

EXHIBIT F: CEQA FINDINGS

EXHIBIT F: CEQA FINDINGS**1.1 INTRODUCTION TO CEQA FINDINGS**

This document constitutes the Findings of the California State Lands Commission (CSLC), made pursuant to the Guidelines for Implementation of the California Environmental Quality Act (CEQA) (California Code of Regulations, Title 14, section 15091) on the Cabrillo Port LNG Deepwater Port Project (the Project) proposed by BHP Billiton LNG International Inc. (BHPB, or the Applicant). A Joint Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR), hereinafter referenced as EIR, has been prepared for the proposed Project.

On September 3, 2003, BHPB submitted a Deepwater Port Act (DWPA) application to the U.S. Coast Guard (USCG) and the U.S. Maritime Administration (MARAD) and an application for a right-of-way lease on State lands to the California State Lands Commission to own, construct, operate, and maintain the proposed Cabrillo Port LNG Deepwater Port. The proposed facilities include: a new offshore liquefied natural gas (LNG) floating storage and regasification unit (FSRU) located 12.01 nautical miles (NM) (13.83 miles or 22.25 kilometers [km]) off the coast of Ventura County and Los Angeles County, California, in Federal waters approximately 2,900 feet (884 meters [m]) deep; new offshore and onshore natural gas pipelines; and related facilities (the Project). The Applicant's projected in-service life for the FSRU is a maximum of 40 years.

Under normal operating conditions, the annual average throughput would be 800 MMcfd; however, the Applicant has calculated that maximum operating scenarios would allow deliveries of up to 1.2 billion cubic feet per day, or the gas equivalent of 1.5 billion cubic feet per day on an hourly basis for a maximum of six hours. These operating conditions would only be in effect if SoCalGas were to offer the Applicant the opportunity to provide additional gas in cases of supply interruption elsewhere in the SoCalGas system or extremely high power demand, for example, during hot summer days; the analysis is based on this throughput.

The proposed Project would have the following main components:

Offshore (FSRU)

- Installation and operation of the FSRU, which would be anchored and moored on the ocean floor in Federal waters for the life of the Project. The Applicant selected the proposed location for the FSRU by analyzing known marine hazards, existing pipelines, distances from shore, distances from existing fixed offshore facilities, sea floor slope and topography, and the existing onshore natural gas pipeline infrastructure. The proposed location is outside the traffic separation scheme, i.e., the designated marine traffic lanes for large commercial vessels. Operational activities include:
- Shipment within the Exclusive Economic Zone of LNG to the FSRU up to two times weekly in double hulled (double-sided and double-bottom) cryogenic tank ships (LNG carriers);

- 1 • Transfer of the LNG from the LNG carriers to the FSRU;
- 2 • Heating of the LNG under controlled conditions to return it to its gaseous form as
- 3 pipeline-quality natural gas;
- 4 • Injection of odorant into the natural gas stream on the FSRU; and
- 5 • Transmission of the odorized natural gas to the offshore pipelines through the
- 6 flexible risers located in the mooring turret at the FSRU's bow.

7 **Shore Crossing and Offshore Pipelines**

- 8 • Installation of two 24-inch (0.6 m) diameter pipelines from shore, using horizontal
- 9 directional boring beneath the surface of the beach, to the FSRU site, and
- 10 installation and operation of a new onshore metering station with backup odorant
- 11 injection equipment. The pipelines transporting natural gas from the FSRU to
- 12 shore would connect to the Southern California Gas Company (SoCalGas)
- 13 transmission system at the onshore metering station.

14 **Onshore**

- 15 • Delivery of the natural gas through: (1) a new 36-inch (0.9 m) diameter pipeline
- 16 constructed within the City of Oxnard and unincorporated areas of Ventura
- 17 County; (2) a new 30-inch (0.76 m) diameter pipeline loop in the City of Santa
- 18 Clarita in Los Angeles County; and (3) three expanded or modified existing
- 19 onshore valve stations. The onshore pipelines and related facilities would be
- 20 constructed, owned, and operated by SoCalGas, a natural gas utility regulated by
- 21 the California Public Utilities Commission (CPUC).

22 Only LNG carrier vessels and the FSRU itself would handle LNG; both the offshore and

23 onshore pipelines would carry only conventional natural gas. A safety zone from which

24 the public would be excluded would extend 1,640-foot (500 m) radius safety zone

25 around the FSRU. BHPB would also apply to the USCG for a 2NM-radius area to be

26 avoided (ATBA).

27

28 The FSRU would obtain its electricity from on-board generators, not power cables to or

29 from shore.

30 Incorporated within its Project description, BHPB proposes to implement numerous

31 measures to reduce the severity of potential Project-related impacts. These measures

32 are identified by the prefix "AM" to distinguish them from mitigation measures proposed

33 by the lead agencies as further explained below, identified by the prefix "MM." As the

34 FSRU and LNG carriers are designed to carry cryogenic gases, additional International

35 Maritime Organization regulations and conventions would govern their construction.

36 Some of the required major safety features would significantly reduce the likelihood of

37 an accidental cargo release and would substantially mitigate any release, regardless of

38 cause. These include requirements for:

- 39
- 40 • double hull construction,

- 1 • separation of cargo holds and piping systems,
- 2 • accessibility for inspection,
- 3 • leak detectors in hold spaces,
- 4 • tank requirements for cargo containment,
- 5 • structural analysis,
- 6 • secondary containment and thermal management,
- 7 • tank construction and testing requirements,
- 8 • construction and testing requirements for piping and pressure vessels,
- 9 • emergency shutdown valves and automatic shutdown systems,
- 10 • loading arm emergency release couplings,
- 11 • pressure venting systems,
- 12 • vacuum protection systems,
- 13 • fire protection systems, and
- 14 • cargo tank instrumentation.

15 Applicant measures are incorporated into and modify the Project. They represent
16 commitments by the Applicant that go beyond the minimum required by law. The
17 impact analyses in the Final EIR are based on the Project **as modified**. As previously
18 stated, Applicant measures included in the Project description are identified by the
19 prefix “AM,” e.g., AM PS-1a. Mitigation measures that are specified by the lead
20 agencies to reduce any potential significant environmental impacts remaining after
21 taking into account the Project modifications are identified by the prefix “MM,” e.g., MM
22 PS-1e.

23 Applicant Proposed Mitigation Measures (AM) that are part of the proposed Project, as
24 analyzed, and affect the determination of potentially significant impacts include:

- 25 AM PS-1a. Applicant Engineering and Project Execution Process.
- 26 AM PS-1b. Class Certification and a Safety Management Certificate for the FSRU.
- 27 AM PS-1c. Periodic Inspections and Surveys by Classification Societies.
- 28 AM PS-1d. Designated Safety Zone and Area to be Avoided.
- 29 AM MT-3a. Patrol Safety Zone.
- 30 AM MT-3d. Control Room Team Management Techniques.
- 31 AM MT-3e. Broadcast of Navigational Warnings.
- 32 AM PS-2a. AIS, Radar, and Marine VHF Radiotelephone.
- 33 AM MT-3b. LNG Carrier Monitoring by the FSRU.

