling indicated that a vapor cloud fire capable of causing injury to a person, i.e., a heat flux value of 5 kW/m^2 or greater, could extend 6.3 NM (07.3 miles or 11.7 km) from the FSRU approximately 60 minutes after release the LNG release occurred. This vapor cloud (flash) fire would occur within the proposed ATBA and would not impact the nearest marine vessel traffic lanes; also, it would not affect persons on the mainland shore 12.01 NM (13.8 miles or 22.2 km) away.

The IRA concluded that impact distances from accidental releases and intentional events would not reach the nearest shoreline and that the members of the public who would be at risk would be those in the vicinity of the FSRU or in the coastal shipping lane, approximately 2 NM (2.3 miles or 3.7 km) offshore. The IRA recommended specific mitigation measures to reduce the risks to as low as reasonably practical. The IRA's recommendations are incorporated into the mitigation measures specified in the Final EIR.

The IRA considered a scenario in which a large marine vessel, such as a container ship, oil tanker, or passenger ship, collided with the FSRU resulting in the breach of a Moss tank aboard the FSRU. The analysis involved the instantaneous release of 50 percent of the volume of one tank, or about 13.2 million gallons (50,000 m^3) of LNG. A spill of this volume would form a pool of LNG having a maximum diameter of 2,395 feet (730 m). If this pool encountered an ignition source before dispersion were to occur, the resulting distance to the minimal thermal radiation threshold of 5 kW/m^2 would be 1.6 NM (1.8 miles or 3 km). This distance extends beyond the 1,640-foot (500 m) safety zone but would be within the 2 NM (2.3 miles or 3.7 km) from the FSRU ATBA and would not impact the shipping lanes.

If the LNG were to evaporate and disperse before encountering an ignition source then, using a worst case wind speed of 2 m/s (4.5 mph or 7.2 km/hr), the outer boundary of the lower flammable limit (5 percent methane) would extend approximately 2.9 NM (3.3 miles or 5.3 km) downwind. Therefore, an area beyond the ATBA would be impacted including one of the two shipping lanes. However, it would take approximately 28 minutes for the vapor cloud to reach the closest shipping lane and 55 minutes to dissipate below the lower flammability limit, and it would take 50 minutes for the vapor cloud to reach its maximum extent. Vessels in the area could be notified during this time.
The potential frequency of a collision of a large marine vessel with the moored FSRU that would cause the breach of an LNG storage tank was estimated to be 2.4×10^{-6}, i.e., one occurrence every 417,000 years, based on information regarding the numbers and sizes of large vessels that might be transiting near the FSRU.

The IRA states that the proposed Moss tank demonstrates a very robust design against marine collisions. Only vessels with very specific geometry, strength, and speed would have the physical capacity to penetrate the hull's structural steel and breach the cargo containment. The IRA states that the frequency estimation for the accidental marine collision scenario is a conservative overestimate and that the scenario is improbable.

Sandia reached a similar conclusion regarding the FSRU:

> The FSRU, which is a double-hull vessel design, makes it particularly robust for normal collisions or ship accidents. Based on the FSRU double-hull design, which provides even greater standoff between the storage tanks and the outer hull than a typical LNG vessel, the identified collision events and the suggested breaching results appear reasonable relative to other double hull tanker collision studies using similar analysis methods and threats. Therefore, the spill and breach conditions suggested for LNG transfer and handling appear reasonable and appropriate.

In summary, of the scenarios studied, the IRA determined that the greatest distance from the FSRU within which public impacts would occur is 6.3 NM (7.3 miles or 11.7 km), which would result from the intentional breach of two Moss tanks. This hazard distance encompasses the TSS shipping lanes, but extends no closer than 5.71 NM from the nearest mainland landfall. As discussed above, Sandia's model showed a smaller dispersion distance (about 7,000 m instead of roughly 11,000 m). The hazard to the shipping lane would occur about 30 minutes after the initiating event, which could allow for notification and response, such as moving away from the accident or sheltering in place and implementing emergency response measures on the impacted vessel. The exposure time within the shipping lane would be for about another 30 minutes until the vapor cloud dispersion falls below the lower flammability limit. An average of three vessels would be exposed to this vapor cloud hazard based on marine traffic frequency estimates.

However, in a worst credible case scenario, an ignition source would most likely be present, which would result in a pool fire instead of vapor cloud dispersion or a vapor cloud (flash) fire (Congressional Research Service 2005). The robust structure of the Moss tanks and double-hulled FSRU, and the nature of the events that could produce this scenario (such as a deliberate attack with various types of weapons or aircraft), make it very likely that an ignition source would be present. Because an exceptionally large amount of force is needed to damage an LNG tank, and because the amount of energy required to breach containment is so large, in almost all cases a pool fire and not a vapor cloud (flash) fire would result from this type of terrorist attack.

Pool fire hazards were not predicted to reach the coastwise shipping lane. An escalation event resulting in the cascading breach of three Moss tanks with subsequent pool fire would produce an injury level threshold that would reach 1.7 NM (2 miles or 3.2 km) from the release point at the FSRU. Although considered a credible intentional or accidental event, more likely scenarios would result in smaller pool fire hazards, e.g., 1.6 NM (1.8 miles or 3 km) for the marine collision scenario, and 1.4 NM (1.6 miles or 2.6 km) for the intentional two Moss tank breach.

Sandia reviewed all of the scenarios and modeling results and concluded:

> Overall, the final results for both fire and dispersion hazard distances, after incorporating the recommended Sandia changes, appear to provide reasonable estimates of hazard levels and distances for what are considered credible events. The analyses developed should provide conservative estimates of expected hazard distances. (Sandia 2006).

3. Marine Biology

Comments submitted on the March 2006 Revised Draft EIR focused on three Impacts identified within resource Section 4.07, Marine Biology. Each is discussed below.

a. Noise Impacts to Marine Mammals:

Increasing levels of manmade noise in the world's oceans has been suggested to be a habitat concern for whales and particularly for baleen whales that may communicate using low-frequency sound. Such sounds may not only affect communications but also may cause whales to divert from normal migration paths or to stop feeding or reproductive activities. Such sounds may also reduce the abilities of marine mammals to detect prey or predators and, in the case of *odontocetes* (toothed whales, dolphins, and porpoises) the ability to navigate.

The nearby waters of the Channel Island National Marine Sanctuary (CINMS) are heavily affected by anthropogenic noise (noise caused by humans). The natural background noise levels in the undisturbed ocean at the Project site vary from around 90 dB reference (re) 1 μPa – rms to 110 dB re 1 μPa - rms, depending on ambient weather conditions. This natural undisturbed background noise level will be raised by other marine activities, such as shipping movements in the nearby shipping channel, so that at the FSRU location the lower level of background noise would generally be closer to 110 dB re 1 μPa – rms.

The greatest concentrations of marine mammals in the region lie off the north shores of the Santa Barbara Channel, immediately south of the traffic lane and oil platforms. Other concentrations sometimes occur to the southeast of San Miguel and Santa Rosa Islands, toward San Nicolas Island. By contrast, comparatively few marine mammal sightings have been reported at or near the proposed Project site, probably because it is not in an area characterized by vigorous upwelling and food production known to attract marine mammals.

Exposure to very loud sounds or continued exposure to loud noise can result in a temporary (hearing) threshold shift or a permanent (hearing) threshold shift in which part or all of an animal's hearing is reduced or eliminated throughout part or all of its hearing range, either temporarily or permanently. With extremely powerful impulse noises such as those generated by explosives, geophysical exploration using airguns, certain sonar equipment, pile driving, and other impulse power sources, physical trauma or mortalities are possible. No impulse power sources would be generated by the proposed Project activities.

The collective knowledge of the hearing frequency ranges of various species is extremely limited, however. One of the few assumptions that might be made is that animals can be harassed by loud noises within the frequency range of their vocalizations. Assumptions cannot be made that an animal would not be disturbed by loud noises beyond its range of vocalization; it may still be able to hear such sounds even though it cannot produce them. Moreover, extremely powerful sounds, such as

those generated by explosives, can still injure or kill an animal even if the predominant frequencies are beyond the animal's hearing frequency range.

Frequencies are measured in hertz (Hz). One Hz equals one cycle per second, while one kHz represents 1,000 Hz. Humans with excellent hearing can detect sounds as low as 20 Hz or as high as 20 kHz. The known hearing frequency ranges of most species that occur in the Southern California Bight ranges from 12 Hz to 180 kHz. Sound frequencies are of concern because the ears and other parts of a marine mammal may be particularly sensitive to certain frequencies or resonances applied over a period of time. Low-frequency sounds (under 1000 Hz) are of special interest because they can propagate long distances and are peak frequencies for many anthropogenic sound sources. Conversely, high-frequency sounds attenuate with distance. (The sound sources for this Project were calculated from 22 Hz to 11.3 kHz.) The longer that substantial pressure from a given frequency range is applied to an animal, the greater the potential for harassment or damage.

A potential exists for adverse behavioral impacts on marine mammals as a result of continuous noise from construction and operation vessels or equipment associated with the Project. Presently there is limited published information considering the effects of anthropogenic noise on marine mammal behavior, and most studies have been observational rather than experimental in nature. In most instances, particularly with regard to the effects of noise from large vessels on marine mammal behavior, the available data has lacked appropriate controls.

Data indicate that various dolphin and whale species exposed to close physical approaches as well as noise from different vessels may alter motor behaviors, which have direct energetic costs and potential effects on foraging, navigation, and reproductive activities.

Over the years, the National Marine Fisheries Service (NMFS) has been using take thresholds — the sound exposure level at which harassment or injury may occur — to determine when marine activity that produces sound might result in a "take" of marine mammals. Currently, NMFS is developing new science-based thresholds with guidelines based on exposure characteristics that are derived from empirical data and are tailored to specific species groups and sound types to improve and replace the current criteria (Federal Register 2005). NMFS is in the process of preparing the required NEPA document that will address the proposed changes and any alternatives. The final decision documents have not been published as of the publication date of the Final EIR. Until a final decision is made, NMFS requires that the current acoustic criteria be used for impacts analysis.

As provided in the significance criteria for marine mammals, acoustic impacts on marine mammals are considered significant if the Project causes injury or mortality or results in an action that could be considered a Level A take under the Marine Mammal Protection

Act (MMPA) or causes a Level B take of a listed or candidate species or a Level B take of significant numbers of non-listed marine mammals. ("Level A Harassment" has the potential to injure a marine mammal or marine mammal stock in the wild. "Level B Harassment" has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild.) The NMFS acoustic criterion for Level A take is 180 dB re 1 μPa – rms and for Level B take is 120 dB re 1 μPa – rms (continuous). In addition, NMFS (2006) requested that a zone of noise influence be defined for the 190 dB re 1 μPa – rms noise level, which would only occur during certain operational scenarios.

Based on the limited duration of the construction activities and the occurrence of these activities outside of gray whale migration season, significant acoustic impacts from offshore pipeline construction are not anticipated.

The zone of responsiveness, in which avoidance behaviors could possibly occur with some species, is estimated based on estimated sound pressure levels of 120 dB re 1 μPa – rms. At this range, Level B takes under the MMPA could possibly occur. This zone would include a radius of up to approximately 0.5 NM (0.6 mile or 1 km) from construction activities. This would correspond to an area of up to approximately 3.1 km^2 centered around pipeline construction activities.

Although the zone of physical damage may differ substantially among marine mammal species, for the Project, the estimate is based on a continuous level of 180 dB re 1 μPa – rms, in accordance with the current NMFS criterion for Level A takes. This zone would include a radius of up to approximately 3.3 feet (1 m) from pipeline construction activities. This would correspond to an area of up to 33.4 square feet (3.1 m^2). At these ranges, Level A takes under the MMPA could possibly occur.

Noise levels beyond the 190 dB re 1 μPa – rms level would not occur during pipeline construction activities or during installation of the FSRU and its mooring and riser systems.

Operational vessels generate steady, continuous noises that vary somewhat in intensity, depending upon a given operation scenario. Noise produced by the LNG carriers would likely be loudest at cruising speeds and reduced in volume when moored and discharging LNG. During the transfer process, the LNG carrier would be moored to the FSRU and would only generate minimum noise; the LNG carriers would not be using propulsion systems while docked at the FSRU. The main noise associated with LNG carrier docking would be associated with tugs and the FSRU thrusters. The total level for the combination would be 192 dB re 1 μPa – rms broadband. Similarly, crew and supply vessels would be loudest when underway, but such sounds would be

transitory and short-lived. Supply vessels would generate a maximum of 181 dB re 1 μPa – rms, reducing to 174 dB re 1 μPa – rms at 1 m from the source.

Reactions exhibited by marine mammals to underwater noise from vessels (and platforms) vary widely. In general, pinnipeds and small cetaceans seem little affected by transitory or continuous noise and may become habituated to it. For example, California sea lions regularly haul out on mooring buoys and lower decks of oil platforms, and several species of dolphins regularly bow-ride vessels moving through the water. Baleen whales generally ignore stationary or distant sounds. If a vessel approaches slowly, with no aggressive moves, whales may shy away from such vessels in subtle ways.

Operation of the pipeline from the FSRU to shore may generate noise caused by the friction from the natural gas flowing through the risers, pipeline, and through various valves and fittings. A study was developed to estimate the underwater-radiated noise from the pipeline using 10 different flow cases. The analysis found that the total level of underwater radiated noise under normal operating conditions (800 MMscfd) was 96 dB, which is 6 dB higher than background noise on a calm day. The potential noise generated from the pipeline when the FSRU is operating at maximum capacity (1,200 MMscfd) was 106 dB, 16 dB above background on a calm day and less than background on a windy day.

The FSRU would generate less noise when it is stationary than when the thrusters are in use. The FSRU would generate the most noise when its thrusters are being used and tugs are nudging the LNG carrier into position. Noise levels and distances from the FSRU of take thresholds for marine mammals were estimated for seven operating scenarios, as shown in Table 4.7-13 above. Level A (180 dB re 1 μPa – rms) and Level B (120 dB re 1 μPa – rms, continuous) were used. Level B 160 dB re 1 μPa – rms (impulse) was not used, as the noise generated by the FSRU would be continuous rather than impulsive in nature. NMFS (2006) also requested zones of influence for noise levels at 190 dB re 1 μPa – rms. These estimates were made using engine manufacturers' noise specifications and factor in the structural elements of the FSRU design.

Total broadband frequencies from the FSRU range from 22 Hz to 11.3 kHz. The low frequency sound produced by the FSRU above 99 Hz would probably not be heard by pinnipeds (whose hearing ranges from 22 Hz to 99 Hz) but would be heard by other marine mammals whose hearing frequency ranges from 99 Hz and higher. Frequencies over 11.3 kHz would not be produced by the FSRU. The higher the frequency of sound, the greater the attenuation (reduction) is over distance.