- 1 AM MT-3c. One LNG Carrier in Approach Route.
- 2 AM PS-3a. More Stringent Pipeline Design.
- 3 AM PS-4a. Class 3 Pipeline Design Criteria.
- 4 AM MT-1a. Safety Vessel Warnings.
- 5 AM MT-1b. Automatic Identification System.
- 6 AM MT-2a. Provisions for Delays.
- 7 AM MT-2b. Established Routes to and from Port Hueneme.
- 8 AM MT-2c. Compliance with JOFLO Vessel Traffic Corridors.
- 9 AM AGR-1b. Coordinate Pipeline Installation with Farmers.
- 10 AM AGR-1c. Post-Construction Restoration Measures.
- 11 AM AGR-1c. Post-Construction Restoration Measures.
- 12 AM TerrBio-4a. Weed Management Plan.
- 13 AM AIR-1a. USEPA Nonroad Engine Standards.
- 14 AM AIR-1b. Offshore Construction Equipment Standards.
- 15 AM AIR-1c. Ultra Low Sulfur Diesel.
- 16 AM AIR-2a. Fugitive Dust Controls.
- 17 AM AIR-5a. Natural Gas on LNG Carriers.
- 18 AM AIR-5b. Control Equipment on Support Vessels.
- 19 AM BioMar-9a. Avoid Offshore Construction during Gray Whale Migration Season.
- 20 AM BioMar-9b. Marine Mammal Monitoring.
- 21 AM BioMar-3a. Construction/Operations Lighting Control.
- 22 AM NOI-4a. Construction Noise Reduction Measures.
- 23 AM TerrBio-1a. Erosion Control.
- 24 AM TerrBio-2a. Additional Pre-Construction Plant Surveys.
- 25 AM TerrBio-2b. Biological Resources Mitigation Implementation and Monitoring
26 Plan.
- 27 AM TerrBio-2c. Employee Environmental Awareness Program (EEAP).
- 28 AM TerrBio-2d. Biological Monitoring.
- 29 AM TerrBio-2e. Confine Activity to Identified Right-of-Way (ROW).
- 30 AM WAT-6b. Spill Response Plan.
- 31 AM GEO-1a. Drilling Location.
- 32 AM GEO-3a. Avoidance.
- 33 AM GEO-3b. Pipeline Flexibility.

1 AM LU-2a. Minimize Disruption for Residences, Businesses, and Special Land
2 Uses in or near the Construction Area.

3 AM LU-2b. Reduce Disruption for Residences Within 25 Feet (7.6 m) of the
4 Construction Work Area.

5 AM NOI-3a. Daytime Operation.

6 AM REC-5a. Contractor Yard Locations.

7 **1.2.1 Major Changes to the Project and Analyses Between Issuance of the**
8 **October 2004 Draft EIS/EIR and the March 2006 Recirculated Draft EIR**

9 In response to agency and public comments, the Applicant revised the Project in
10 several ways that reduce environmental impacts. These include the following changes.

11 **Project Description**

12 • **New Offshore Pipeline Route.** The route of the offshore pipelines has been
13 revised, following geotechnical analyses, to reduce the potential for turbidity
14 flows to affect the pipelines.

15 • **Pipeline Installation at Shore Crossing.** The Applicant would use horizontal
16 directional boring (HDB) instead of horizontal directional drilling (HDD) to install
17 the Project pipelines beneath the shore. In HDD, excess drilling fluid and spoils
18 are returned to the drill rig under high pressure, risking release into the
19 surrounding environment. HDB uses a semi-closed loop system in which excess
20 mud and cuttings are pumped back to the drill rig; lower pressures are used, and
21 the possibility of drilling fluid release is minimized or eliminated. Vessels used
22 during HDB operations would be anchored. Cofferdams would not be used
23 offshore.

24 • **New Onshore Pipeline Route Segment Near Center Road Station, Ventura**
25 **County.** The northern portion of the proposed Center Road Pipeline route
26 (beginning at approximately milepost 12.5 and continuing to Center Road
27 Station) would be relocated further to the southeast and predominantly through
28 agricultural lands to bypass Mesa Union School on Mesa School Road. The
29 original route it replaces (the proposed route in the October 2004 Draft EIS/EIR)
30 is evaluated in the Final EIR as Center Road Pipeline Alternative 3.

31 • **Gas Odorant Injection.** To assist in leak detection by smell, the Applicant would
32 inject an odorant into the natural gas stream at the FSRU. SoCalGas would
33 operate a backup odorant injection system onshore.

34 • **Calculation of Safety Zone.** The USCG would measure the required 1,641-
35 foot (500 m) safety zone from the circle defined by the rotation of the stern of the
36 FSRU around the mooring point rather than from the mooring point, which
37 enlarges the safety zone.

38 • **Pipeline Safety.** SoCalGas would install additional mainline valves equipped
39 with either remote valve controls or automatic line break controls in the Center

1 Road Pipeline, which would limit the area affected by a potential pipeline
2 accident.

3 Air Quality

- 4 • **Air Quality Assessment.** The USEPA has made a preliminary determination
5 that the FSRU should be permitted in the same manner as sources on the
6 Channel Islands. Accordingly, the Project would not require a Prevention of
7 Significant Deterioration permit. In addition, air emissions from the generators
8 aboard the FSRU were recalculated.

9 1.2.2 Additional Changes to the Project and Analyses Since Publication of the 10 March 2006 Revised Draft EIR

11 In response to agency and public comments, the Applicant has revised the Project in
12 several ways since the issuance of the March 2006 Revised Draft EIR as summarized
13 below:

- 14 • **Reduction in the Number of LNG Carriers and Change in Crew Vessel Trips.**
15 A maximum of 99 LNG carriers would deliver no more than 13.7 million m³ of
16 LNG annually. The size of the LNG carriers would range from 138,000 to
17 210,000 m³. The number of dockings would range from 65 to 99 per year,
18 depending on the size of the LNG carriers that are used. Previously the
19 Applicant had proposed up to 130 LNG carrier dockings per year. Since a crew
20 vessel would be present during the berthing and deberthing of every LNG carrier,
21 crew vessels would travel twice from Port Hueneme to Cabrillo Port for each
22 LNG carrier docking
- 23 • **Closed Tempered Loop Cooling System.** The previously proposed FSRU
24 generator engine cooling system used seawater as the source of cooling water
25 for the four generator engines. The Applicant now proposes using a closed
26 tempered loop cooling system that circulates water from two of the eight SCVs
27 through the engine room and back to the SCVs. The seawater cooling system
28 would serve as a backup system during maintenance of the SCVs or when the
29 inert gas generator is operating. The following Project changes would reduce
30 emissions of air pollutants:
- 31 • **Use of Natural Gas to Power LNG Carriers in California Coastal Waters.**
32 LNG carriers that would operate in California Coastal Waters, as designated by
33 the California Air Resources Board, instead of only within 25 NM of the coastline,
34 would be fueled with a 99 percent natural gas/1 percent diesel mixture.
- 35 • **Diesel-Fueled Support Vessels with Emission Controls.** Instead of fueling
36 tugboats and the crew/supply vessel with LNG during Project operations, the
37 Applicant would use diesel engines equipped with air pollution control technology
38 that would reduce emissions of carbon monoxide, oxides of nitrogen, and
39 reactive organic compounds below levels that would have resulted from the use
40 of natural gas-fueled engines

- 1 • **Ultra-low NO_x SCV Burners.** The Applicant would use burners in the SCVs that
2 are certified for a maximum NO_x emission concentration (4-hour average) of 15
3 ppm at 3% oxygen.¹
- 4 • **Use of Specific Engine Standards for Onshore Construction Equipment.**
5 Engines in onshore construction equipment would comply with the USEPA's
6 tiered nonroad emission standards. As a result of the emission reductions,
7 MARAD and the USCG have determined that the General Conformity Rule would
8 not apply.

9 The CSLC has reviewed the above modifications in light of the provisions of the State
10 CEQA Guidelines concerning recirculation and has determined that these measures do
11 not result in new significant impacts that were not previously discussed in the Final EIR,
12 and, in fact, reduce the levels of potentially significant impacts identified in the March
13 2006 Revised Draft EIR and their inclusion does not meet the criteria listed specifically
14 in section 15088.5(a)(1-4) of the State CEQA Guidelines; therefore, the CSLC believes
15 recirculation is unwarranted.

16 The Applicant has committed to implement the following additional measure to reduce
17 air emissions to counterbalance like emissions from offshore Project components, e.g.,
18 operations at the FSRU and operation of marine vessels (LNG carriers, tugs, and
19 service vessels):

- 20 • **Repowering of Existing Non-Project Vessels with Cleaner Burning Engines.**
21 Two tugs that currently operate in the area and along the California coastline, but
22 which are not related to Project operations, would be repowered with cleaner
23 engines to achieve emissions reductions offshore.

24 1.3 ADMINISTRATIVE RECORD

25 For the purposes of CEQA and the Findings below, the administrative record for the
26 Cabrillo Port Project consists of the following documents:

- 27 1. The October 2004 Draft EIS/EIR, including appendices, technical reports,
28 documents cited in the Draft EIS/EIR, letters submitted on the Draft, and public
29 hearing transcripts;
- 30 2. The March 2006 Revised Draft EIR, including all appendices, technical reports,
31 documents cited in the Revised Draft EIS/EIR, letters submitted on the Revised
32 Draft, and public hearing transcripts;
- 33 3. The March 2007 Final EIS/EIR, including all appendices, technical reports,
34 comments, and responses to comments on both the October 2004 EIS/EIR and
35 the March 2006 Revised Draft EIR, and documents cited in the Final EIS/EIR;

¹ On March 29, 2007, BHPB submitted a response to an information request from the USEPA that commits to the use of a new specification for the submerged combustion vaporizers burners that would reduce NO_x and CO emissions.

- 1 4. All notices issued by the CSLC, USCG, and MARAD to comply with CEQA,
2 NEPA, the Deepwater Port Act, or with any other law governing the processing
3 and approval of the Project;
- 4 5. Relevant CSLC, USCG, and MARAD agency reports, studies, decisions, official
5 opinions, modeling data, informal communications, and planning documents;
- 6 6. Other relevant State, Federal, and local agency reports, studies, decisions,
7 official opinions, modeling data, informal communications, and planning
8 documents;
- 9 7. Other environmental documentation prepared by the CSLC, USCG, MARAD, and
10 other public agencies for other actions and programs relevant to the Project;
- 11 8. All documents submitted by members of the public and non-privileged
12 documents submitted by public agencies in connection with the Project;
- 13 9. All relevant reports, documentary or other evidence submitted at workshops,
14 public meetings and public hearings on the Project;
- 15 10. Minutes and transcripts of all public hearings held on the Project;
- 16 11. All non-privileged, application materials, relevant reports, memoranda, maps,
17 letters and other planning documents prepared by the Applicant, CSLC staff,
18 USCG staff and consultants, for the development of the Final EIS/EIR;
- 19 12. Scientific, technical and other professional judgment, published and unpublished
20 articles, and other nonconfidential or security sensitive information relied upon by
21 CSLC and USCG staff and participants in workshops and informal
22 communications; and
- 23 13. Other written materials relevant to compliance with CEQA and NEPA or to
24 decisions on the Project.

25 The location of the administrative record presently is the office of **Ecology &**
26 **Environment Inc., 130 Battery Street, Suite 400, San Francisco, CA 94111** and the
27 Sacramento office of the **California State Lands Commission, 100 Howe Avenue,**
28 **Suite 100-South, Sacramento, CA 95825.**

29 **1.4 FINDINGS ON SPECIFIC INCREMENTAL IMPACTS AND MITIGATION** 30 **MEASURES**

31 **1.4.1 CEQA SIGNIFICANCE CRITERIA**

32 CEQA requires the lead agency to identify each significant incremental effect on the
33 environment resulting from the Project and appropriate mitigation if feasible. All
34 significant adverse impacts of the proposed Project identified in the joint Final EIR are
35 included in the Findings and organized according to the resource affected as they are
36 listed in the EIS/EIR and numbered in accordance with the impact and mitigation
37 numbers identified in the Mitigation Monitoring Program table (see Chapter 6 of the
38 Final EIR). The CEQA Finding numbers are not numbered sequentially because the

- 1 Class III impacts were less than significant before mitigation. An explanation of the
 2 rationale for each finding accompanies each incremental impact.
- 3 Impacts are classified using the four categories identified in Table Exhibit X-1. Both the
 4 CSLC and USCG criteria apply to the class definitions.

Table Exhibit X-1 Categories of Impacts

Class Definition	CSLC Criteria	USCG Criteria
Class I	Significant adverse impact that remains significant after mitigation	Major, permanent, long-term, or short-term
Class II	Significant adverse impact that can be eliminated or reduced below an issue's significance criteria	Minor, long-term
Class III	Adverse impact that does not meet or exceed an issue's significance criteria	Minor, short-term, or temporary
Class IV	Beneficial impact	Positive, may be major or minor, short- or long-term or permanent

- 5 Class III and Class IV impacts do not require mitigation or findings, but Class IV impacts
 6 of the Project are mentioned in Exhibit G, the Statement of Overriding Considerations.
 7 In accordance with the State CEQA Guidelines § 15093, a Statement of Overriding
 8 Considerations addresses Class I impacts.

9 **1.4.2 CEQA Findings Designations**

10 The Findings are those allowed by Section 21081 of the California Public Resources
 11 Code. For each significant impact, i.e., Class I or II, a finding has been made as to one
 12 or more of the following Findings provided in section 15091 of the State CEQA
 13 Guidelines:

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

1 Whenever a Finding is made under section 15091©, the CSLC has determined that
2 sufficient feasible mitigation is not available to reduce the impact to a level below an
3 issue's significance criteria and, even after implementation of all such feasible mitigation
4 measures, there will or could be an unavoidable significant adverse Class I impact due
5 to the project.

6 Twenty Class I impacts requiring Finding (c) were identified in the Final EIR.

7 **1.4.3 CEQA Findings for Environmental Impacts of the Project and Adopted**
8 **Mitigation Measures**

9 These findings are based on the information contained in the October 2004 Draft
10 EIS/EIR, the March 2006 Revised Draft EIR, and the Final EIR for the Project, as well
11 as information provided by the applicant and gathered through the public involvement
12 process, all of which is contained in the Administrative Record indicated in Section
13 1.3. The mitigation measures are briefly described in these Findings; more detail on
14 each of the mitigation measures is included in the text of the Final EIR.

1 **CEQA Finding No. PS-1**

2 **Public Safety**

3 Impact: **PS-1: Potential Minor Release of LNG due to Operational Incident or**
4 **Natural Phenomena at the FSRU or an LNG Carrier**

5 Class: II

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 b) Such changes or alterations are within the responsibility and
10 jurisdiction of the USCG and not the agency making the finding. Such
11 changes have been adopted by such other agency or can and should
12 be adopted by such other agency.

13 **Facts Supporting the Finding(s)**

14 Description of the Impact

15 An incident at the FSRU or LNG carrier due to human error, upsets, or equipment
16 failures, or as a result of natural phenomena (severe wave conditions, high winds, etc.)
17 could cause a release of LNG from the FSRU or an LNG carrier. As part of the
18 independent risk assessment, a hazard identification study was conducted by the lead
19 agencies and with the participation of Federal (including Sandia National Laboratory),
20 State, and local government agencies to systematically identify potential accident
21 hazards that could potentially impact the public and/or the environment. Based on this
22 analysis and subsequent modeling, the IRA determined that operational incidents would
23 not affect members of the public because the consequences of such incidents would not
24 extend farther than the safety zone from which the public is excluded; intentional events
25 are considered under Impact PS-2. The safety zone would extend a 1,640-foot (500 m)
26 radius around the FSRU from which the public would be excluded.

27 The Deepwater Port Act specifies regulations that all deepwater ports must meet, and
28 specific design criteria and specifications, final design requirements, and safety
29 standards would govern the construction and operation of the FSRU. The U.S. Coast
30 Guard has final approval of the design of the Cabrillo Port. A recognized third-party
31 verification agent approved by the USCG, in consultation with the CSLC, would assess
32 the proposed criteria and standards for design, construction, and operation. The FSRU
33 and LNG carriers would meet the marine safety and security requirements identified in
34 Appendix C3-2 of the Final EIS/EIR and would comply with any updated standards and
35 conventions that are in place at the time of licensing.

36 Proposed Mitigation

37 MM PS-1e. Cargo tank fire survivability.

1 MM PS-1f. Structural Component Exposure to Temperature Extremes.

2 MM PS-1g. Pre- and Post-Operational HAZOPs (hazard and operability studies).

3 MM MT-3f. Live Radar and Visual Watch.

4 MM PS-1e would improve the ability of LNG storage tanks to withstand the effects of a
5 fire and could also potentially limit the extent of damage caused by an incident. It is
6 expected that additional advances in cargo tank insulation will be made in the near
7 future, and this mitigation measure would help to ensure that the best available
8 technology is used.