For the four operation scenarios that would occur most of the time as described in the Final EIR, the originating broadband level of 178.2 to 182.5 dB would fall to ambient noise levels (90 dB re 1 μPa – rms) at a maximum of approximately 21.6 NM (24.9

miles or 40 km) from the FSRU. For three less common or unlikely operating scenarios, the originating broadband level of 184.7 to 192.6 dB would fall to ambient noise levels (90 dB re 1 µPa – rms) at a maximum of approximately 70.2 NM (80.8 miles or 130 km) from the FSRU. The increasingly shallow depths near the shores of the islands and mainland, in the Anacapa Passage, and along the Pilgrim Banks to the southeast of the Project site, would also help to attenuate sound from the Project.

The waterborne noise level from the FSRU would be above the known background level, but its relationship to background level would depend on ambient weather conditions and other marine activities. The zones of noise influence presented in the following text are the maximum distance from the noise source and associated areas centered around the noise source that would occur.

For the Project, the zone of audibility is based upon the range at which Project sounds could be detected above the quietest background noise levels, in this case above approximately 90 dB re 1 µPa – rms. During standard operations, this would include a radius of up to approximately 21.6 NM (24.9 miles or 40 km) from the FSRU for normal operational scenarios (cases 1-4, Table 4.7-13 within the Final EIR) and up to 70.2 NM (80.8 miles or 130 km) from the FSRU for less likely or uncommon operational scenarios (cases 5-7, Table 4.7-13 within the Final EIR). This is a maximum projection; the actual zone of audibility could be much closer in to the FSRU during rough sea conditions and with much vessel traffic in the shipping lane. Sound levels that would occur solely within the zone of audibility and not in other zones closer to the noise source would not be expected to result in adverse impacts on marine mammals.

The zone of responsiveness, in which avoidance behaviors could possibly occur with some species, is estimated based on estimated sound pressure levels of 120 dB re 1 µPa – rms. At this range, Level B takes under the MMPA could possibly occur. This zone would include a radius of up to approximately 0.9 NM (1.0 miles or 1.6 km) from the FSRU for normal operational scenarios and up to 9.7 NM (11.1 miles or 17.9 km) from the FSRU for less likely or uncommon operational scenarios. This would correspond to an area of up to 8.0 km^2 for normal operations and up to 1,006.6 km^2 for less common and unlikely operational scenarios.

Although the zone of physical damage may differ substantially among marine mammal species, for the Project, the estimate is based on a continuous level of 180 dB re 1 µPa – rms, in accordance with the current NMFS criterion for Level A takes. This zone would include a radius of up to approximately 4.3 feet (1.3 m) from the FSRU for normal operational scenarios and up to 14.1 feet (4.3 m) from the FSRU for less likely or uncommon operational scenarios (!84.7 – 192.6 dB re 1 µPa – rms). This would correspond to an area of up to 5.3 m^2 for normal operations and up to 58.1 m^2 for less common and unlikely operational scenarios. At these ranges, Level A takes under the MMPA could possibly occur.

For two operational scenarios that would be expected to occur approximately 11.5 hours per week, source noise levels would be 192.6 dB re 1 μPa – rms. This zone, defined by a threshold of 190 dB re 1 μPa – rms, would include a radius of up to approximately 4.6 feet (1.4 m) from the FSRU. This would correspond to an area of up to 6.2 m^2. At these ranges, Level A takes under the MMPA could possibly occur.

Between the outer limit of the zone of responsiveness and the outer limit of the zone of physical damage under normal and likely operational scenarios, frequencies between 22 Hz and approximately 2,828 Hz would dominate and frequencies higher than 2,828 Hz would be heard above background levels. Species whose hearing range is higher than 2,828 Hz and thus would not be affected include spotted dolphin, striped dolphin, pygmy sperm whale, northern fur seal and southern sea otter. Other species, whose hearing range would be only marginally within the noise produced between these zones, i.e., hearing ranges above 1 kHz, include Pacific white-sided dolphin, northern right whale dolphin, false killer whale, Blainville's beaked whale, harbor porpoise, and sei whale. While noise produced between 120 and 180 db re 1 μPa – rms may be audible to these species, it would be unlikely to result in response behaviors. Species with hearing ranges in the low frequency ranges, i.e., below 500 Hz, would be most susceptible to noise impacts from the FSRU, including Risso's dolphin, bottlenose dolphin, Hubb's beaked whale, sperm whale, gray whale, minke whale, Bryde's whale, blue whale, fin whale, humpback whale, California sea lion and northern elephant seal.

Implementation of recommended mitigation measures would reduce the intensity and duration of anthropogenic noise introduced to the marine environment and would thus reduce impacts on marine mammals, but it is unclear whether impacts would be reduced to a level below significance criteria. Additionally, avoiding the marine mammal migration season would reduce the numbers of certain marine mammals exposed to noise in the Project site during the construction activities.

Whale Migration: As indicated above, "Data indicate that various dolphin and whale species exposed to close physical approaches as well as noise from different vessels may alter motor behaviors, which have direct energetic costs and potential effects on foraging, navigation, and reproductive activities."

California gray whales migrate annually from their winter breeding and calving grounds in the lagoons of Baja California, Mexico, to their summer feeding grounds in Alaska. In the Southern California Bight, the southbound migration generally begins in December and ends in mid-February, with a few southbound individuals appearing as early as late October or as late as April. The northbound migration within the Southern California Bight begins in mid-February and ends in May, with rare stragglers in the summer months. Although comparatively more individuals hug the coast on the route north, the majority of animals during both migrations favor the Channel Islands rather than the mainland coast along the Southern California Bight.

Several migration corridors exist near the Project site and are depicted in Figure 4.7-1 of the Final EIR. The migration routes depicted have been developed from numerous sources (Hill and Barlow 1992; Lee 1993; Carretta and Forney 1993; Forney et al. 1995; Carretta et al. 2000), including recent anecdotal information from commercial vessel and whale watch operators in the region (Howorth 2005). The fidelity of California gray whales to these migration corridors is extremely well-known (Rugh et al. 1999; Sheldon et al. 2002). To the south, one corridor leads from Santa Catalina Island along an escarpment southwest of the Santa Monica Basin to Anacapa and the Santa Cruz islands. This corridor passes offshore of the proposed FSRU location. One inshore track hugs the coast the entire way, with individuals remaining just outside the surf to up to 1 NM (1.2 miles or 1.9 km) offshore. At least one other track appears to follow the bathymetric contours just inshore of the Northbound Coastwise Traffic Lane. This track appears to diverge as it enters the Anacapa Passage, northwest of the Project site.

The main track continues just inshore from the Northbound Coastwise Traffic Lane and immediately seaward of Platforms Gail and Grace. This track branches, however, with one fork stretching across the broad alluvium of what is colloquially known as the Ventura Flats. This track ranges from 60 to 150 feet (18.3 to 46 m) in depth, converging within 2 to 3 NM (2.3 to 3.5 miles, or 3.7 to 5.6 km) offshore off Coal Oil Point, northwest of Santa Barbara. Another branch may extend along the north shore of the northern Channel Islands, joining one of the branches of the track offshore of the FSRU area. Gray whales may be encountered periodically at or near the Project site, at least from December through May.

Construction activities for the proposed offshore subsea pipelines could affect the behavior of California gray whales. However, construction activities would not occur during gray whale migration season and, therefore, significant acoustic impacts from offshore pipeline construction are not anticipated.

b. Impingement and Entrainment:

Impingement or entrainment of marine organisms during seawater uptakes on the FSRU or LNG carriers could adversely impact fish species or Essential Fish Habitat (EFH) in the Project site. Impingement can occur when fish and other aquatic life are trapped against seawater intake screens. Entrainment can occur when aquatic organisms, eggs, and larvae are drawn into a water system, and then pumped back out. Seawater is used aboard the FSRU for several operational functions including fire systems, cooling systems and ballast water. Ballast water exchange is required to maintain the balance and floating depth (draft and trim) of the FSRU and the LNG carriers when loading or unloading cargo, e.g., when LNG carriers are unloading LNG to the FSRU. The LNG carriers and the FSRU load/discharge seawater to/from ballast tanks via a system of dedicated pumps, pipelines, and valves that together comprise the ballast system. The exchange of ballast water would occur at the bottom of the FSRU's hull at a depth of approximately 42.7 feet (13 m).

The following information is provided as a summary for the purposes of analyzing potential impacts on EFH and ichthyoplankton. The proposed ballast pump configuration provides a maximum pumping capacity of 1.59 million gallons (6,000 cubic meters [m^3]) of water per hour. Ballast water intakes would be screened and flow rates maintained per the Federal Clean Water Act § 316, i.e., flow rates of less than 0.5 feet per second (0.15 meter [m] per second), to minimize impingement of aquatic organisms. A typical sea chest inlet design is fitted with an external coarse filter grill with grading clearance spacing of 1 inch (2.5 centimeters [cm]) to prevent large matter from being taken in and/or blocking the intake systems and to prevent organic matter accumulating in the sea chests and ballast tanks. Further downstream from the grill, a secondary fine filter would be fitted in place with a screen size of approximately 0.25 inches (0.6 cm). This screen would prevent the intake of some marine matter or organisms, e.g. those larger than 0.25 inches (0.6 cm), and could be accessed for cleaning. These screen sizes are based on preliminary engineering designs and common practice in LNG carrier and Floating Production Storage and Offloading (FPSO) design and are approximate. It may be possible to adjust the screen sizes if it would not adversely affect other essential systems.

As discussed above, operational and maintenance activities on the FSRU would require the use and uptake of seawater. Although specific design plans have not been finalized, a typical vessel of this type would have several seawater uptake systems, including eight sea chests and six seawater intakes. All six intakes would be at a depth of approximately 42.7 feet (13m) and would maintain flow rates of less than 0.5 feet (0.15 m) per second.

The 4.17 million gallons (15,785 m^3) per day of seawater uptake which is a weighted average proposed for the Cabrillo Port Project are significantly (orders of magnitude) lower than typical volumes used by other LNG or a power generation facility's cooling systems, both nearshore and offshore and 60% lower than the seawater uptake values presented in the March 2006 EIR. For example, cooling water intake structures used on many nearshore power generating plants in California are designed to withdraw well over 50 million gallons (189,250 m^3) of seawater per day (California Energy Commission 2005). Some facilities (for example, the Moss Landing Power Plant and Ormond Beach Power Plant) can use between 562 and 864 million gallons (2,127,401 and 3,270,596 m^3) per day. Additionally, although the flow rate is also less than 0.5 feet per second, the intake valves for many of these facilities are located in nearshore or estuary environments where ichthyoplankton densities can be higher than offshore locations.

An ichthyoplankton impact analysis was developed to determine potential impacts of the proposed Project. The results of the analysis indicate that the daily mortality for eggs would be approximately 42,704 eggs and 7,614 larvae per day, representing

<0.00000019 percent of the 21,464,100,000,000 eggs and 3,824,100,000,000 larvae found within the site of the FSRU.

In addition to the weighted average, the minimum and maximum operating conditions were also evaluated for comparative purposes. The minimum operating condition is expected to occur 322 days per year with a seawater intake of approximately 3.93 million gallons per day. This resulted in entrainment values of approximately 40,169 eggs and 7,162 larvae per day. The maximum operating condition (use of the original seawater cooling system during maintenance of the SCVs or when the inert gas generator is operating) assumed operations 4 days per year and a water intake of approximately 16.33 million gallons per day. This resulted in entrainment values of approximately 166,963 eggs and 29,768 larvae per day.

Based on the California Cooperative Fisheries Investigation (Cal/COFI) data used in this assessment, commercially harvested species managed by the Pacific Fishery Management Council make up approximately 49,713,300 larvae or 0.000013 percent of the total larval density and 214,641,000 eggs or 0.000010 percent of the total egg density estimated to be present in the source water body (Figure 1, Cabrillo Port Ichthyoplankton Impact Analysis, February 2006). Based on the small numbers of these species expected to be entrained in the seawater uptake systems, the impacts on these species would be less than significant.

Impacts on ichthyoplankton can be difficult to interpret due to the low natural survival rates of fish eggs and larvae. In fact, many (84.9 percent) of the entrained organisms are eggs, which are subject to high rates of natural mortality. Although no consensus currently exists within the scientific community or responsible agencies regarding the level of impacts on ichthyoplankton that is considered significant, the density of ichthyoplankton within the Project site represents typical low-level values expected in offshore areas, and specifically in the Project site, where upwelling events are limited compared to other areas within the Southern California Bight.

To determine whether changing the depth of the intake valve would actually reduce entrainment impacts for the proposed Project, species occurrence and densities at alternative depths within the water column were investigated. To analyze the potential impacts at various depths, vertical distribution data are required. A literature search was performed to identify all available data, including additional consultation with the CalCOFI. Table 4.7-9 shows data for vertical distribution available in the literature for managed species with EFH in the Southern California Bight. A more detailed table containing all of the vertical distribution data found in the literature is provided in the ichthyoplankton analysis (Appendix H1). Vertical distribution data are only available for 29 species out of the 113 species identified in the ichthyoplankton analysis. Despite the availability of some limited information, the data do not provide sufficient information to fully assess potential impacts at alternative depths.

However, the data do indicate that species occur at various depths and exhibit widely varied seasonal distributions and migration patterns in the water column. For example, Pacific hake was identified in one study at all strata down to 250 m (820 feet), with highest densities below 50 m (164 feet). Generally, rockfish larvae typically occurred in the upper 80 m (262 feet), highest densities were in the 40-80 m (131-262 feet) stratum offshore, with extremely low densities in the upper 30 m (98 feet). Additionally, certain species exhibit vertical migration patterns where they move between depths at various points during the day (daylight hours, evening hours, or at dawn and dusk) in response to daylight or predator/prey presence. The ichthyoplankton analysis developed for Cabrillo Port was developed based on the best available data within the proposed Project area; however, the data do not provide adequate detail for developing an analysis or providing recommendations on alternative depth locations for the seawater intake valves that would reduce potential impacts.

The daily density values determined for the Cabrillo Port Project represent impacts on fishery populations that can be considered adverse but less than their significance criteria when considered relative to the area potentially impacted by Project activities requiring seawater uptake. Considering the species, densities, and percentages affected by the proposed Project, entrainment impacts on any special status species (listed, candidate, sensitive, or managed species with EFH in the Project area) would be adverse but less than the significance level. The known density and species occurrence near the Project site, the amount of seawater that would be taken in the FSRU and LNG carriers during operations, the depth and location of the ballast water pumps, and the flow rates at the uptake valves, indicate that a significant impact on ichthyoplankton or managed species with EFH in the Project area from impingement or entrainment would not occur.

4. Aesthetics

During the public review period for the March 2006 Revised Draft EIR, comments concerning aesthetics impacts involved night lighting, the size of the FSRU, views from State parks and national recreation areas, views to scenic view corridors, and requests for visual simulations from higher elevations and a location map of simulation. The location of the FSRU is shown on visual simulations within the Final EIR, but not on photographs depicting the existing viewsheds. In response to public comments on the March 2006 Revised Draft EIR, Figure 4.4-20, which shows the locations of the key observation points (KOPs), has been added to the end of Section 4.4, Aesthetics, and four new simulations have been added to Appendix F of the document. Also in Appendix F is a detailed discussion of the methods and tools used to prepare the simulations presented in the Final EIR.