9 MM PS-1f would reduce the likelihood of a major structural failure by requiring
10 consideration of potentially improbable but high consequence events during Project
11 design. Safety engineering, HAZOPs and quantitative risk assessment (QRA) are
12 widely used in processing industries to improve safety; these methodologies represent
13 best management practices.

14 MM PS-1g would reduce the likelihood of a potential emergency incident at the FSRU
15 and would improve the crew's response if such a situation were to occur. HAZOPs
16 have been recognized to reduce risk by both industry and regulations such as the
17 California and Federal Risk Management and Prevention Programs. Conducting a
18 HAZOP prior to operation would help to refine operations practices and emergency
19 response provisions and subsequent HAZOPS during operations would critically
20 evaluate actual practices.

21 Finally, MM MT-3f would reduce the likelihood of a collision because the crew would
22 have early warning of nearby vessels or aircraft and would assist in managing an
23 incident should one occur. The provision for live radar and visual watch at the vessel
24 control center of the FSRU is comparable to the established and proven in service,
25 policies, and procedures of the Louisiana Offshore Oil Port (LOOP), the only operational
26 oil deepwater port in the U.S. These measures would reduce the potential for incidents
27 due to operational errors, upsets, or equipment failures or natural phenomena.

28 The impact would be adverse, but reduced to a level below its significance criteria, for
29 all the reasons stated, with the implementation of the mitigation measures described
30 above.

1 **CEQA Finding No. PS-2**

2 **Public Safety**

3 Impact: **PS-2: Potential Release of LNG due to High-Energy Marine Collision or**
4 Intentional Attack

5 Class: I

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 b) Such changes or alterations are within the responsibility and
10 jurisdiction of the USCG and not the agency making the finding. Such
11 changes have been adopted by such other agency or can and should
12 be adopted by such other agency.

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

17 **Facts Supporting the Finding(s)**

18 Description of the Impact

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

25 The IRA concluded that the FSRU design “demonstrates a very robust performance
26 against marine collisions” and that, given the many safety features that have been
27 incorporated in the design of the proposed Project, accidents at the FSRU would be
28 rare and would not reach shore, even in the case of a worst credible release such as a
29 deliberate attack. Only vessels with very specific geometry, strength, and speed would
30 have the physical capacity to penetrate the hull’s structural steel and breach the cargo
31 containment. The likelihood of a marine collision is estimated to be 2.4×10^{-6} per year
32 (once in 420,000 years), but the frequency of intentional events was not estimated due
33 to the uncertainty. The IRA states that the frequency estimation for the accidental
34 marine collision scenario is a conservative overestimate and that the scenario is
35 improbable.

36 Figure ES-1 in the Final EIR depicts the consequence distances surrounding the FSRU
37 location for worst credible events. The number of boaters and fishermen who could be

1 within the identified potential impact areas cannot be reliably estimated because no
2 reliable records of recreational and fishing use exist for the area. Although recreational
3 boaters and fishers would be prohibited from entering the safety zone, they would not
4 be prohibited from the ATBA, which would extend 2 NM from the FSRU, and it is not
5 possible to estimate the deterrent effect of such designation. Other variables include
6 the day of the week, time, season of the year, and weather conditions during the
7 incident. In addition, to avoid underestimating the hazard distance, the analysis
8 assumed the release of full tank volumes even though the events may not lead to the
9 full release of all the LNG from each tank, which would result in a smaller area being
10 affected.

11 Proposed Mitigation

12 MM PS-1e. Cargo Tank Fire Survivability.

13 MM PS-1f. Structural Component Exposure to Temperature Extremes.

14 MM PS-1g. Pre- and Post-Operational HAZOPs.

15 MM MT-3f. Live Radar and Visual Watch.

16 MM MT-3g. Information for Navigational Charts.

17 MM PS-1e would improve the ability of LNG storage tank to withstand the effects of a
18 fire and could also potentially limit the extent of damage caused by an incident. It is
19 expected that additional advances in cargo tank insulation will be made in the near
20 future, and this mitigation measure would ensure that the best available technology is
21 used.

22 MM PS-1f would reduce the likelihood of a major structural failure by requiring
23 consideration of potentially improbable but high consequence events during Project
24 design. Safety engineering, HAZOPs and QRA are widely used in processing industries
25 to improve safety; these methodologies represent best management practices.

26 MM PS-1g would reduce the likelihood of a potential emergency incident at the FSRU
27 and would improve the crew's response if such a situation were to occur. HAZOPs
28 have been recognized to reduce risk by both industry and regulations such as the
29 California and Federal Risk Management and Prevention Programs. Conducting a
30 HAZOP prior to operation would help to refine operations practices and emergency
31 response provisions and subsequent HAZOPS during operations would critically
32 evaluate actual practices.

33 MM MT-3f describes how equipment in the control room would be operated. The
34 provision for live radar and visual watch at the vessel control center of the FSRU is
35 comparable to the established and proven in service, policies, and procedures of the
36 Louisiana Offshore Oil Port (LOOP), the only operational oil deepwater port in the U.S.
37 As a result, approaching vessels would be able to take measures to avoid the FSRU.

38 MM MT-3g would ensure that navigational charts would be promptly changed and
39 published expeditiously to coincide with mooring of the FSRU; typically changes are not

1 initiated until a facility is in place. Once published, the safety zone and the ATBA
2 delineations on navigational charts would assist all mariners transiting the Project area
3 to plan accordingly to avoid the safety zone and the ATBA. The safety zone would be
4 patrolled by tugs and/or a service vessel at all times to prevent incursions by
5 unauthorized non-Project vessels.

6 The likelihood of potential impacts from high energy marine collisions or intentional
7 attacks would be reduced, as described, with implementation of the mitigation measures
8 described above; however, hazard and risk evaluations for these types of incidents
9 indicated that the potential consequences could extend beyond the 1,640-foot (500 m)
10 safety zone around the FSRU. The impacts would thus still be potentially significant,
11 i.e., could result in serious injury or fatality to members of the public should an incident
12 occur; therefore, this impact remains potentially significant after application of all
13 feasible mitigation.

1 **CEQA Finding No. PS-3**

2 **Public Safety**

3 Impact: **PS-3: Potential Release of Odorized Natural Gas due to Damage to**
4 Subsea Pipelines

5 Class: I

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

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

13 **Facts Supporting the Finding(s)**

14 Description of the Impact

15 Fishing gear could become hung up on the pipeline and potentially damage one or both
16 of the subsea pipelines. Similar damage may occur due to a seismic event or subsea
17 landslide.

18 The frequencies of significant events per pipeline mile have been very conservatively
19 estimated, based on reportable accidents that include the Gulf of Mexico, for offshore
20 pipelines at four in one hundred thousand that a pipeline incident would result in a
21 serious public injury, and about one in one hundred thousand that a pipeline incident
22 would result in a public fatality.. Although members of the public such as fishers and
23 recreational boaters could potentially be affected if the released natural gas formed a
24 flammable cloud once it breached the ocean surface, recorded incidents where this
25 occurred were in shallow water (less than 10 to 20 feet). The offshore pipelines for the
26 proposed Project would be deeply buried to about 4,000 feet offshore, and trawling is
27 prohibited in California waters (within 3 NM of shore), thus reducing the potential that
28 people would be exposed to this hazard. The monitoring systems at the FSRU would
29 detect leaks in the offshore pipelines and would shut them down in the event of a
30 release, which would limit the potential for an accident involving a flammable vapor
31 cloud.

32 The number of people who could be affected by an accident cannot be accurately
33 estimated because no reliable information exists on the number of people frequenting
34 the areas near the route of the offshore pipelines; however, boats would offer some
35 protection to their occupants in the unlikely event of a fire caused by a release from an
36 offshore pipeline.

1 Proposed Mitigation

2 MM PS-3b. Emergency Communication/ Warnings.

3 MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System.

4 MM MT-1d. Securite Broadcasts.

5 MM MT-3g. Information for Navigational Charts.

6 MM PS-3b would provide for notification of vessels in the area of a release of natural
7 gas so that they could avoid the area. This would reduce the likelihood of potential
8 impacts on vessels in the area of the offshore pipelines and could increase the
9 timeliness and/or effectiveness of emergency response systems, such as fire fighting, in
10 addition to those in place at the FSRU.