The Project consists of four main components: (1) the offshore FSRU, which would be anchored and moored in Federal waters 12.01 nautical miles (NM) (13.83 miles or 22.25 kilometers [km]) off the coast of Ventura and Los Angeles Counties, in waters

2,900 feet (884 meters [m]) deep, where the LNG would be offloaded and regasified; (2) two 24-inch (0.6 m) diameter parallel subsea pipelines to transport the re-gasified natural gas to shore; (3) a shore crossing where the offshore pipelines would pass beneath the beach and connect to a coastal metering station; and (4) two onshore buried pipelines that would tie into existing natural gas pipelines, one within the Oxnard city limits and Ventura County and the other in the City of Santa Clarita within Los Angeles County. After construction, only the FSRU would remain visible offshore; the new metering station would be located at the Reliant Energy Ormond Beach Generating Station and other structures would be small.

The FSRU, similar in appearance to an oceangoing LNG carrier, would be double-hulled with three spherical Moss (storage) tanks (see Figure 4.4-1 for a representative illustration of the FSRU). It would measure approximately 971 feet (296 m) long, not including the mooring turret, and 213 feet (65 m) wide (see Figure 2.2-1 in Chapter 2, "Description of the Proposed Action"). The tops of the LNG storage tanks would be approximately 102 feet (31 m) above the main deck, placing them approximately 161 feet (49 m) above the waterline when loaded and 164 feet (50 m) when ballasted. The tallest part of the FSRU would be the cold stack, which would be approximately 266 feet (81 m) above the waterline and approximately 105 feet (32 m) above the top of the LNG storage tanks when loaded and approximately 269 feet (82 m) above the waterline and 108 feet (33 m) above the top of the LNG storage tanks when ballasted. The cold stack is a small-diameter exhaust pipe located at the bow of the ship to vent natural gas vapors in the event of an emergency. Since the cold stack pipe is small in diameter, it would not be seen distinctly from any significant distance away from the FSRU.

The proposed FSRU is comparable in length to typical LNG carriers, but it is about 50 percent wider than and twice as tall as the average LNG carrier. The Applicant has proposed that the FSRU hull be painted Admiralty Pacific Gray or a similar shade. The USCG would determine the final paint color and scheme for the FSRU hull based on navigational safety, among other considerations. Lighting onboard the FSRU would comply with regulatory requirements and would be designed to minimize nighttime impacts. The lighting would be used only to ensure safety and security and when operations require lighting. Movement sensors would be employed where practicable, and floodlight use would be minimized. Where used, floodlights would employ high-efficiency, low-glare fittings such as sodium and metal halide types.

LNG carriers would also be illuminated for safety and would include five footcandles at transfer connection points and one footcandle in transfer operations work areas. Lighting would be located or shielded so as not to mislead or otherwise interfere with navigation on the adjacent waterways, and would minimize impacts on migratory and coastal birds. Typically, the LNG carriers must be illuminated continuously from one hour before sunset to one hour after sunrise and during any periods of reduced visibility while the vessel is moored to the FSRU.

The FSRU would be permanently moored and would use a turret system, i.e., a revolving tower-like structure, to allow the FSRU to weathervane (rotate) around a fixed point. The FSRU would swing around this fixed anchor point influenced by prevailing water and wind currents in a fashion similar to ships at anchor. Since prevailing winds in the Project vicinity come from a west to west-northwest direction, the most common orientation of the FSRU would be roughly parallel to the coast with the bow pointing into the wind. Visiting LNG carriers would tie up to the FSRU along its starboard side (which faces the coast), but because the LNG carriers are substantially shorter in overall height, the LNG carrier would not typically be distinguishable as a separate vessel to an onshore observer beyond 12.01 NM (13.83 miles or 22.25 km). Winter storm winds tend to be from a more northwesterly direction, and under these circumstances the orientation of the FSRU would not be substantially different, i.e., still roughly parallel to the coast. For observers who are on commercial or recreational vessels offshore, the view of the FSRU and an offloading LNG carrier would vary, depending on distance and directional heading to the FSRU.

Views of the Project area from shoreline areas consist mainly of open ocean. The profiles of Anacapa Island (maximum elevation 930 feet [283 m]) and Santa Cruz Island (maximum elevation approximately 2,300 feet [701 m]), located offshore 10.8 and 16.5 NM (12.4 and 19 miles or 20 and 30.6 km) from the nearest mainland points, are visible; however, under typical marine layer conditions, shapes, lines, and textures can be difficult to distinguish. Four offshore platforms can be seen from the coastline under good visibility conditions. From the nearest point on the coast in Ventura County, at Leo Carrillo State Beach near the Ventura/Los Angeles County line, Platform Grace is 9 NM (10.4 miles or 16.7 km) offshore; Platform Gilda is 7.6 NM (8.8 miles or 14.1 km); Platform Gail is about 8.7 NM (10 miles or 16.1 km); and Platform Gina is the closest at 3.2 NM (3.7 miles or 5.9 km). These platforms are lighted and visible at night.

Good visibility occurs in the nearshore and offshore Project areas primarily between November and May, when distances greater than 9 NM (10.4 miles or 16.7 km) may be visible about half the time. Heavy marine layer conditions occur from mid-May to mid-July in Ventura County, where visibility offshore is often reduced to less than 0.9 NM (1.04 mile or 1.67 km) (see Table 4.1-6, "Visibility Distances by Month at Point Mugu," in Section 4.1, "Introduction to the Environmental Analysis"). Nearshore and offshore areas in Ventura County are characterized by a light marine layer condition consisting of clear sky with surface haze, with visibility limited to 9 to 13 NM (10.4 to 15 miles or 16.7 to 24.1 km) offshore. The sky and water appear as a uniform gray color, and any contrast in color or texture between the sky and water is usually not discernible. As discussed below, residential communities with views of the proposed Cabrillo Port site are approximately 17 to 22 NM (19.6 to 25.3 miles or 31.5 to 40.8 km) from the proposed Cabrillo Port site.

Visibility statistical data for the vicinity of Point Mugu show that a visibility threshold of ≥9 NM (10.4 miles or 16.7 km), i.e., good visibility, occurs approximately 37 percent of

the year (November through April) (see Table 4.1-7, "Visibility Frequency (Percent) at Point Mugu (PM) and San Nicholas Island (SNI)" in Section 4.1, "Introduction to the Environmental Analysis"). The FSRU is 12.01 NM (13.83 miles or 22.25 km) from the nearest mainland shore at Leo Carrillo State Beach near the Ventura/Los Angeles County line.

The FSRU would be anchored approximately 16 NM (18.4 miles or 29.6 km) south-southeast of the Reliant Energy Ormond Beach Generating Station, which is located in the City of Oxnard (see Figure 2.1-2 in Chapter 2, "Description of the Proposed Action"). It would be located in waters 2.02 NM (2.3 miles or 3.7 km) farther from shore from the southern edge of the nearest shipping lane (the southbound coastwise traffic lane). Commercial fishing, naval, and recreational vessels are also a common feature of the marine viewshed. More than 5,000 commercial vessels transit the traffic separation scheme in the Santa Barbara Channel annually, roughly 14 ships every 24 hours; there is almost always a ship in one's field of view for a person on the mainland. If no marine traffic is visible, it is more likely due to smog, atmospheric haze, fog, or darkness of the night sky rather than an absence of shipping traffic.

Hollywood Beach, Mandalay Beach, Ormond Beach, Silver Strand Beach, and Port Hueneme Beach are popular destinations for residents and tourists. The proposed FSRU would be located approximately 17.6 to 21.5 NM (20.3 to 24.8 miles or 32.6 to 39.8 km) away from these beaches.

Hiking trails in the Santa Monica Mountains National Recreation Area (NRA) and the 55-mile (88.5 km) scenic corridor associated with Mulholland Drive provide local residents and hikers with views of the Pacific Ocean, and therefore, potential views of the FSRU. The NRA attracts approximately 500,000 visitors each year.

The views from the Channel Islands consist mainly of open ocean, the California coastline in the distance, and commercial and recreational vessels in the foreground. Offshore Platforms Grace, Gilda, Gail, and Gina are also visible from the islands under good visibility conditions. The FSRU anchorage would be approximately 18.71 NM (21.5 miles or 34.7 km) from Anacapa Island, the nearest island of the Channel Islands, and 26 NM (29.9 miles or 48.2 km) from Santa Cruz Island. Depending on a viewer's elevation, all or portions of the FSRU would be visible (but only as a very small object on the horizon) from other locations within the Channel Islands National Park, mainly from higher elevations on Anacapa and Santa Cruz Islands.

At some locations along the Pacific Coast Highway there is both residential and commercial development. The tops of the Moss tanks of the FSRU would be visible from State Route 1 at one location, specifically, at KOP 6 in Section 4.04 of the Final EIR.

The Final EIR concludes, based on its simulations, that all of the aesthetic impacts identified would be adverse, but not significant with the exception that the FSRU would change the visual character of the ocean view for recreational boaters, a significant, long term impact.

C. IMPACTS THAT REMAIN SIGNIFICANT AFTER APPLICATION OF ALL FEASIBLE MITIGATION

Of the 66 potentially significant environmental impacts identified by the Final EIR, 20 cannot be mitigated to below their significance criteria by the application of all feasible mitigation. These impacts, which are Class I impacts under CEQA, are listed below as either "Temporary" (returns to baseline conditions after the activity stops), "Short-term" (returns to baseline conditions on its own within one year of the activity), "Long-term" (returns to baseline conditions after restoration and monitoring), and "Permanent" (never returns to baseline conditions): .

Temporary impacts include the following six impacts:

- **Impact AIR-1.** Project construction activities in Ventura and Los Angeles Counties would generate emissions that exceed quantitative thresholds for criteria pollutants in designated air quality nonattainment areas.

- **Impact AIR-2.** Onshore Project construction activities would generate particulate emissions that could cause or contribute to existing or projected violations of ambient air quality standards.

- **Impact AIR-3.** An LNG spill from the FSRU or a pipeline rupture would result in a natural gas release and/or a fire that could cause temporary increases in ambient air concentrations of criteria pollutants in excess of air quality standards, expose sensitive receptors and the general public to substantial concentrations of toxic air contaminants, and/or create objectionable odors.

- **Impact NOI-4.** HDB at the shore crossing and HDD or other drilling techniques at onshore waterways and intersection crossings could temporarily increase noise levels for sensitive receptors. Noise levels could exceed local noise ordinances or permit conditions.

- **Impact NOI-5.** HDB, HDD, boring, trenching, and other construction activities could temporarily create vibration levels at sensitive receptors.

- **Impact NOI-6.** Site preparation, pipeline installation, and construction of aboveground facilities could temporarily increase noise levels for sensitive receptors, such as schools and residences. Noise levels may exceed county and/or city noise

ordinances or permit conditions during the installation of the onshore pipeline and associated structures.

Short term impacts include the following impact:

- **Impact WAT-5b:** An accidental release of diesel fuel to marine waters violates Federal and State water quality standards or objectives.

Long term impacts include the following six impacts:

- **Impact BioMar-6.** An accidental release of a natural gas, fuel, or oil could cause morbidity or mortality of marine biota, including fish, invertebrates, seabirds, and special status species such as sea turtles, through direct contact or ingestion of the material.

- **Impact BioMar-8.** A release of LNG, natural gas, fuel, or oil could cause injury or mortality of marine mammals through direct contact or ingestion of the material.

- **Impact PS-2.** A high-energy collision of another vessel with the FSRU or an LNG carrier or an intentional attack could cause a rupture of the Moss tank(s) holding LNG, leading to a release of an unignited flammable vapor cloud that could extend beyond the 1,640-foot (500 m) radius safety zone around the FSRU, impact any members of the boating public in the identified potential impact area, and impact boats traveling in the Traffic Separation Scheme.

- **Impact PS-3.** Fishing gear could become hung up on the pipeline and potentially damage one or both of the subsea pipelines. Similar damage may occur due to a seismic event or subsea landslide.

- **Impact PS-4.** The potential exists for accidental or intentional damage to the onshore pipelines or valves carrying odorized natural gas. Damage, fires, and explosions may occur due to human error, equipment failure, natural phenomena (earthquake, landslide, etc.). This would result in the release of an odorized natural gas cloud at concentrations that are likely to be in the flammable range.

- **Impact PS-5.** In the event of an accident, there is a greater likelihood of injury, fatality, and property damage near Center Road Pipeline MP 4.1, an HCA.

Permanent impacts include the following seven impacts:

- **Impact AES-3.** The FSRU would change the visual character of the ocean view for recreational boaters.

- **Impact AGR-2.** Expansion of the Center Road Valve Station in Ventura County would require conversion of approximately 0.1 acre (0.04 ha) of agricultural land to non-agricultural uses.

- **Impact AIR-5.** Emissions of NOx and ROC generated from LNG carriers, tugboats, and the crew/supply vessel operating in California Coastal Waters could contribute to ambient ozone impacts in the areas located downwind of the Project.

- **Impact BioMar-5.** Noise from construction and operation vessels or equipment could disrupt migrations; interfere with or mask communications, prey and predator detection, and/or navigation; cause adverse behavioral changes; or result in temporary or permanent hearing loss.

- **Impact NOI-2.** Recreational boaters and fishers at certain distances from the facility could hear noise generated by FSRU operations over the long-term.

- **Impact NOI-3.** LNG carriers, crew boats and supply vessels, or helicopters could temporarily increase noise levels for sensitive receptors, such as recreational boaters and fishers.

- **Impact REC-3.** The presence of the Project would alter the recreational experience of recreational boaters, including tourists and visitors on whale-watching trips and other visitors to the Channel Islands National Park.

D. ADEQUACY OF THE FINAL EIR

The State CEQA Guidelines, Section 15151, along with annotations from the Resources Agency, provide as follows:

> An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.
>
> **Note:** Authority cited: Section 21083, Public Resources Code; Reference: Sections 21061 and 21100, Public Resources Code; *San Francisco*

Ecology Center v. City and County of San Francisco, (1975) 48 Cal. App. 3d 584.

Discussion: This section is a codification of case law dealing with the standards for adequacy of an EIR.

In *Concerned Citizens of Costa Mesa, Inc. v. 32nd District Agricultural Assoc.* (1986) 42 Cal. 3d 929, the court held that "the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions." In *Browning-Ferris Industries of California, Inc. v. San Jose* (1986) 181 Cal. App. 3d 852, the court reasserted that an EIR is a disclosure document and as such an agency may choose among differing expert opinions when those arguments are correctly identified in a responsive manner. Further, the state Supreme Court in its 1988 *Laurel Heights* decision held that the purpose of CEQA is to compel government at all levels to make decisions with environmental consequences in mind. CEQA does not, indeed cannot, guarantee that these decisions will always be those which favor environmental considerations, nor does it require absolute perfection in an EIR.