11 MM PS-3c would increase the overall integrity of the offshore pipelines, thereby
12 reducing the potential for accidents. The purpose of Federal Office of Pipeline Safety
13 pipeline safety advisories is to communicate issues based on experience in order to
14 improve safety.

15 MM MT-1d would serve as a reminder to those familiar with the Notice to
16 Mariners/posted signs and notify others of required actions.

17 MM MT-3g would ensure that navigational charts would be promptly changed and
18 published expeditiously to coincide with mooring of the FSRU; typically changes are not
19 initiated until a facility is in place. Once published, the safety zone and the ATBA
20 delineations on navigational charts would assist all mariners transiting the Project area
21 to plan accordingly to avoid the safety zone and the ATBA and to identify the location of
22 the route of the offshore pipelines. The safety zone would be patrolled by tugs and/or a
23 service vessel at all times to prevent incursions by unauthorized non-Project vessels.

24 The mitigation measures discussed above would reduce, for the reasons stated, both
25 the likelihood and consequences of a release from should such an incident occur;
26 however, the impacts would still be significant, i.e., could result in serious injury or
27 fatality to members of the public. Therefore, this impact would remain potentially
28 significant after application of all feasible mitigation.

1 **CEQA Finding No. PS-4**

2 **Public Safety**

3 Impact: **PS-4:** Potential Release of Odorized Natural Gas due to Accidental
4 Damage to Onshore Pipelines

5 Class: I

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

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

13 **Facts Supporting the Finding(s)**

14 Description of the Impact

15 The potential exists for accidental or intentional damage to the onshore pipelines or
16 valves carrying odorized natural gas. Damage, fires, and explosions may occur due to
17 human error, equipment failure, natural phenomena (earthquake, landslide, etc.). This
18 would result in the release of an odorized natural gas cloud at concentrations that could
19 be in the flammable range. The proposed pipelines would exceed regulatory standards
20 and would be subject to design review, construction and operational safety inspections
21 and enforcement by the CPUC and ongoing safety oversight subsequent to construction
22 through its comprehensive pipeline safety inspections. SoCalGas has franchise
23 agreements with Ventura County and the cities of Oxnard and Santa Clarita that grant it
24 the right to lay and use natural gas pipelines in public streets and other rights of way.

25 The annual frequencies of significant events per pipeline mile have been very
26 conservatively estimated for onshore pipelines at about four in one hundred thousand
27 that a pipeline incident would result in a serious public injury and about one in one
28 hundred thousand that a pipeline incident would result in a public fatality. These
29 frequencies would be expected to be lower for the proposed Project pipelines, however,
30 because they would be new pipelines built to current standards. The number of people
31 who could be affected by an accident cannot be reliably estimated because it would
32 depend on the nature and severity of the incident and the number of people in proximity
33 at the time of the incident. However, a review of incident reports filed by SoCalGas
34 between January 1994 and May 2006 indicates no fatalities.

35 Proposed Mitigation

36 MM PS-4b. Pipeline Integrity Management Program.

- 1 MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve
2 Controls or Automatic Line Break Controls.
- 3 MM PS-4d. Treat Shore Crossing as Pipeline HCA.
- 4 MM PS-4e. Safety Marker Indicating the Presence of Buried Natural Gas Pipeline at
5 Ormond Beach.
- 6 MM PS-4f. Emergency Response.
- 7 MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System.
- 8 MM PS-4b would increase public awareness by requiring implementation of the Pipeline
9 Integrity Management Program prior to pipeline operations instead of afterwards.
- 10 MM PS-4c would limit the area affected by a potential pipeline accident by allowing
11 SoCalGas to automatically control the influx of gas into sections of the pipeline system.
12 A team of engineers from the CSLC and CPUC evaluated project-specific pipeline valve
13 spacing and design and determined that they were appropriate to limit the potential
14 release duration and the quantity of natural gas that might be released from a ruptured
15 pipeline segment by reducing the distance between the mainline valves.
- 16 MM PS-4d would provide for implementation of the pipeline integrity management
17 program at beach recreation areas where people could be located in the vicinity of the
18 pipelines.
- 19 MM PS-4e would improve the safety of the system by enabling members of the public to
20 report gas leaks.
- 21 MM PS-4f would improve the timeliness and effectiveness of emergency response
22 measures and facilitate evacuation of beach users in the unlikely event of a potential
23 pipeline accident.
- 24 Finally, MM PS-3c would increase the overall integrity of the pipelines, thereby reducing
25 the potential for accidents.
- 26 With the implementation of the measures and for the reasons described above, both the
27 likelihood and the severity of an accident would be reduced. Should such an incident
28 occur, however, the impacts would still be significant, i.e., could cause serious injury or
29 fatality to members of the public. Therefore, this impact would remain potentially
30 significant after application of all feasible mitigation.

1 **CEQA Finding No. PS-5**

2 **Public Safety**

3 Impact: **PS-5: Increased Potential for Injury, Fatality, and Property Damage Due to**
4 **Fire or Explosion in Areas with Less Robust Housing Construction and**
5 **Outdoor Activity.**

6 Class: I

7 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
8 Project that avoid or substantially lessen the significant environmental
9 effect as identified in the final EIR.

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

14 **Facts Supporting the Finding(s)**

15 Description of the Impact

16 In the event of an accident, there is a greater likelihood of injury, fatality, and property
17 damage near Center Road Pipeline MP 4.1. The pipeline right-of-way (ROW) is
18 approximately 565 feet from the closest structure in the area and Highway 1 forms a
19 physical barrier between the pipeline ROW and the area of less robust housing.

20 Proposed Mitigation

21 Mitigation measures include the following:

22 MM PS-5a, Treat Manufactured Home Residential Community as a High Consequence
23 Area (HCA).

24 MM PS-5a would implement additional pipeline safety measures, above the level of
25 standards (based on population densities) applicable under law, rule and regulation, for
26 areas along the pipeline route with a predominance of semi-permanent housing. The
27 measure would also increase public awareness by requiring implementation of the
28 Pipeline Integrity Management Program, which requires continuing public education and
29 a public awareness program.

30 Potential impacts from a natural gas release in areas with less robust housing
31 construction and outdoor activities would be reduced, considering the distance of the
32 closest structure from the pipeline ROW and the presence of the highway between the
33 ROW and the nearest structure, with the implementation of the additional measures
34 described above; however, the impacts would still be potentially significant should an

- 1 incident occur. Therefore this impact would remain potentially significant after
- 2 application of all feasible mitigation.

1 **CEQA Finding No. MT-1**

2 **Marine Traffic**

3 Impact: **MT-1:** Temporary Increase in Maritime Traffic during FSRU Mooring,
4 Offshore Pipeline Construction, and Shore Crossing Resulting in
5 Increased Safety Risks

6 Class: II

7 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
8 Project that avoid or substantially lessen the significant environmental
9 effect as identified in the final EIR.

10 **Facts Supporting the Finding(s)**

11 Description of the Impact

12 The FSRU would be towed to the proposed Port location from the shipyard where it
13 would be fabricated. Installation of the mooring system, PLEM, and PLET would begin
14 before the FSRU would arrive. Six vessels would be used to install the PLET and
15 PLEM and moor the FSRU over a period of 20 days, working 24 hours per day. This
16 operation would take place over 2 NM (2.3 miles or 3.8 km) from the boundary of the
17 southbound TSS. Offshore pipelaying would occur over a 35-day period, 24 hours per
18 day. Four vessels would be used over the entire 35-day period. Two additional vessels
19 would be used for a 10-day and an 8-hour period, respectively. The subsea pipelines
20 would cross the Santa Barbara TSS (see Impact PS-1 for an explanation of the TSS).