Staff believes that the Final EIR meets or exceeds the above standard.

Two predominant criticisms of the Final EIR have been advanced by commenters on the March 2006 Revised Draft EIR: 1) the document does not analyze the "whole of the project" and 2) the document's discussion of alternatives to the proposed Project is deficient. Each is discussed below.

1. Whole of the Project

Section 15378, State CEQA Guidelines, states, in part, "'Project' means the whole of an action, which has a potential for resulting either in a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment...." Commenters maintain that to comply with the above, the proposed Project must be analyzed from "cradle to grave", that is, from the development of the natural gas in Australia to the potential end uses of such gas in California. The Commission staff respectfully disagrees with this interpretation as indicated in the following responses to comments to this end.

The proposed Project is not under the regulatory control of any single jurisdiction; it is governed by the laws, rules and regulations of the involved jurisdiction. As indicated in Section 1.3 of the Final EIR, the activities within Australia are subject to the Commonwealth Environmental Protection and Biodiversity Conservation Act of 1999 and the Western Australian Environmental Protection Act of 1986 (Macfarlane 2005, see Appendix L). Environmental legislation similar to NEPA/CEQA is also in effect in

both Malaysia and Indonesia. Marine transport is governed by international law, treaty, etc. As required by law, the Final EIR identifies the potential direct and indirect impacts within Federal, State and local jurisdictions. Information from each of the above sources is included in the public record and will be taken into account by decision-makers when they consider the proposed Project.

Table 1.4.1 and Section 1.5 of the Final EIR contain information on scoping comments received. Section 1.3 of the document contains information on all phases of the project, including the extraction of natural gas.

The proposed Project, or "whole of the action" (State CEQA Guidelines Section 15378) involves the construction and operation of the Cabrillo Port LNG Deepwater Port and related facilities by a private applicant. This is the action for which the Applicant has applied for a lease from the Commission and for which it will be required to obtain approvals from the USCG, MARAD, and other Federal, State, and local agencies. The production of natural gas in other countries, which may serve as the supply of LNG, is related to the proposed Project, but is a separate undertaking that is not a component of this Project. The Project or "whole of the action" must be distinguished from the indirect effects that may be attributed to the proposed Project or how the Project contributes to a cumulative impact. In compliance with the CEQA, the Final EIR analyzes the indirect and cumulative effects of this proposed Project on a broad geographic area, including effects within California Coastal Waters associated with shipping LNG to the FSRU.

The Applicant is required to adhere to all applicable Federal, State, and local laws, regulations, and permit requirements in the execution of all phases of the Project. Section 4.2.6 of the Final EIR states, "The environmental and occupational safety record for the Applicant's worldwide operations, including, for example, mining ventures overseas, was not considered in evaluating potential public safety concerns associated with this Project because such operations are not directly comparable to the processes in the proposed Project." The conclusions in the EIR are based on the analyses of potential environmental impacts of the proposed Project and the implementation assumptions stated in Section 4.1.7..

Section 15000 of the State CEQA Guidelines states, in part, "The regulations contained in this chapter are prescribed by the Secretary of Resources to be followed by all state and local agencies of California in the implementation of the California Environmental Quality Act."

Any position that the analysis of the proposed Project should include impacts from, for example, the production and liquefaction of natural gas in Australia, must also be viewed within the context of sections 15040 and 15041 of the State CEQA Guidelines, which specifically define and correspondingly limit the authority provided to State and local agencies under the CEQA. . Section 15040 provides as follows:

(a) CEQA is intended to be used in conjunction with discretionary powers granted to public agencies by other laws.

(b) CEQA does not grant an agency new powers independent of the powers granted to the agency by other laws.

(c) Where another law grants an agency discretionary powers, CEQA supplements those discretionary powers by authorizing the agency to use the discretionary powers to mitigate or avoid significant effects on the environment when it is feasible to do so with respect to projects subject to the powers of the agency. Prior to January 1, 1983, CEQA provided implied authority for an agency to use its discretionary powers to mitigate or avoid significant effects on the environment. Effective January 1, 1983, CEQA provides express authority to do so.

(d) The exercise of the discretionary powers may take forms that had not been expected before the enactment of CEQA, but the exercise must be within the scope of the power.

(e) The exercise of discretionary powers for environmental protection shall be consistent with express or implied limitations provided by other laws.

Section 15041 provides:

Within the limitations described in Section 15040:

(a) A lead agency for a project has authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment, consistent with applicable constitutional requirements such as the "nexus" and "rough proportionality" standards established by case law (Nollan v. California Coastal Commission (1987) 483 U.S. 825, Dolan v. City of Tigard, (1994) 512 U.S. 374, Ehrlich v. City of Culver City, (1996) 12 Cal. 4th 854.).

(b) When a public agency acts as a Responsible Agency for a project, the agency shall have more limited authority than a Lead Agency. The Responsible Agency may require changes in a project to lessen or avoid only the effects, either direct or indirect, of that part of the project which the agency will be called on to carry out or approve.

(c) With respect to a project which includes housing development, a Lead or Responsible Agency shall not reduce the proposed number of housing units as a mitigation measure or alternative to lessen a particular

significant effect on the environment if that agency determines that there is another feasible, specific mitigation measure or alternative that would provide a comparable lessening of the significant effect.

Section 15378(a) of the State CEQA Guidelines states, in part, "Project means the whole of an action..." This must be interpreted in conjunction with section 15378(a)(3), which states, "An activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies." When read in conjunction with section 15000, it is clear that the law and any document prepared under its provisions apply solely to the jurisdiction and authority of California public agencies.

2. Alternatives

Section 15126.6(a), State CEQA Guidelines, states:

> Alternatives to the Proposed Project. An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason. (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553 and *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376).

Section 15126.6(c), State CEQA Guidelines, states:

> Selection of a range of reasonable alternatives. The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. Additional information explaining the choice of alternatives

may be included in the administrative record. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.

"Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors (California Public Resources Code § 21061.1.).

The Applicant's objectives for the Cabrillo Port LNG Deepwater Port can be summarized as follows:

- Address California's growing demand for clean-burning natural gas for electric power generation, industrial, residential, and commercial uses, thus furthering the national goal of energy sufficiency;
- Provide California consumers access to sources of natural gas from the Pacific Rim and provide greater flexibility and reliability in gas providers; and
- Deliver an annual average of 800 MMcfd (22.7 million m^3) of natural gas per day into the Southern California area via the existing SoCalGasCo natural gas transmission system.

In consideration of the above, the following alternatives are discussed in the Final EIR within the designated sections. The components in **bold text** are part of the proposed Project, the items in regular text are evaluated as alternatives in the Final EIR, and the items in *italicized text* are those alternatives that were eliminated from further analysis because each would not "feasibly accomplish most of the basic objectives of the project" and would not "avoid or substantially lessen one or more of the significant effects" of the proposed Project.

Alternative Concept	**Options/Locations (Section Discussed)**	
No project	No Action Alternative (3.4.1)	
Other sources of energy	*Energy Conservation* (3.3.1)	
	Renewable Energy Sources (3.3.2)	
	Retrofitting Existing Power Plants (3.3.3)	
	New or Expanded Pipeline Systems (3.3.4)	
Terminal locations	Regional offshore locations	*Baja California, Mexico* (3.3.5)
		Washington/Northern Oregon (3.3.6.1)
		Southern Oregon/Northern California (3.3.6.2)
		San Francisco Bay to Point Conception (3.3.6.3)

Alternative Concept	**Options/Locations (Section Discussed)**	
		Los Angeles to the Mexican border (3.3.6.4)
	Onshore California	*Horno Canyon at Camp Pendleton, Rattlesnake Canyon, Little Cojo at Point Conception, Deer Canyon, Channel Islands* (3.3.7.3)
	Offshore California	**Cabrillo Port (2.0)**
		Santa Barbara Channel (Ventura Flats), including offshore pipeline via Platform Grace, Reliant Energy Mandalay Generating Station Shore Crossing, and Gonzales Road Pipeline (3.4.2)
		Gaviota Pass, Offshore of Camp Pendleton, Deer Canyon, Anacapa Island, Chinese Harbor, Smugglers Cove, San Pedro Point, West side of the Channel Islands (3.3.7.4)
Deepwater port concepts	Floating terminal	**Floating storage and regasification unit (FSRU) (2.2)**
		Single-point mooring direct regasification (3.3.8.3)
		Multiple-point mooring direct regasification (3.3.8.3)
	Fixed terminal	*Platform* (3.3.8.1)
		Gravity-based structure (3.3.8.2)
Alternative technologies	Regasification methods	**Submerged combustion vaporizer (2.3.1.3)**
		Alternative vaporizer technologies (3.3.9.1)
	Technologies used on the FSRU	**Moss tank storage (2.2.2.3)**
		Membrane storage (3.3.9.2)
		Onshore power source (3.3.9.3)
		Alternative diesel engine cooling (3.3.9.4)
Pipeline routes and installation methods	Offshore pipeline route	**Project offshore pipeline route (2.3)**
		Offshore Pipeline Route 1 (3.3.10.1)
		Offshore Pipeline Route 2 (3.3.10.2)
		Offshore Pipeline Route 3 (3.3.10.3)
	Shore crossing pipeline	**Reliant Energy Ormond Beach Generating Station Shore Crossing (2.3.2)**
		Point Mugu Shore Crossing/Casper Road Pipeline (3.4.3.1)
		Arnold Road Shore Crossing/Arnold Road Pipeline (3.4.3.2)
		Reliant Energy Mandalay Generating Station Shore Crossing (3.4.2)
	Shore crossing pipeline installation methods	**Horizontal directional boring (2.6.1)**
		Horizontal directional drilling (3.3.11)
		Trenching (3.3.11)

Alternative Concept	Options/Locations (Section Discussed)	
	Center Road onshore pipeline route	**Center Road Pipeline (2.4.1.1)**
		Center Road Pipeline Alternative 1 (3.4.4.1)
		Center Road Pipeline Alternative 2 (3.4.4.2)
		Center Road Pipeline Alternative 3 (3.4.4.3)
		Center Road Pipeline Alternatives 1A and 1B (3.3.12.1)
	Line 225 Pipeline Loop onshore route	**Line 225 Pipeline Loop (2.4.2.1)**
		Line 225 Pipeline Loop Alternative 1 (3.4.4.2)
		Line 225 Pipeline Loop Alternative 2 (3.12.2)

Sections 1.2.2, 1.2.3, 1.2.4, 1.2.5 and 3.3 of the Final EIR contain information on the adequacy of alternatives. As indicated above, section 15126.6(a) of the State CEQA Guidelines states, in part," [t]he lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives." The California Supreme Court in the Citizens of Goleta Valley case recognized that while an agency's jurisdiction was only one factor to consider, "the law does not require in-depth review of alternatives that cannot be realistically considered and successfully accomplished." In addition, the discussion in section 15364 of the State CEQA Guidelines states that, " [t]he lack of legal powers of an agency to use in imposing an alternative or mitigation measure may be as great a limitation as any economic, environmental, social, or technological factor."

Each of the Alternative Concepts is discussed below:

a. No Project

The selection of the No Action Alternative by decision-makers, for which they have full discretion, would not fulfill the purpose and need of the Project to supply natural gas to California consumers but would maintain, for an indeterminate time, the status quo of California's and the nation's existing and projected energy supply mix, including conservation and renewable energy sources.

b. Other Sources of Energy

As stated in Section 1.2.3 of the Final EIR, "[t]he California Legislature recognizes that the CEC is the State's principal energy policy and planning organization and the CEC is responsible for determining the energy needs of California." Section 1.2.3 also states, "(t)he CEC demand forecasting models assume that the California investor owned utilities (and suppliers from other Western states), which are required to meet a Renewable Portfolio Standard, will meet their obligations (Marks 2006). According to the CEC, although increases in conservation, efficiency, and use of renewable energy

sources are expected to moderate future demand, the policies and mandates in place do not suggest that incorporating conservation, energy efficiency, and the use of renewable energy resources will meet all future investor owned utility portfolio needs (Miller 2006)."

Chapter 3 of the Final EIR discusses energy conservation, efficiency, and renewable sources of energy, and explains why these potential alternatives were not studied in detail in the document. The range of alternatives studied in detail is reasonable and conforms to the CEQA requirements.

The Final EIR acknowledges the contribution of energy conservation and renewables to meet California's energy needs in Sections 3.3.1, 3.3.2, and 4.10.1.3. As discussed in Sections 3.3.1 and 3.3.2, energy conservation and use of renewable energy sources do not meet the projected energy needs of California, as determined by the California Energy Commission in its 2005 Integrated Energy Policy Report Committee Final Report. The projected energy gap is to be filled by seeking additional supplies of natural gas, including LNG. However, the 2005 California Energy Action Plan states explicitly that "California must also promote infrastructure enhancements, such as additional pipeline and storage capacity, and diversify supply sources to include liquefied natural gas (LNG)." The project goal of fulfilling California's and the nation's short- and mid-term natural gas supply needs or diversifying the supply of natural gas should be viewed in this context.

As discussed in Section 3.3.2, "[t]he CEC's projections of future natural gas supply needs for the State include the assumption that renewable energy projects will be implemented, yet still conclude that additional natural gas supplies are necessary."

As also discussed in Section 4.10.1.3 of the document, the CPUC recently reaffirmed that both the State's Integrated Energy Policy Report and Energy Action Plan recognize the need for additional natural gas supplies from LNG terminals on the West Coast: "However, even with strong demand reduction efforts and our goal of 20% renewables for electric generation by 2010, demand for natural gas in California is expected to roughly remain the same, rather than decrease, over the next ten years. This is because a substantial portion of the other 80% of electric generation (not met by renewable energy sources) will need natural gas as its fuel source, and natural gas will still be needed for the growing number of residential and business customers of the natural gas utilities."

c. Terminal Locations

The Final EIR initially evaluated 18 locations for the FSRU as potential locations for the deepwater port. It built on previous California Coastal Commission studies that evaluated nearly 100 locations. The "California Coastal Commission Final Report Offshore LNG Terminal Study"(Appendix E of the Final EIR) concluded that "the most

appropriate siting area for a liquefied natural gas (LNG) terminal off the shoreline of California appears to be in international waters of the southeast part of Ventura Flats". For this reason, the Ventura Flats site was carried forward for further analysis. After review, it was determined that the Ventura Flats alternative location would result in more environmental impacts than the proposed location.

North Baja, Mexico

While potential impacts of a Baja California LNG offshore terminal would not occur in California, such a terminal would not necessarily result in fewer potential environmental effects than the proposed Project because many of the offshore effects would be equivalent to those that would occur in California waters. However, the onshore effects could be greater than those of the proposed Project because any onshore LNG terminal would have a large onshore footprint.