21 The Applicant would shut down parts of the vessel traffic lanes during construction;
22 therefore, transiting vessels would have to either exit the portion of the lane being used
23 by the construction vessels (to the northeast or southwest depending on their direction
24 of travel) and/or slow down for safe passage so as not to endanger the construction
25 crews due to their wakes. One half of one traffic lane would be shut down as the
26 pipelay barge approaches and crosses the TSS. The only time when more than half of
27 a traffic lane may be closed would be when the pipeline is being laid through the lane;
28 with a construction rate of 1.87 NM (2.15 miles or 3.46 km) per day, this would occur for
29 less than half a day. This would not stop vessel traffic because vessel traffic could be
30 diverted temporarily outside of the traffic lane. Once pipelaying has been completed
31 across the TSS, it would continue until reaching the HDB exit point.

32 As a result, marine activities associated with site preparation, transportation, and
33 installation of the mooring system, FSRU, and subsea pipelines could temporarily
34 increase maritime traffic congestion and increase the risk of vessel collision.

35 Proposed Mitigation

36 MM MT-1c. Notices to Mariners.

1 MM MT-1d. Securite Broadcasts.

2 MM MT-1e. Safety Vessel.

3 MM MT-1f. Guard Boats.

4 MM MT-1g. Construction Schedule Signs.

5 The Applicant would be required under maritime law to issue a Notice to Mariners for
6 the period of construction. Because there are no specific requirements for the contents
7 of a Notice to Mariners, MM MT-1c requires that the Notice to Mariners give mariners
8 advance notice of construction areas, TSS lane closures, etc., allowing pre-planning of
9 routes to minimize delays or inconveniences associated with diverting around the
10 construction. Construction schedule signs posted onshore would serve to notify
11 recreational vessel operators who do not normally check Notices to Mariners.

12 Securite broadcasts required by MT-1d would serve as a reminder to those familiar with
13 the Notice to Mariners/posted signs, and as an initial notification of construction
14 activities/required actions to everyone else.

15 The safety vessel required by MM MT-1e would serve as one possible platform for
16 originating Securite broadcasts, but more importantly, as an active means of contacting
17 vessels directly by name, course/speed, etc.

18 Under MM MT-1f, the guard boats would perform the same role closer to shore for the
19 small craft and specifically trawlers that might require more than a radio call to make
20 them aware of construction activities and required actions.

21 Implementation of the mitigation measures described above would, for the reasons
22 stated, decrease marine traffic congestion, thereby reducing the risk of vessel collision
23 to a level below its significance criteria.

1 CEQA Finding No. MT-2**2 Marine Traffic**

3 Impact: **MT-2: Long-Term Increase in Maritime Traffic during Offshore Operations**

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 Facts Supporting the Finding(s)**9 Description of the Impact**

10 LNG carriers would travel across the Pacific and would approach the FSRU along one
11 of two routes. Both routes avoid the vessel traffic service (VTS) and the TSS (see
12 Impact PS-1 for an explanation of the TSS). A maximum of 99 LNG carrier arrivals
13 would occur annually at Cabrillo Port. The Applicant's support vessels would have a
14 maximum of 500 annual transits traveling to and from Port Hueneme.

15 Project support vessels transiting between the FSRU and Port Hueneme would be
16 required to use the appropriate designated traffic lane wherever possible for most of any
17 transit, and would enter and depart such traffic lanes in accordance with the
18 International Regulations for Avoiding Collisions at Sea (the nautical "rules of the road")
19 and any applicable local requirements. Vessel traffic from Port Hueneme and the Port
20 of Long Beach/Los Angeles is projected to increase over the next 40 years. Much of
21 this vessel traffic will travel through the Santa Barbara Channel TSS. The Project would
22 contribute at most one vessel roundtrip per day in increased vessel traffic in the TSS.
23 No LNG carrier would enter the Santa Barbara Channel TSS.

24 As a result of the presence of the Project, LNG carriers, tugs, and attending vessels
25 transiting to and from the FSRU, could increase maritime traffic congestion during
26 Project operations.

27 Proposed Mitigation

28 MM MT-2d. Incorporation of Procedures for Delays.

29 MM MT-2e. Evaluation of Routes to and from Port Hueneme.

30 Although the Applicant has specified provisions for delays, such provisions would only
31 become formalized for the Project if they are included in the facility operations manual.
32 Once included in the facility operations manual as required by MM MT-2d, procedures
33 for delays for all vessels calling on the FSRU would be established and would ensure
34 that all the Project LNG carriers would operate in a consistent manner.

- 1 The provision to evaluate vessel routes to and from the Port of Hueneme would allow
- 2 both parties to make potential adjustments to the routes based on operational data to
- 3 ensure the safest routes would regularly be used.

- 4 As a result of the implementation of the above mitigation measures, the impact would ,
- 5 for the reasons stated, be reduced a level below its significance criteria.

1 **CEQA Finding No. MT-3**

2 **Marine Traffic**

3 Impact: **MT-3:** Long-Term Increase in Safety Hazards due to the Presence of the
4 FSRU and LNG Carriers

5 Class: II

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 The FSRU mooring location would be situated approximately 2 NM (2.3 miles or 3.7 km)
12 from the Southbound Coastwise Traffic Lane of the Santa Barbara Channel Traffic
13 Separation Scheme, which has relatively high levels of maritime traffic (see Impact PS-1
14 for an explanation of the TSS). The presence of the FSRU and approaching/departing
15 LNG carriers could cause other vessels to make course and speed adjustments
16 because large vessels typically try to avoid approach within 2 NM (2.3 miles or 3.7 km)
17 of each other in the open ocean.

18 The presence of the Project would increase the number of vessels in the area and
19 therefore could increase the risk of collisions. Ships could collide with the FSRU or
20 Project-support vessels could collide with other vessels. An analysis of marine traffic
21 risks showed that the greatest potential for vessel collision would occur between
22 merchant vessels and a Project LNG carrier; a small craft has the greatest potential to
23 collide with the FSRU. Project and non-Project vessels would have to comply with all
24 USCG navigational safety regulations.

25 The world's LNG fleet has operated for many years under the regulation of the USCG
26 and other international regulatory bodies. Since 1944, only five LNG carrier accidents
27 have occurred when LNG ships were at sea. The rest occurred when ships were in port
28 and during loading and offloading operations. None of these accidents resulted in
29 injuries, fatalities, or a release of LNG, and only one was the result of a collision with
30 another vessel.

31 Proposed Mitigation

32

33 MM MT-3f. Live Radar and Visual Watch.

34 MM MT-3g. Information for Navigational Charts.

1 Under the Deepwater Port Act, the FSRU is required to have a control center, but the
2 Deepwater Port Act does not specify how it would be operated.

3 MM MT-3f prescribes how equipment in the control room would be operated. Live radar
4 and visual watchstanders would provide an extra level of security to ensure that vessels
5 approaching the FSRU would be monitored and tracked and to inform them of the
6 FSRU's location, intentions, and the nature of safety and/or security zones in effect.
7 The provision for live radar and visual watch at the vessel control center of the FSRU is
8 comparable to the established and proven in service, policies, and procedures of the
9 Louisiana Offshore Oil Port (LOOP), the only operational oil deepwater port in the U.S.
10 As a result, approaching vessels would be able to take measures to avoid the FSRU.

11 MM MT-3g would ensure that navigational charts would be promptly changed and
12 published expeditiously to coincide with mooring of the FSRU; typically changes are not
13 initiated until a facility is in place. Interim corrections could be made by mariners in
14 response to the areas/zones being published in Notices to Mariners. Once published
15 on navigational charts, the safety zone and the ATBA delineations would assist all
16 mariners transiting the Project area to plan accordingly to avoid the safety zone and the
17 ATBA. Interim corrections could be made by mariners in response to the areas/zones
18 being published in Notices to Mariners.

19 The implementation of the measures described above would, for the reasons stated,
20 reduce the effects of the proposed Project on long-term marine traffic to a level below
21 the significance criteria.

1 **CEQA Finding No. MT-4**

2 **Marine Traffic**

3 Impact: **MT-4: FSRU or LNG Carrier Accident Impact on Marine Traffic**

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 An incident at the FSRU or on an LNG carrier could adversely affect marine traffic. The
11 vessel collision analysis showed that the probabilities of vessel collisions are small;
12 however, marine traffic could be adversely affected if an incident were to occur. Since
13 LNG carriers would approach no closer to the mainland and traffic lanes than the vicinity
14 of the FSRU, and the FSRU LNG capacity greatly exceeds that of LNG carriers, it was
15 assumed that the potential consequences modeled for the FSRU represented the worst
16 credible scenarios for an LNG incident. Potential threats would be generated to vessels
17 in the area, including ships in the TSS, by the potential drifting of an unignited methane
18 cloud. With a wind speed of 2 m per second (4.5 mph or 7.2 km per hour), an unignited
19 cloud would take approximately 89 minutes to reach the TSS; however, faster wind
20 speeds would reduce this time. (See Impact PS-1 for an explanation of the TSS).

21 Commercial vessels over 65 feet (20 m) using the TSS are required to monitor Channel
22 16 and use AIS and the Global Marine Distress Safety System (GMDSS) (if equipped
23 per IMO and U.S. regulations); therefore, they would be alerted as soon as a notice
24 would be sent. Upon receipt of the notice, commercial vessels ideally would take
25 evasive actions by either changing course or increasing their speed or both to avoid or
26 evacuate the affected area. Commercial fishing vessels over 300 domestic gross
27 registered tons are required to have an AIS and GMDSS and therefore would also
28 receive the notification.

29 Recreational vessels would be alerted if they are adhering to maritime communication
30 regulations; however, some vessels may not know to take measures to avoid entering a
31 potentially hazardous area.

32 If an incident were to occur, the USCG would take immediate action. The Captain of
33 the Port (COTP) of LA/LB would immediately issue an Urgent Marine Information
34 Broadcast to warn vessels to avoid the area. In addition, USCG would deploy vessels
35 to conduct search and rescue.

1 Proposed Mitigation

2 MM PS-3b. Emergency Communication/ Warnings.

3 MM MT-3f. Live Radar and Visual Watch.

4 As required by MM PS-3b, the Applicant would use all available communication devices
5 on the FSRU, LNG carrier, and/or Project support vessels to immediately notify vessels
6 in any offshore area, including hailing and Pan Pan broadcasts, if an incident were to
7 occur. This would allow vessels in the area to take evasive maneuvers to avoid or
8 minimize potential harm. Finally, MM MT-3f would reduce the likelihood of a collision
9 because the crew would have early warning of nearby vessels or aircraft and would
10 assist in managing an incident should one occur. The provision for live radar and visual
11 watch at the vessel control center of the FSRU is comparable to the established and
12 proven in service, policies, and procedures of the Louisiana Offshore Oil Port (LOOP),
13 the only operational oil deepwater port in the U.S. .

14 With the implementation of the mitigation measures described above, which would
15 reduce the potential for incidents due to operational errors, upsets, or equipment
16 failures or natural phenomena, the impact on marine traffic would, for the reasons
17 stated, be reduced to a level that is below the marine traffic significance criteria.

1 **CEQA Finding No. MT-5**

2 **Marine Traffic**

3 Impact: **MT-5:** Temporary Interference with Operations in the Point Mugu Sea
4 Range or the SOCAL Range Complex during Offshore Construction

5 Class: II

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Marine activities associated with site preparation, transportation, and installation of the
12 mooring system, FSRU, or subsea pipelines could temporarily burden maritime traffic
13 tracking systems or make clearing of some warning areas impossible; thus, temporary
14 disruption of operations in the Point Mugu Sea Range or the SOCAL Range Complex
15 could occur.

16 The subsea pipelines (from approximately milepost [MP] 3 to MP 16.8) would be
17 installed across the Point Mugu Sea Range. The U.S. Navy has indicated that the
18 support and construction vessels used during the installation of the subsea pipelines
19 would not have a significant impact on operations, if that work is coordinated well in
20 advance with the Navy. However, precautions would be necessary to ensure that
21 impacts do not become significant. No construction activities would occur within the
22 SOCAL Range Complex, with the exception of transport of the FSRU from its overseas
23 location.

24 Proposed Mitigation

25 MM MT-5a. Avoid Point Mugu Sea Range.

26 MM MT-5b. Daily Safety Briefs.

27 MM MT-5c. Daily Coordination with the U.S. Navy.

28 MM MT-5d. Monitor U.S. Navy Securite Broadcasts.

29 As required by MM MT-5a, potential impacts on the Point Mugu Sea Range would be
30 reduced if offshore pipeline construction is coordinated with the US Navy and only
31 vessels directly related to construction enter the Range.

32 Under MM MT-5b, all crews on Project construction vessels would be briefed daily,
33 which would remind construction workers to avoid the Range.

- 1 Under MM MT-5c, in addition, the Applicant would be required to coordinate with the
- 2 Navy daily to ensure that construction activities, once authorized by the Navy, would not
- 3 conflict with Navy activities.

- 4 Under MM 5d, the Applicant would have to monitor Navy broadcasts to proactively
- 5 avoid interference with Navy activities.

- 6 The implementation, at the request of the U.S. Navy, of the mitigation measures
- 7 described above would, for the reasons stated, avoid and ultimately reduce interference
- 8 with U.S. Navy activities to a level below its significance criteria.

1 **CEQA Finding No. MT-6**

2 **Marine Traffic**

3 Impact: **MT-6:** Long-Term Interference with Operations in the Point Mugu Sea
4 Range and the SOCAL Range Complex

5 Class: II

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Marine activities associated with Project operations could burden maritime traffic
12 tracking systems or could make clearing of some warning areas impossible and disrupt
13 operations in the Point Mugu Sea Range or the SOCAL Range Complex.

14 LNG carriers would transit through a small portion of the Point Mugu Sea Range.
15 Although infrequent, Navy operations could preclude use of either or both LNG carrier
16 routes for periods up to several hours. Project support vessels used during operations
17 may cross the Point Mugu Sea Range. LNG carriers would transit within the SOCAL
18 Range Complex, but not through the FLETA HOT, SHOBA, SWTR, or SOAR active
19 ranges.

20 The U.S. Navy has indicated in 2004 and 2006 that Project operations would not pose a
21 problem as long as U.S. Navy Securite broadcasts are heeded, LNG carrier schedules
22 are provided, and the U.S. Navy is notified in advance of an LNG carrier's approach,

23 Proposed Mitigation

24 MM MT-6a. Follow U.S. Navy Securite Broadcasts.

25 MM MT-6b. LNG Carrier Schedules.

26 MM MT-6c. Coordinate with the U.S. Navy.

27 MM MT-6a would prevent transiting LNG carriers from entering any areas in which the
28 Navy was conducting exercises because they would heed Navy Securite broadcasts.

29 MM MT-6b would require the LNG carrier schedule to be provided to the Navy and then
30 require notification of the Navy when LNG carriers are approaching the FSRU.

31 MM MT-6c would ensure that both the Navy and the LNG carrier captains would avoid
32 any potential interference with Navy activities by the use of any LNG carrier route.

- 1 With the implementation, at the request of the U.S. Navy, of the mitigation measures
- 2 described above, this impact would, for the reasons stated, be reduced to a level below
- 3 its significant criteria.

1 CEQA Finding No. MT-7**2 Marine Traffic**

3 Impact: **MT-7: Long-Term Interference with Operations at Port Hueneme**

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 Facts Supporting the Finding(s)**9 Description of the Impact**

10 Activities associated with Project operations could increase traffic at Port Hueneme;
11 thus, disruption of operations at Port Hueneme could occur. Port Hueneme has limited
12 berth space and is in the process of changing its mission to focus on cargo rather than
13 support for offshore oil and gas facilities. The harbor provides berth space on a first-
14 come, first-served basis. The Applicant has stated that the crew/supply boat would be
15 berthed at Port Hueneme and would take two trips to each LNG carrier that is docked at
16 the FSRU during cargo unloading. In addition, one tugboat would make weekly trips to
17 its berth at Port Hueneme to pick up supplies. The Applicant's use of the Port would
18 increase vessel traffic in and out of the Port from 1,750 to 2,250 vessel round trips
19 annually, representing a 28 percent increase in vessel traffic. This increase could be
20 significant if Project vessels were to loiter within the Port waiting for berth space to
21 become available; however, this impact could be mitigated through coordination
22 between the Applicant and the Port of Hueneme.