The infrastructure associated with the Shell/Sempra Energia Costa Azul facility currently under construction, which will export natural gas to the U.S., was not analyzed further in the Final EIR because it is evaluated by the FERC and the CSLC in a Joint EIS/EIR for the North Baja Expansion Project (FERC Docket No. PF05-14-000, SCH# 2006081127). To date, Sempra's proposed expansion of its Costa Azul facility has not been permitted; therefore, it would be speculative to evaluate this portion of the project. The use of Northern Baja Mexico LNG Terminals as a potential reasonable alternative to the proposed Project was eliminated from further analysis in this document because, in part, it is presently uncertain whether such projects could meet the Project objective of supplying 800 MMcf (22.7 million m^3) of natural gas per day from the Pacific Rim directly into the existing Southern California natural gas distribution infrastructure. LNG terminals in Northern Baja would also supply the growing demand for natural gas in Northern Baja. Neither the State of California nor the Federal government has jurisdiction over LNG terminals in another sovereign nation or over contracts governing the distribution of natural gas imported through such terminals.

d. Deepwater Port Concepts

The alternative deepwater port concepts examined in the Final EIR include: 1) floating, i.e., single and multiple buoy designs, and 2) fixed, i.e., use of an existing or installation of a new offshore platform structure, or a gravity-based structure.

Floating Buoy/Single and Multiple

The basis of a floating buoy system is a single submerged turret loading buoy moored to the seabed that remains submerged 82 to 131 feet (25 to 40 m) below the water surface. When an LNG carrier with the proper fittings approaches the buoy location, the LNG carrier retrieves the buoy into a mating cone in the bottom of the vessel. Ocean basin tests have verified the feasibility of these types of mooring systems for water

depths ranging from 131 to 2,958 feet (40 to 900 m). With a submerged turret loading technology, specially designed LNG carriers with onboard regasification equipment are required. After mooring, the LNG carrier would regasify the LNG onboard and send the natural gas through the mooring point via a flexible riser to a subsea pipeline. The multiple-point mooring system uses the same technology as the single-point mooring system, but a multiple-point mooring system would have multiple separate buoys. The purpose of the latter system would be to provide continuous service at the same capacity as the FSRU. In order to have comparable capacity as the FSRU, a two-buoy system would be needed, based on the current size of LNG regasification carriers of 36.4 million gallons (138,000 m^3). The next generation of LNG regasification carriers is projected to carry 39.9 million gallons (151,000 m^3).

The relatively large number of traditional LNG carriers that could call at the FSRU (220 with an additional 137 on order) would add to the Projects reliability, in contrast to the few specifically designed LNG carriers (three are currently operational, two are on order) equipped to attach to the above described floating buoy and regasify on board. The single-point mooring DWP concept cannot, therefore, meet the objective of a continuous supply of natural gas; therefore, this type of project would not be a feasible alternative to the proposed Project.

As indicated above, a two-buoy system could provide comparable capacity to the proposed FSRU. However, depending on whether an open loop or closed loop regasification system were used, either impacts on marine biota or air emissions could be greater than Cabrillo Port's impacts; the seabed footprint would be approximately two times that of Cabrillo Port; and the area with access restrictions and/or recommended speed limits would be twice Cabrillo Port's area. In addition, since the existing projects using this type of technology have very different impacts, it would be speculative to evaluate what the exact configuration of this type of LNG facility offshore of California. The nature and extent of impacts associated with the Woodside Natural Gas Project, which proposes a two-buoy system, cannot be predicted with any certainty at this time because the necessary environmental analyses have not yet begun. Therefore, a dual-point mooring was eliminated from further consideration as an alternative to the proposed Project because it would be speculative to estimate the full spectrum of environmental impacts of such a project offshore of California.

Use of Existing or Installation of New Fixed Platform Structure

An LNG terminal at an offshore oil platform may not have the capacity to provide a continuous and reliable supply of natural gas at reasonable rates, which is one of the purposes of the Cabrillo Port DWP. The existing platform-based terminal was eliminated as an alternative to the proposed Project because it would not provide sufficient storage capacity "to enable a continuous, reliable supply to local energy markets." Also, due to its lack of storage at the terminal, the regasification process, which is generally slower than carrier unloading, could not proceed independently of

unloading, and the delivery vessel(s) would need to remain moored longer at the terminal. In addition, sufficient information is not available to analyze the potential environmental impacts to a level sufficient to determine whether a platform-based LNG terminal alternative "...would avoid or substantially lessen any of the significant effects" of the proposed Project (State CEQA Guidelines § 15126.6).

The proposal by NorthernStar to construct an offshore LNG terminal at Platform Grace (the Clearwater Port project) will be evaluated in a separate EIS/EIR. However, since it may be licensed and could operate simultaneously with Cabrillo Port, it is appropriate to evaluate its potential effects within the context of cumulative impacts.

A new platform would have not only visual effects for those who live in and use the viewshed, but also greater potential environmental effects than conversion of an existing platform, since the impacts associated with installation of existing platforms have already occurred.

A fixed platform-based LNG terminal may also have to be constructed closer to shore than the proposed Project location due to considerations of water depths in the area, as previously discussed. If one were installed closer to shore within feasible water depths, the platform could create an additional navigational hazard in the Santa Barbara Channel, and the necessary safety zone would affect maritime commercial and recreational activities because it would be in a high vessel-traffic area. Given that a new platform would be fixed to the seafloor, the potential adverse effects of local seismic activity to the structure would be greater than the effects to a floating facility.

As indicated in the Final EIR, the new platform-based terminal alternative was eliminated as an alternative to the proposed Project because, unless storage capacity is provided, it would not provide a continuous and reliable supply of natural gas to local energy markets, and, if storage is also included, the potential environmental and safety effects could be greater than those of the proposed Project. In addition, sufficient information is not available to fully analyze the potential environmental impacts to a level sufficient to determine whether this LNG facility configuration "...would avoid or substantially lessen any of the significant effects" of the proposed Project (State CEQA Guidelines § 15126.6).

Gravity-Based Structure

An additional alternative offshore concept is a fixed LNG terminal, such as a gravity-based structure. A gravity-based structure is one that remains secured to the seafloor, primarily by gravity. A gravity-based structure can be constructed onshore (usually from concrete), floated to a site, and installed to provide an offshore enclosure and foundation for LNG tanks and a stable deck for regasification equipment. Such a facility could be placed on a level and stable part of the seabed. Factors influencing this

concept include constructability, weather, safety, shipping, environmental setting, geology of the seabed (including water depth), and regulatory permitting.

This potential alternative terminal technology was eliminated from further consideration because of the technical infeasibility of installing it at the location of the proposed Project or any other location with similar attributes, e.g., distance from shore, and because a location closer to shore would pose greater visual effects and potential marine traffic issues than the proposed Project.

III. THE LEASE

A. BENEFITS TO THE STATE FROM THE PROJECT

The environmental effects of the proposed Project as identified in the Final EIR should be viewed within the context of the potential benefits that the State may derive from the proposal. As provided in Section 15093(a) of the State CEQA Guidelines:

> CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits of a propos[ed] project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable."

While the State would, of course, receive some rent for the lease, the primary benefit would be increased natural gas supplies, enhancements to gas supply and transportation capacity into the state, and diversification of both supply sources and means of transportation. These objectives have been of increasing interest in the State in light of the volatility in gas prices since 2000 and the State's increasing reliance upon natural gas for electrical generation. In addition to the general discussion provided here, further detailed information is included in Exhibit F, entitled "CEQA FINDINGS."

1. Need for Natural Gas and Diversification of Supply: The California Energy Commission and the Public Utilities Commission Conclusions

In its 2005 Natural Gas Assessment Update, the California Energy Commission (CEC) found that, even with projected efforts toward implementation of conservation and alternative energy programs, natural gas demand in California will continue to increase by at least 0.7% per year for the foreseeable future. Against this increased demand, the CEC has found that existing natural gas supply sources in California, New Mexico and Western Canada are maturing and that California is facing increased competition for these supplies from other states.

The CEC has consequently concluded that California would benefit from the importation of LNG. In the event that North American production declines or is available only under more competitive demand scenarios resulting in higher prices, California would also have access to supplies from Australia or other overseas locations.

Besides increasing potential natural gas supplies into the State, the Project would also contribute to the diversity of natural gas sources. Diversification would help reduce the impacts of any potential disruptions in supply from existing source, as happened in California in 2001. Whether those past disruptions were caused by true shortages or market manipulation, diversification of supply would help reduce the likelihood that such disruptions would happen again. A new supply source may be expected to help prevent market manipulation by introducing increased competition. The greater the number of suppliers, the less opportunity there is for any one party to affect supplies and prices. Opponents of the proposed Project raise the point that the Applicant would itself become a significant market participant, in that the 800 million cubic feet per day of gas proposed for delivery through the facility would constitute 13.5% of the State's total 2005 natural gas usage, as reported by the CEC. Commission staff is not in a position to determine whether that market share would be sufficient in itself to enable the Applicant to affect prices artificially. However, whatever market share the Applicant might assume would be taken from other current market participants, thereby still enhancing competition in the State over and above current conditions.

The California Public Utilities Commission (CPUC) has joined in the conclusion that LNG imports are appropriate for California's energy needs, as reflected in the joint CEC/CPUC September 21, 2005 publication, "Energy Action Plan II, Implementation Roadmap for Energy Policies." A memorandum dated December 12, 2006, from CPUC Staff members to the CPUC President addressing these issues is attached as Exhibit H.

In order to evaluate this issue, the Commission Staff, not having the expertise itself to evaluate energy markets and prepare economic forecasts, must rely upon the conclusions reached by the CEC. As a general policy, as stated under Section 25300 of the Public Resources Code (P.R.C.), all State agencies in California are to cooperate with the CEC with respect to energy policy. P.R.C. Section 25302 requires certain listed State agencies to carry out their respective energy-related duties and responsibilities based upon the information and analyses contained in a biennial integrated energy policy report by the CEC. Although, the Commission is not included in that list, it is generally the practice of the State to rely upon the CEC with respect to these issues. The CEC's staff has the expertise to evaluate energy supply and demand; the Commission's staff does not. The recommendations here provided are therefore based upon the most recent Integrated Energy Policy Report by the CEC, adopted on November 21, 2005.

It should be noted that the CEC is currently updating natural gas supply and demand forecasts. That update, though, is not expected to be completed until some time near

the end of 2007. Commission staff has therefore relied upon the existing 2005 analysis at this time.

2. Sufficiency of Other Supply Sources

a. Existing Supply Sources

Opponents to the proposed Project contend that natural gas supplies coming into the State would be adequate for decades, given current projections. These supplies currently come from within California, the San Juan Basin in New Mexico, the Rocky Mountains and from Western Canada. Supplies from out of State are currently delivered through eight pipelines crossing the Colorado River, one crossing through Nevada and Utah from Wyoming, and three from Oregon.

The CEC disagrees with this assertion. It has concluded that North American production is maturing and that other states are now looking at the supply sources that have heretofore been primarily used to supply California natural gas needs. The existence of pipeline capacity alone, then, does not assure sufficient supply for California's needs.

The Project would serve as a hedge against the possibility North American production declines and increased competition, should they in fact occur as predicted by the CEC. If the predictions are not realized and the proposed Project is built, then natural gas prices may be expected to drop. The State's energy consumers would benefit in either case. The position opponents to the project take is that these benefits are insufficient to justify the environmental impacts the Project would entail.

b. Supplies through Energia Costa Azul (ECA) and Jordan Cove

It has been suggested that the new LNG port currently under construction north of Ensenada in Baja California could provide the means to deliver natural gas supplies sufficient, along with existing supply sources, to meet California's needs. The new ECA port will be able to deliver up to one billion cubic feet per day of natural gas when completed. Approximately one half of that is contracted to be used in Mexico. The remaining 500 million cubic feet per day would be delivered to the United States and could be used either in California or Arizona.

It is not ultimately clear how much supply coming through ECA would end up in California. That may depend upon market conditions and Mexico's own needs. From the CEC's conclusions, with respect to the State's future energy needs, it would appear that any such amounts may not be sufficient, at least within the time frame of the Applicant's proposed Project, to meet the growing needs of the State when coupled with existing supply sources. The CEC projects an increase in natural gas demand of approximately 0.7% each year for the foreseeable future, even with conservation efforts

and increased use of renewable energy sources. Today's natural gas usage in California averages 6.25 billion cubic feet per day. Demand would therefore be expected to increase by about 44 million cubic feet per day at least in the first year and by a similar amount in each subsequent year. Therefore, it may take over 10 years for the increase to use up an incremental 500 million cubic feet per day.

One of the additional LNG terminals proposed to be located on the west coast of North America is currently under consideration in Coos Bay, Oregon. This facility, called Jordan Cove, would if completed as proposed, be used to deliver gas in part to Northern California. This facility has not yet begun the Federal environmental review process; it is, therefore, uncertain whether it and the pipelines necessary to bring the resultant natural gas to California, will be approved or built.

c. Conservation and Use of Renewable Energy Sources

Project opponents have also asserted that conservation efforts and increased use of renewable energy sources could provide a level of energy to make any additional natural gas supplies unnecessary. They have said that, rather than approve the subject Project, the State should put its resources toward conservation and use of renewable resources.

It should first be noted that the CEC conclusions with regard to future natural gas needs takes into account aggressive foreseeable gains in conservation and use of renewable energy. The CEC and CPUC are establishing new requirements to promote or require such efforts. However, even with and in consideration of these new requirements, the CEC and CPUC project increased need for natural gas supplies and recommend diversification of such supplies.

Denial of the proposed Project would not make funds that would otherwise be used for natural gas available for development for renewable energy sources. The Applicant's interest in developing the proposed Project derives from its efforts to produce and sell natural gas. If it cannot do so, it does not intend, instead, to invest in development of renewable energy sources. No Federal, State or local funds are to be used for the proposed Project; therefore, denial would not make any such funds available for other uses.

Alternative energy sources and conservation, though, might theoretically benefit indirectly from a denial of the project if, as a result, gas supply disruptions were to develop, accompanied by substantial price increases. Interest in conservation and renewable sources increased during the supply disruptions of 2000/2001. A similar disruption in the future, accompanied by significant increases in prices, may also provide new incentives for individuals to utilize those alternative sources. In the event, however, that, contrary to the conclusions of the CEC and CPUC, natural gas supplies delivered through existing means continue to be sufficient, as opponents to the

proposed Project claim would be the case, then denial could not, in itself, lead to disruption or indirectly benefit alternatives and conservation. In any case, it has not been the policy or practice of the State to date to employ increased market prices for traditional energy sources for the purpose of promoting conservation or use of alternative energy sources.

B. PROPOSED LEASE PROVISIONS

The Applicant has submitted an application for a right of way lease of State owned sovereign lands for the construction, use, operation and maintenance of two proposed 24-inch diameter subsea natural gas pipelines that would be used to transport natural gas from the proposed Cabrillo Port Deepwater Port LNG terminal to the shore at the Reliant Energy Power Generation Station at Ormond Beach.

The Applicant has agreed to the provisions of the proposed lease. The lease contains specific provisions that relate to the use of State lands and for the project as a whole. The lease acknowledges the Commission's exercise of authority to administer, monitor and enforce the entire Mitigation Monitoring and Reporting Plan (MMP) as the Lead Agency under CEQA. Contained in the Lease are specific provisions that reiterate certain requirements outlined in the MMP and specify the level of Commission staff involvement in the design review, construction, inspection, operation and maintenance process beginning with the design pre-construction phase to the post construction operational phase of the pipeline facilities on the Lease Premise and the FSRU, anchoring, mooring, transfer and pipeline facilities in federal waters.

1. Provisions Relating Specifically to the Pipeline on State Sovereign Lands

The pipelines would be designed, constructed, inspected, tested, operated and maintained to meet or exceed, U. S. Department of Transportation (DOT) construction and safety standards outlined in the Pipeline Safety Improvement Act of 2002; Title 49 Code of Federal Regulations (CFR) Part 192, Transportation and Other Gas by Pipeline; and reporting requirements in Title 49 CFR Part 191. These laws and regulations, which are intended to protect the public and to prevent natural gas facility accidents and failures, include specifics for material selection and qualification; odorization of gas; minimum design requirements; and protection of the pipeline from internal, external, and atmospheric corrosion. While the primary focus of the federal standards is prevention of accidents, the Applicant would have in place safety related policies and procedures, and an emergency response plan that would be coordinated with emergency management agencies.

Current seismic engineering standards at all fault crossings and potential liquefaction zones in California have been incorporated into the lease. These standards include provisions such as the *Guidelines for the Design of Buried Steel Pipe* (American Lifeline

Alliance), *Guidelines for the Seismic Design of Oil and Gas Pipeline Systems* (American Society of Civil Engineers), and other recognized industry standards.

Beginning with the design phase and through the construction phase of the pipelines for the entire project, both offshore and onshore, the Commission's Mineral Resources Management Division (MRMD) staff will review and approve all engineering design calculations, drawings, construction contract specifications, seismic hazard evaluation reports, geotechnical reports, weld specifications, welder qualifications and weld testing, construction contractor's work execution plans, horizontal directional drilling and/or boring (HDD/HDB) program and procedures, hydrotest procedures, hazardous spill contingency plans, critical operations and curtailment plan and a vessel anchoring plan. Prior to placing the pipeline in service, Commission staff will review and approve the facility's operation and maintenance plan which will address internal and external maintenance inspections including frequency and details of pipeline integrity testing methods, corrosion monitoring and testing of the cathodic protection system, and leak monitoring.

Once constructed, the pipeline system will be operated and maintained in accordance with all applicable Federal and State regulations.

2. Provisions Relating Specifically to the FSRU, Anchoring, Mooring, Transfer and Pipelines in Federal Waters

Pursuant to a provision of the Lease, the Commission's Marine Facilities Division (MFD) staff would have access to the FSRU and other associated facilities located in federal waters. Such access would be for the term of the Lease for monitoring and inspection for compliance with the terms of the Lease and also to monitor and inspect for compliance with other laws, regulations and requirements as they pertain to the FSRU and other related facilities and associated activities that are applicable pursuant to the Deepwater Port Act.

The purpose of this lease provision is to ensure that the State has the ability to observe operations and evaluate facilities in federal waters to ensure that unsafe practices or regulatory violations do not result in an incident that affects the State. The Commission's MFD includes inspection staff who have very extensive experience in monitoring marine terminal activities. For the last 16 years, MFD field personnel have monitored and inspected facilities and operations at marine oil terminals throughout the State on a daily basis. A LNG terminal is very similar, in most respects, to a marine oil terminal. MFD staff's experience would ensure that inspections take place to determine if activities are undertaken that threaten public safety or the environment.

At the request of other state and local agencies, MFD field staff would also inspect to ensure that activities do not violate any other requirements outside of the Commission's jurisdiction. Section 1518(b) of the Deepwater Port Act,

governing issuance of the license for the facilities in federal waters, provides as follows:

> The law of the nearest adjacent coastal State, now in effect or hereafter adopted, amended, or repealed, is declared to be the law of the United States, and shall apply to any deepwater port licensed pursuant to this chapter, to the extent applicable and not inconsistent with any provision of regulation under this chapter or other Federal laws and regulations now in effect or hereafter adopted, amended, or repealed. All such applicable laws shall be administered and enforced by the appropriate officers and courts of the United States. For purposes of this subsection, the nearest adjacent coastal State shall be that State whose seaward boundaries, if extended beyond 3 miles, would encompass the site of the deepwater port.

Under this provision, then, if, for example, the Office of Spill Prevention and Response Certificate of Financial Responsibility requirements would be applicable to a vessel at the FSRU if it were located in State waters, and if that regulation was not inconsistent or superseded by an applicable federal regulation, then that requirement would apply to the FSRU in federal waters. MFD field personnel could therefore, at the request of the Office of Spill Prevention and Response, check for compliance.

Because State law is incorporated by the Deepwater Port Act into federal law, enforcement would be carried out through appropriate federal agencies. Any violations of applicable safety or other requirements that MFD field personnel discover would be reported to the appropriate federal agency for enforcement action.

However, in the event Commission staff determines that a violation of the lease has occurred, the Commission would be in a position to terminate the lease or take other appropriate action as authorized under the lease and under State law.

The Applicant would be required to provide additional safety analysis, plans and information for MFD staff review that includes, but is not limited to, the project's hazards analysis and subsequent updates, an emergency response plan for small or large scale releases of LNG, a hazardous materials business plan, and annual engineering inspection reports. In addition, MFD staff would be a member of the annual engineering inspection team and the Project must comply with the Liquefied Natural Gas Terminal Engineering and Maintenance Standards (LNGTEMS) at such time as the standards are implemented.

Once the Project is operational, before any modification, alteration, repair or construction that would be significant in nature can take place, the Applicant is required to notify Commission staff and submit detailed engineering plans for staff's review. At the end of the Lease term or early termination, for the improvements located in State

waters, the Applicant would be required to provide a complete detailed abandonment and/or removal plan for the Commission's approval.

3. Financial Responsibility

The Applicant is required to provide the Commission evidence of adequate liability insurance coverage for the entire project, performance bonds and a parent company guarantee agreement that unconditionally guarantees the full performance of all the obligations under the lease by the Applicant.

CEQA INFORMATION

A. 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 EIR identified as CSLC EIR No. 727, State Clearinghouse No. 2004021107. Such EIR was prepared and circulated for public review pursuant to the provisions of the CEQA. A Mitigation Monitoring Program has been prepared in conformance with the provisions of the CEQA (Public Resources Code section 21081.6) and contained in attached Exhibit E.

B. Findings made in conformance with the State CEQA Guidelines (Title 14, California Code of Regulations, section 15091) are contained in Exhibit F, attached hereto.

C Statement of Overriding Considerations made in conformance with the State CEQA Guidelines (Title 14, California Code of Regulations, section 15093) is contained in Exhibit G, attached hereto.

D. This activity involves lands identified as possessing significant environmental values pursuant to Public Resources Code sections 6370, et seq. Based upon the staff's consultation with the persons nominating such lands and through the CEQA review process, it is the staff's opinion that the project, as proposed, is consistent with its use classification.

FURTHER PERMITS, APPROVALS AND REQUIREMENTS:

Major Federal, State and Local license and permit approvals and consultation requirements for the proposed project include, but are not necessarily limited to, those agencies listed below:

Federal

U. S. Maritime Administration
Deepwater Port Act Record of Decision and License Application

USEPA
- Clean Water Act Stormwater and Wastewater Discharge Permits
- Authority to Construct Permit in accordance with Ventura County Air Pollution Control District Rule 10 for the FSRU

Advisory Council on Historic Preservation
- Section 106, National Historic Preservation Act

U.S. Army Corps of Engineers
- Waterways Permit under Section 404, Clean Water Act
- Section 10, Rivers and Harbors Act

U.S. Fish and Wildlife Service
- Section 7, Endangered Species Act

U.S. Minerals Management Service

U.S. Department of Transportation
- Encroachment Permits
- Transportation Permits
- Transit Noise and Vibration Impact Assessment

National Oceanic and Atmospheric Administration (NOAA)
- Section 7, Endangered Species Act (NOAA Fisheries)
- Magnuson-Stevens Fishery and Conservation and Management Act (NOAA Fisheries)
- Marine Mammal Protection Act

Federal Communication Commission
- Telecommunications License

California

Governor of California
- Approval, Approval with Conditions, or Disapproval of Federal Deepwater Port Act Record of Decision and License Application

California State Lands Commission
- Approval of Lease Application

California Coastal Commission
- Consistency with the California Coastal Management Program
- Coastal Development Permit

Appeal, if any, of local government action on the Coastal Development Permit for the Onshore Portion of the Project within the Coastal Zone

California Coastal Conservancy
Easement for Use of Upland Shore Crossing Portion of Project at Ormond Beach

California Department of Transportation
Encroachment Permits

Los Angeles Regional Water Quality Control Board
Clean Water Act Section 401 Certification
Hydrostatic Test Water Discharge Permit

California Department of Fish and Game
California Endangered Species Act Consultation
Stream Alteration Agreements
CDFG Office of Spill Prevention Response
Oil Spill Contingency Plan and Certificate of Financial Responsibility for FRSU and Support Vessels

State Historic Preservation Office
Section 106 National Historic Preservation Act Consultation

Local

City of Oxnard or Ventura County
Coastal Development Permit for the Portion of the Shore Crossing within Local Coastal Program (LCP) Jurisdiction

County of Ventura
Watershed Protection District – Review and Permitting
Public Works Agency Transportation Department – Encroachment Permits
Planning Division – Establish Noise Ordinances

City of Oxnard
Public Works Department – Encroachment Permits
Planning and Environmental Services – Establish Noise Ordinances

City of Santa Clarita
Public Works Department – Encroachment Permits
Oak Tree Permit
Planning and Environmental Services – Establish Noise Ordinances.

EXHIBITS:

A. Location Map of Lease Area
B. Site Map of Lease Area
C. Land Description-Lease Area
D. Project Location Map(s) – Onshore and Offshore
E. Mitigation Monitoring and Reporting Program
F. CEQA Findings
G. Statement of Overriding Considerations
H. Memorandum dated December 12, 2006, from Richard A. Myers, Energy Division, CPUC, and Harvey Y. Morris, Legal Division, CPUC, to President Peevey for the CPUC

PERMIT STREAMLINING ACT DEADLINE:

September 16, 2007 or within 180 days after Certification of the Environment Impact Report.

RECOMMENDED ACTION:

IT IS RECOMMENDED THAT THE COMMISSION:

CEQA FINDING:

CERTIFY THAT AN EIR NO. 727, STATE CLEARINGHOUSE NO. 2004021107, 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.

ADOPT THE MITIGATION MONITORING AND REPORTING PROGRAM, AS CONTAINED IN EXHIBIT E, ATTACHED HERETO.

ADOPT THE FINDINGS, MADE IN CONFORMANCE WITH TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTION 15091, AS CONTAINED IN EXHIBIT F, ATTACHED HERETO.

ADOPT THE STATEMENT OF OVERRIDING CONSIDERATIONS MADE IN CONFORMANCE WITH TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTION 15093, AS CONTAINED IN EXHIBIT G, ATTACHED HERETO.

SIGNIFICANT LANDS INVENTORY FINDING:

FIND THAT THIS ACTIVITY IS CONSISTENT WITH THE USE CLASSIFICATION DESIGNATED BY THE COMMISSION FOR THE LAND PURSUANT TO PUBLIC RESOURCES CODE SECTIONS 6370, *ET SEQ.*

AUTHORIZATION:

1. AUTHORIZE ISSUANCE TO BHP BILLITON LNG INTERNATIONAL, INC., OF A GENERAL LEASE – RIGHT OF WAY USE, BEGINNING APRIL 9, 2007, AND TERMINATING 30 YEARS AFTER THE START OF CONSTRUCTION ON THE LEASE PREMISES OR APRIL 8, 2039, WHICHEVER IS SOONER, FOR THE CONSTRUCTION, OPERATION, USE AND MAINTENANCE OF TWO 24-INCH DIAMETER NATURAL GAS PIPELINES, ON LAND DESCRIBED IN EXHIBIT C ATTACHED AND THIS REFERENCE MADE A PART HEREOF; ANNUAL BASE RENT IN THE AMOUNT OF $155,000, WITH THE ANNUAL ADJUSTMENTS ACCORDING TO THE CONSUMER PRICE INDEX AND WITH THE STATE RESERVING THE RIGHT TO ESTABLISH A NEW BASE RENT AT EACH TEN-YEAR ANNIVERSARY OF THE LEASE; AND MONTHLY RENT ABOVE THE BASE RENT IN THE AMOUNT OF $36,000 FOR THE USE OF THE TEMPORARY CONSTRUCTION AREA DURING THE CONSTRUCTION PHASE ON THE LEASE PREMISES; LIABILITY INSURANCE COVERAGES OF AN AGGREGATE OF NO LESS THAN $1,000,000,000; SURETY BOND IN THE AMOUNT OF $8,000,000; CONSTRUCTION PERFORMANCE BOND IN THE AMOUNT OF $47,000,000; MITIGATION MONITORING PERFORMANCE BOND IN THE AMOUNT OF $2,000,000; AND REVEGETATION AND RECLAMATION PERFORMANCE BOND IN THE AMOUNT OF $1,000,000; AND ACCEPTANCE OF THE PARENT GUARANTEE AGREEMENT.

2. AUTHORIZE AND DIRECT STAFF TO TAKE WHATEVER ACTION IS NECESSARY AND APPROPRIATE TO IMPLEMENT AND ENFORCE THE TERMS OF THE LEASE ISSUED TO THE APPLICANT.

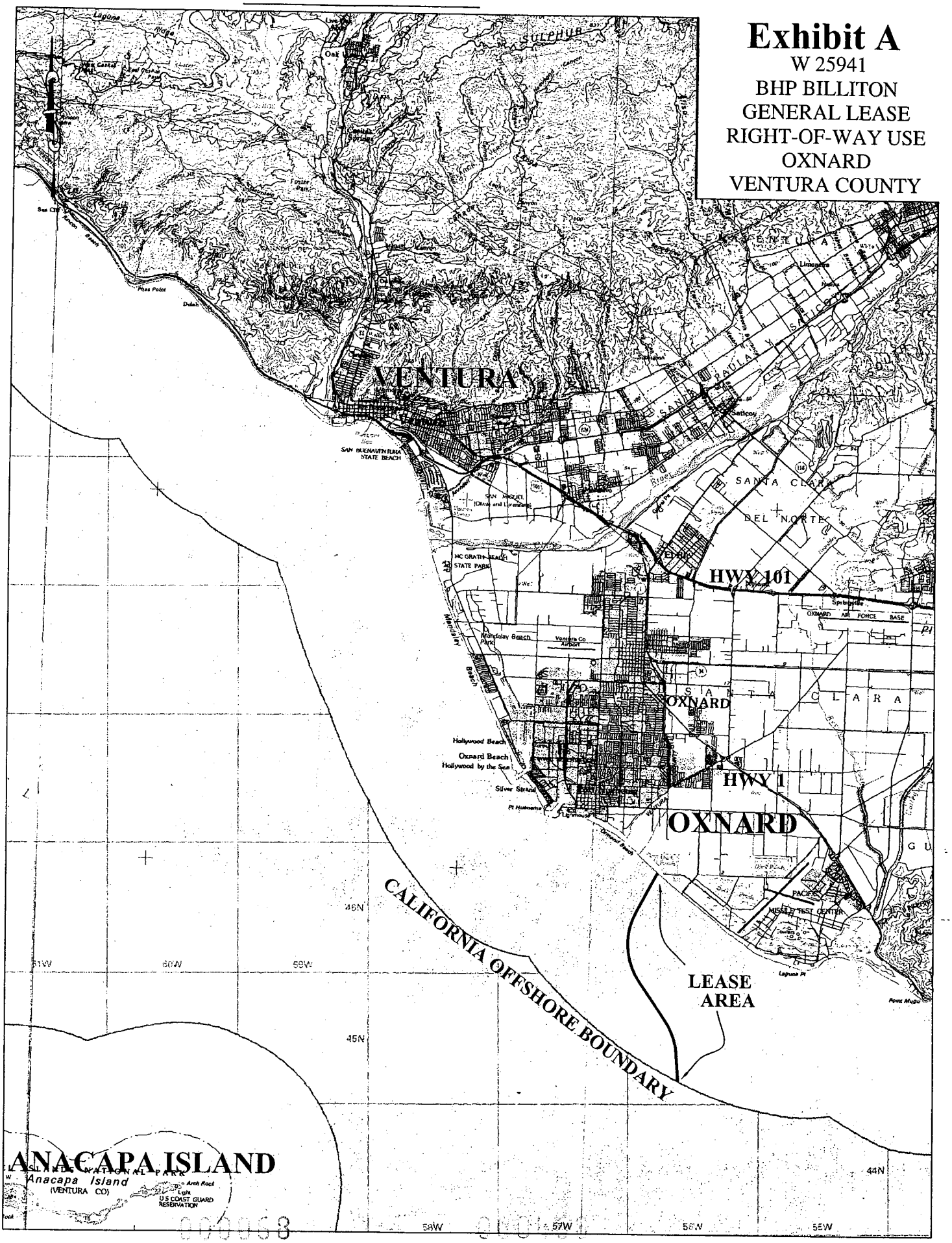
3. AUTHORIZE AND DIRECT STAFF TO MONITOR COMPLIANCE BY THE APPLICANT WITH ALL TERMS AND CONDITIONS OF THE LEASE AND THE MITIGATION MONITORING PROGRAM MADE A PART THEREOF.

NO SCALE

LOCATION MAP

Exhibit A

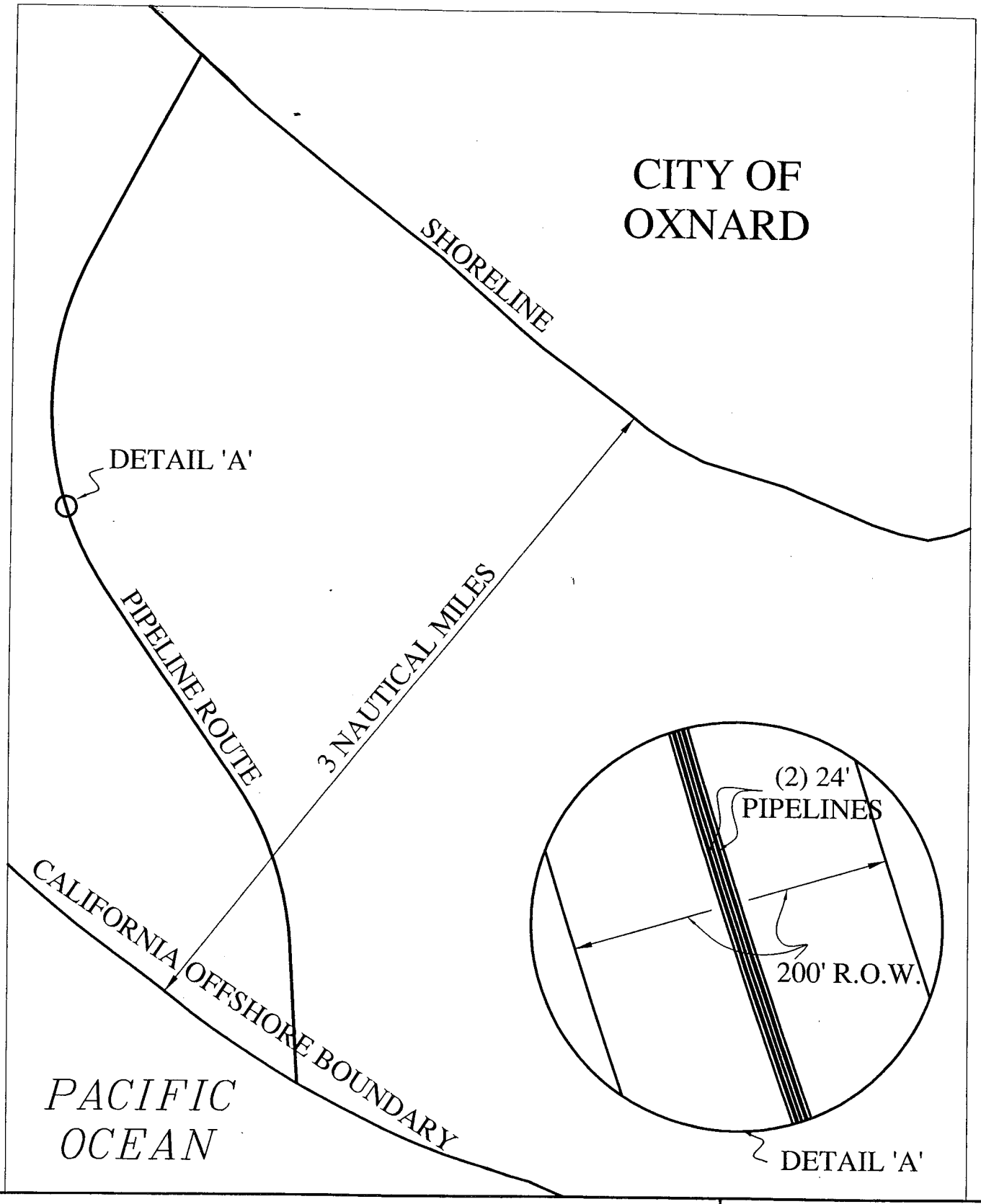
W 25941
BHP BILLITON
GENERAL LEASE
RIGHT-OF-WAY USE
OXNARD
VENTURA COUNTY



MAP SOURCE: USGS QUAD

NO SCALE

SITE MAP



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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CALENDAR PAGE

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MINUTE PAGE

03/06/07

Exhibit B
W 25941
BHP BILLITON
GENERAL LEASE
RIGHT-OF-WAY USE
OXNARD
VENTURA COUNTY

EXHIBIT C

LAND DESCRIPTION

A 200 foot (60.960 meter) wide strip over those portions of the tide and submerged lands of the bed of the Pacific Ocean lying between the Ordinary High Water Mark and the State of California Offshore Boundary, Ventura County, State of California, the centerline of said strip more particularly described as follows:

BEGINNING at a point on the Ordinary High Water Mark of 1939, as surveyed by the State Lands Commission and shown on the map recorded in Book 28 at Page 76 of Records of Survey of said county, said point being distant North 49°46'38"West 28.131 meters from Station Number 7 of said survey (said Ordinary High Water Mark of 1939 shown as North 50°19'43" West on said Record of Survey), said Station Number 7 being located at North 3,778,158.214 meters and East 299,914.033 meters of the Universal Transverse Mercator System Grid, Zone 11, NAD 83; thence along said centerline the following courses,

1st) South 28°32'53" West 1656.528 meters to the beginning of a curve concave to the east having a radius of 2438.405 meters; thence,

2nd) Southerly 2664.640 meters along said curve through a central angle of 62°36'42"; thence,

3rd) South 34°03'54" East 1750.786 meters to the beginning of a curve concave to the southwest having a radius of 2438.408 meters; thence,

4th) Southeasterly 1315.210 meters along said curve through a central angle of 30°54'14"; thence,

5th) South 03°09'41" East 1017.851 meters to a point on the Point of Termination of said centerline on said California Offshore Boundary, said point lying on a non-tangent curve concave to the northeast and having a radius of 5556.000 meters, from which a radial line bears South 29°34'51" West.

The sidelines of said 200 foot (60.960 meter) wide strip of tide and submerged land to be lengthened or shortened to terminate at said Ordinary High Water Mark and said California Offshore Boundary.

EXCEPTING THEREFROM any portion of said 200 foot (60.960 meter) wide strip of tide and submerged lands lying easterly of said OHWM and westerly of said California Offshore Boundary.

The basis of bearings and distances for this description is UTM North American Datum of 1983, Zone 11. All distances are grid.

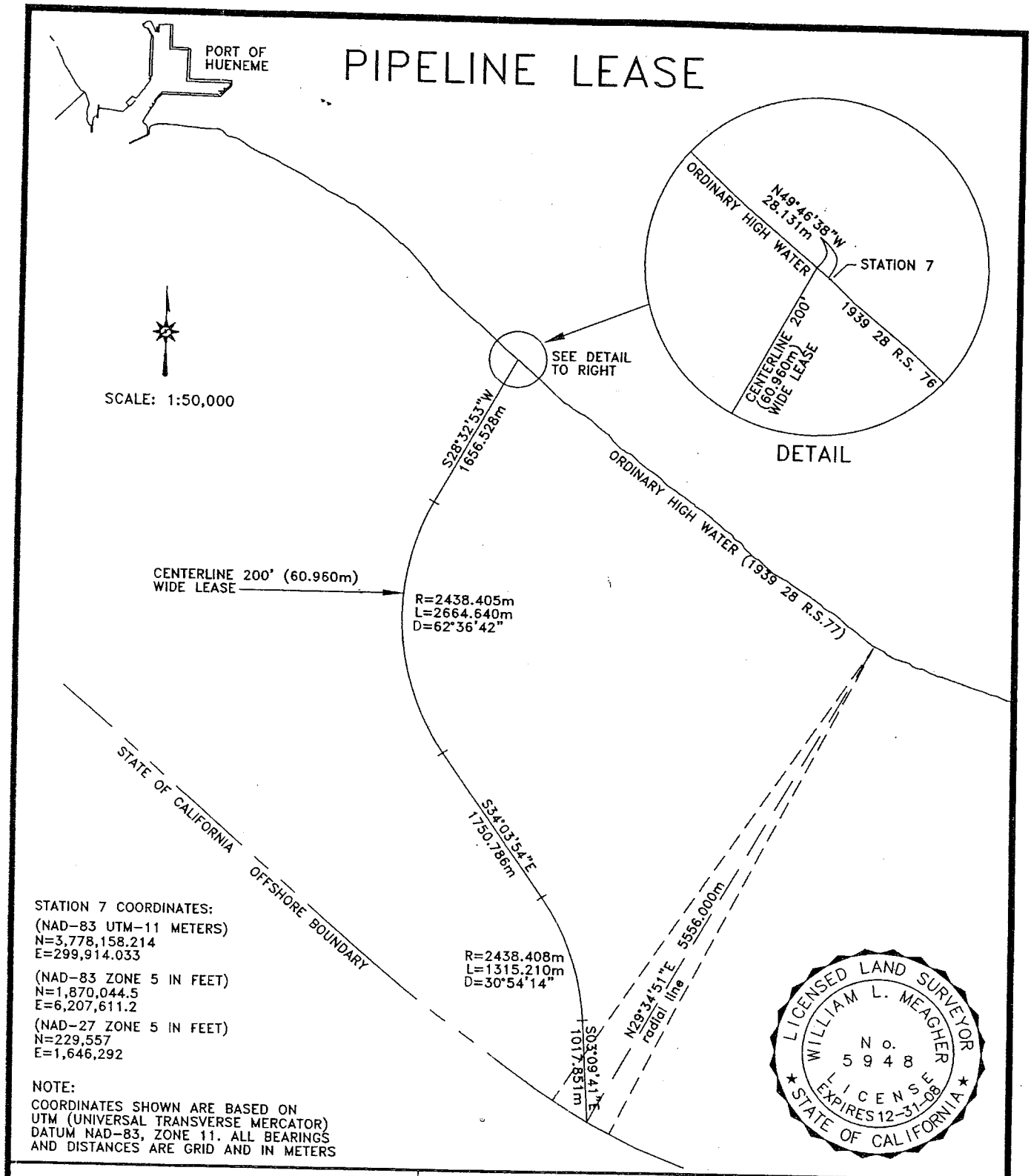
END OF DESCRIPTION

Prepared on March 22, 2007 by:

William L. Meagher
LS 5948 (Expires 12/08)

LICENSED LAND SURVEYOR
WM. L. MEAGHER
Exp. 12/08
No. 5943
STATE OF CALIFORNIA

PIPELINE LEASE



STATION 7 COORDINATES:

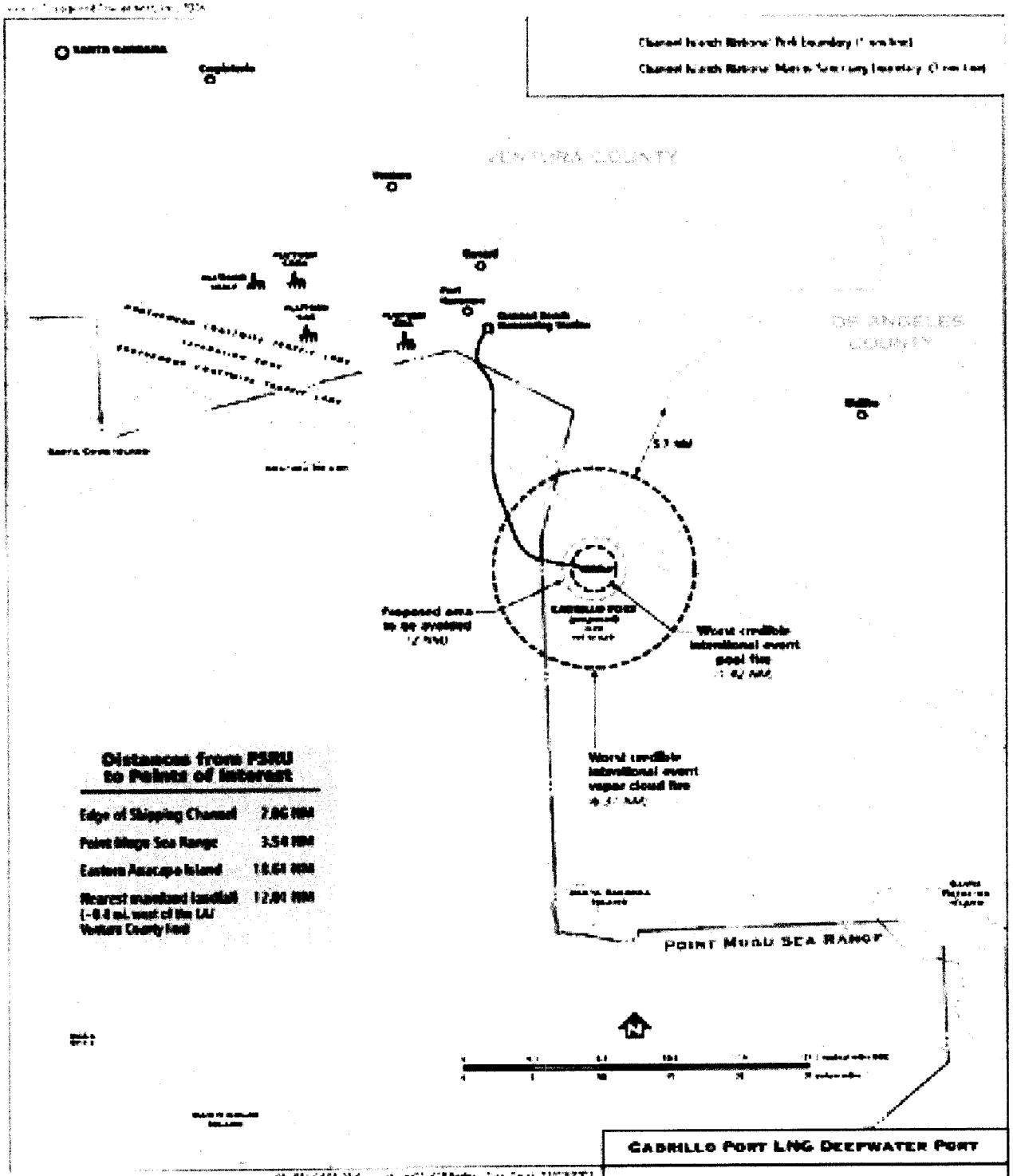
(NAD-83 UTM-11 METERS)
N=3,778,158.214
E=299,914.033

(NAD-83 ZONE 5 IN FEET)
N=1,870,044.5
E=6,207,611.2

(NAD-27 ZONE 5 IN FEET)
N=229,557
E=1,646,292

NOTE:
COORDINATES SHOWN ARE BASED ON UTM (UNIVERSAL TRANSVERSE MERCATOR) DATUM NAD-83, ZONE 11. ALL BEARINGS AND DISTANCES ARE GRID AND IN METERS

WM HOLDINGS INC. W.L. Meagher 2747 Sherwin Ave. #12 Ventura, Ca. 93003 (805) 677-4850	**PLAT MAP** **W25941** **BHP BILLITON LNG INT.** **VENTURA COUNTY, CA.**	NORTH NOT TO SCALE
DATE: 03-22-2007 / JOB No.: B04146	DRAWN BY: J. HENRY / SHEET: 1 OF: 1	



CABRILLO PORT LNG DEEPWATER PORT

Figure ES-1

Consequence Distances Surrounding the FSRU Location for Worst Credible Events

EXHIBIT D-1

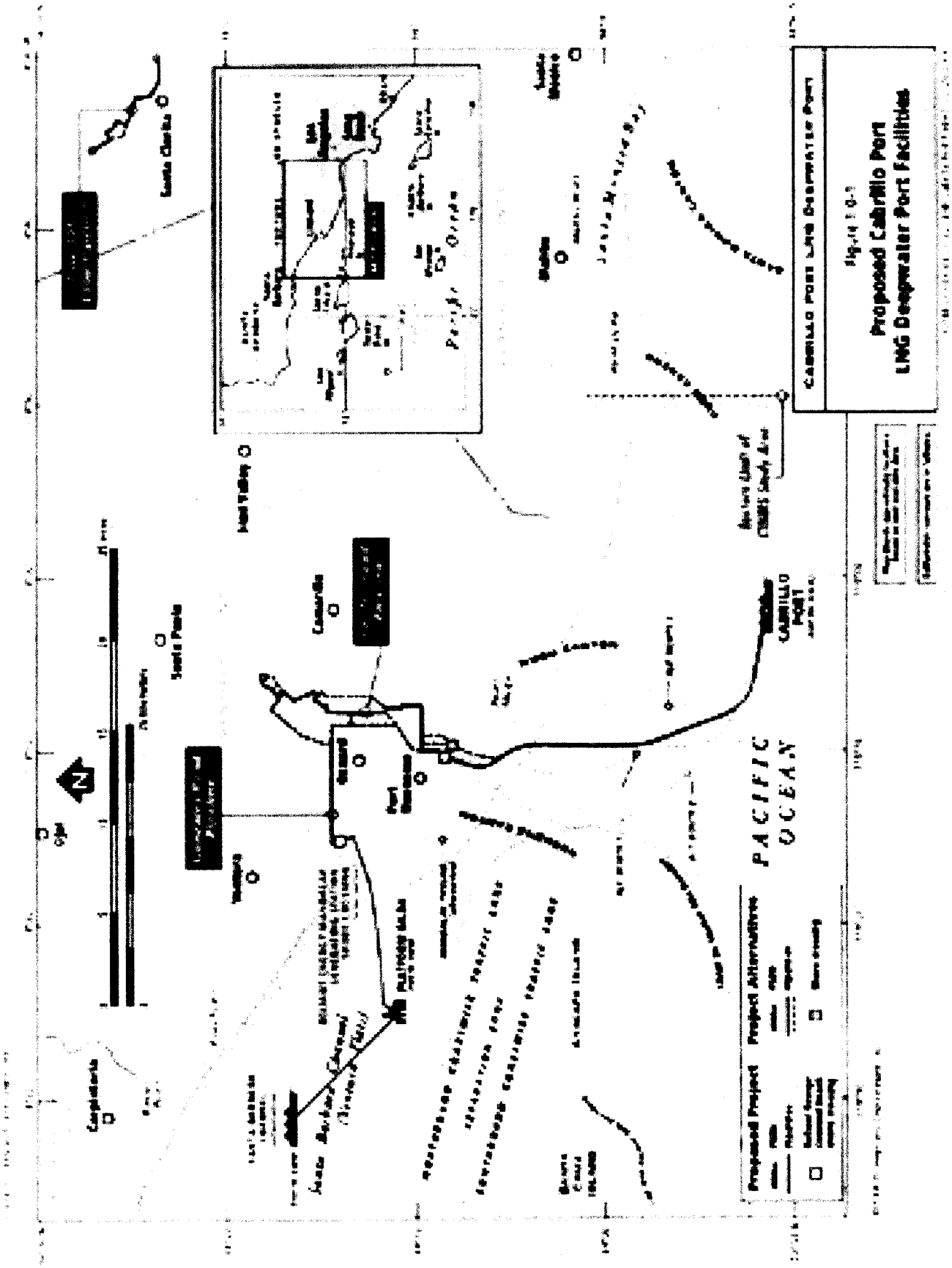

Proposed Cabrillo Port
LNG Deepwater Port Facilities
PACIFIC
OCEAN
CABRILLO
PORT
Proposed Project
Project Alternatives

EXHIBIT D-2

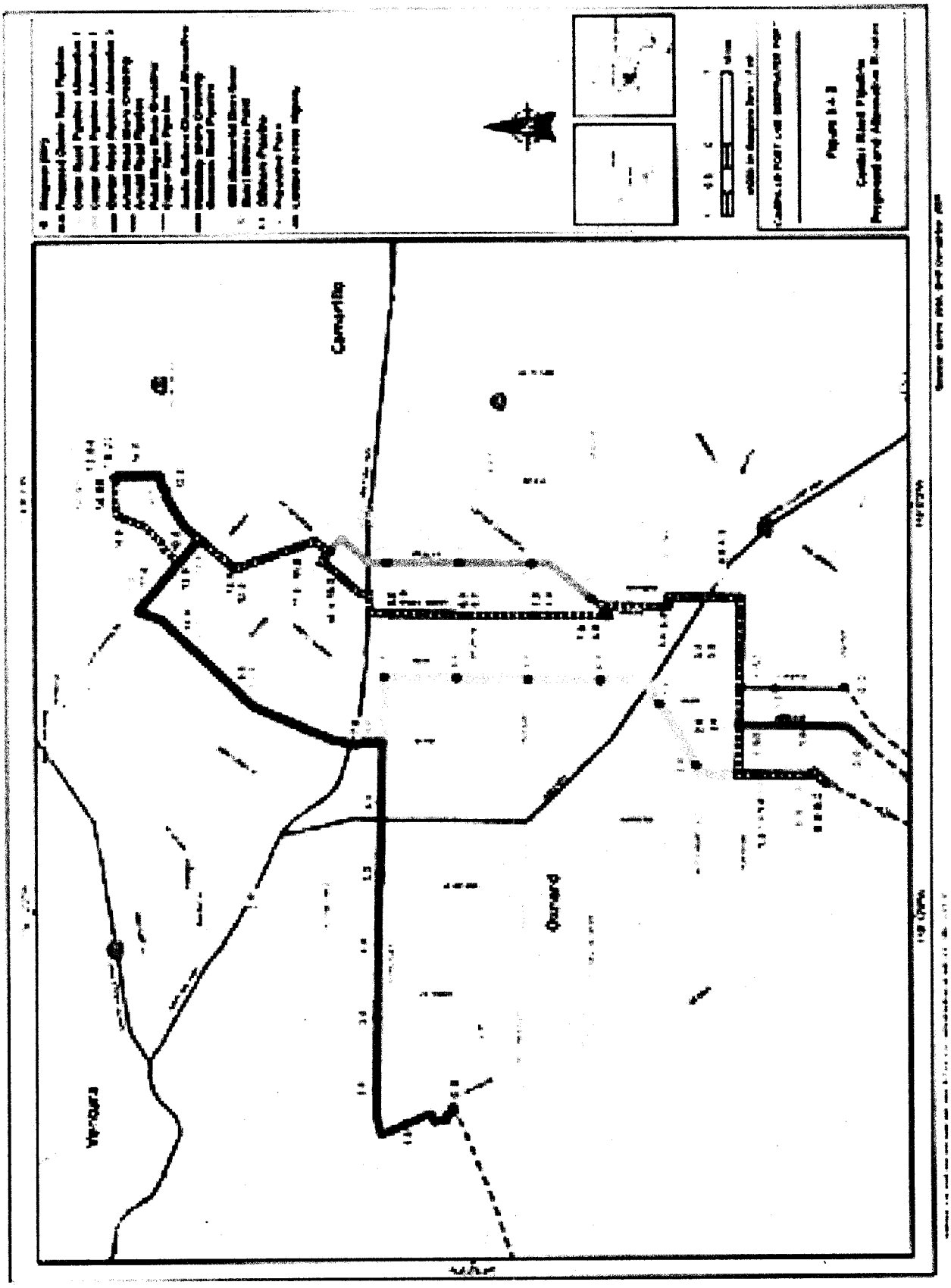
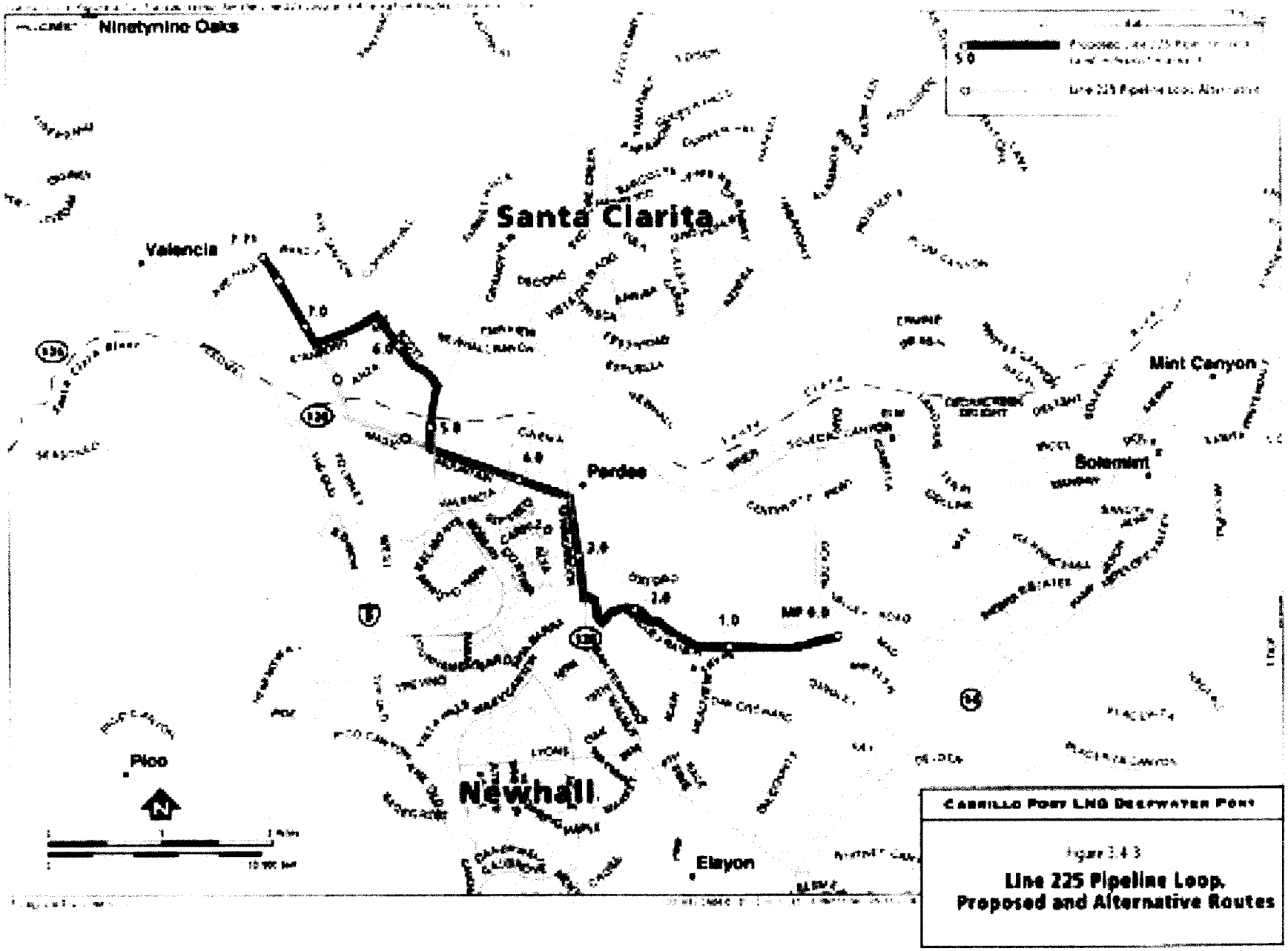


EXHIBIT D-3



CABRILLO PORT LNG DEEPWATER PORT

Figure 3.4-3

Line 225 Pipeline Loop, Proposed and Alternative Routes

EXHIBIT D-4

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