23 Port Hueneme requires that local licensed pilots guide all vessels that are more than 2
24 300 gross registered tons. The tug boats would exceed 300 gross registered tons.
25 Therefore, every week a local pilot would need to pilot the tugboat in and out of the Port.
26 Port Hueneme currently has two pilots; therefore, the Project's use of pilots may impede
27 other traffic in and out of the Port. In addition, every time a 300-gross-registered-ton
28 vessel would enter the Port, all activity in the main channel of the Port entrance would
29 cease. Although it would only take the tugboat less than 10 minutes to transit the
30 channel, this could cause minor delays to commercial fishing and potentially other
31 operations.

32 Proposed Mitigation

33 MM MT-7a. Project Pilots.

34 MM MT-7b. U.S. Navy Exemption.

35 MM MT-7c. Scheduling of Tug trips to the Port of Hueneme.

- 1 As required by MM MT-7a, having the masters of Project tugs obtain Port of Hueneme-
2 endorsed masters would eliminate the need for the use of Port of Hueneme's limited
3 number of existing pilots. As a result, Port of Hueneme pilots could continue to pilot
4 other vessels as they currently do, and vessel transits into and out of the Port would
5 continue as they currently do so that other commercial uses are not impaired.
- 6 Under MT-7b, a Navy exemption to the requirement to cease operations when Project
7 tugs enter and leave the Port of Hueneme would eliminate potential adverse impacts on
8 commercial fishing operations.
- 9 Under MT-7c, if the exemption were not granted, the 48-hour notification of tugboat
10 arrivals would reduce or eliminate any adverse impacts on commercial fishing
11 operations at Port Hueneme. In addition, the advanced coordination with Port of
12 Hueneme could reduce potential congestion within the Port caused by Project vessels
13 waiting for berth space.
- 14 With the implementation of the mitigation measures described above, the impact
15 would, for the reasons stated, be reduced to a level below its significance criteria.

1 **CEQA Finding No. AES-3**

2 **Aesthetics**

3 Impact: **AES-3: Alter Views for Recreational Boaters**

4 Class: I

5 Finding(s): c) Specific economic, legal, social, technological, or other considerations,
6 including provision of employment opportunities for highly trained
7 workers, make infeasible the mitigation measures or Project
8 alternatives identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 The FSRU would change the visual character of the ocean view for recreational
12 boaters. The change in character of the seascape could represent an adverse impact.
13 Judging the intensity of the impact with respect to recreational boaters is subjective.
14 Some boaters would not find the FSRU to be a significant adverse aesthetic impact
15 because they are accustomed to the large ships traveling nearby in the shipping lanes.
16 However, because recreational boaters would have the opportunity to view the FSRU
17 much closer than observers on land, their views could be substantially degraded.
18 Therefore, the Project would result in a significant long-term aesthetic impact for
19 recreational boaters.

20 Proposed Mitigation

21 No feasible mitigation is available to reduce this impact to below its significance criteria;
22 therefore, this impact would remain significant .

1 **CEQA Finding No. AGR-1**

2 **Agriculture and Soils**

3 Impact: **AGR-1: Temporary Loss of Agricultural Land**

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Construction activities could temporarily cause a loss of agricultural land, crops, or crop
11 production; however, the potential financial effect on farmers would be limited because
12 they would be compensated for both temporary and permanent losses of agricultural
13 land, crops, production and other negative effects, and the affected land would be
14 restored to its original condition following construction. No trees can grow within 15 feet
15 of the pipelines due to maintenance and safety requirements.

16 Proposed Mitigation

17 MM AGR-1d. Minimize Orchard Tree Removal.

18 MM AGR-1d would minimize orchard tree removal and require that small orchard trees
19 be replanted to replace any trees removed in the area between the temporary
20 construction easement and the permanent pipeline ROW.

21 This measure would, for the reasons stated, reduce impacts on agricultural land to a
22 level below its significance criteria.

1 **CEQA Finding No. AGR-2**

2 **Agriculture and Soils**

3 Impact: **AGR-2: Permanent Conversion of Agricultural Land to Non-Agricultural**
4 Use

5 Class: I

6 Finding(s): c) Specific economic, legal, social, technological, or other considerations,
7 including provision of employment opportunities for highly trained
8 workers, make infeasible the mitigation measures or Project
9 alternatives identified in the final EIR.

10 **Facts Supporting the Finding(s)**

11 Description of the Impact

12 Operational activities could cause a loss of agricultural land, crops, or crop production.
13 Construction of permanent facilities could cause a permanent loss of agricultural land,
14 crops, or crop production. Agricultural land that is preserved under the Williamson Act
15 could be permanently converted from agricultural land to non-agricultural land. Prime
16 farmland or farmland of Statewide Importance could be converted to non-agricultural
17 uses.

18 The NRCS has evaluated the proposed routes and determined that there would be no
19 significant impact on agricultural lands under its jurisdiction; however, under the
20 California Environmental Quality Act (CEQA) guidelines, any conversion of Prime
21 Farmland, Unique Farmland, or Farmland of Statewide Importance soils to non-
22 agricultural may represent a significant impact. The conversion of 0.1 acre of land at
23 the Center Road Valve Station is a significant impact that cannot be mitigated. This
24 impact would be a Class I impact.

25 Proposed Mitigation

26 No mitigation is available for the conversion of prime farmland to uses other than
27 farming because such farmland, once lost, is irreplaceable; therefore, the impact
28 remains significant.

1 **CEQA Finding No. AGR-3**

2 **Agriculture and Soils**

3 Impact: **AGR-3: Topsoil Loss, Mixing, and/or Compaction**

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Construction activities could result in topsoil and subsoil mixing, soil compaction, and/or
11 introduction of weed/invasive species, thereby reducing agricultural productivity. Where
12 construction occurs in agricultural areas, the concentrated movement of construction
13 equipment could result in mixing topsoil with the relatively infertile subsoil, thereby
14 diluting the productivity of the soil. The use of heavy equipment could also result in
15 rutting, which could lead to mixing of topsoil and subsoil, especially in excessively wet
16 conditions. Inadequate compaction of the trench backfill could result in soil subsidence
17 over the pipeline and thereby alter drainage patterns, while severe over compaction
18 could impede vegetation growth because of restricted movement of air and water into
19 the soil. Approximately 90.8 acres (36.7 ha) of agricultural soils would be disturbed by
20 the construction of the Center Road Pipeline, based on an average 80-foot (24.4 m)
21 ROW for most of the route and a 100-foot ROW (30.5-meter) for the last portion of the
22 pipeline route. Approximately 30.1 acres (12.2 ha) of agricultural soil would be
23 disturbed (based on an average 80-foot [24.4 m] ROW) along the proposed Line 225
24 Pipeline Loop; however, loss of soil productivity is less of a concern for this route
25 because it would traverse urban, residential, commercial, and industrial lands, and none
26 of the undeveloped areas are agricultural

27 Proposed Mitigation

28 MM AGR-3a. Topsoil salvage and replacement.

29 MM AGR-3b. Landowner Compensation for Soil Productivity Losses.

30 MM AGR-3a would ensure that the top soil disturbed by the Project would be
31 segregated and be replaced as topsoil to retain its continued agricultural productivity.

32 If soil productivity losses still were to occur in spite of preventive measures,
33 implementation of MM AGR-3b would ensure that farmers would be adequately
34 compensated for their losses due to loss of soil productivity.

35 Implementation of the mitigation measures described above would, for the reasons
36 stated, reduce this potential impact to a level below its significance criteria.

1 **CEQA Finding No. AGR-4**

2 **Agriculture and Soils**

3 Impact: **AGR-4: Dust Deposition**

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Dust generated during construction could be deposited on adjacent agricultural lands
11 with planted crops, temporarily reducing productivity by reducing a plant's ability to
12 photosynthesize.

13 Proposed Mitigation

14 MM AIR-2b. Construction Fugitive Dust Plan.

15 MM AGR-4a. Dust Suppression Water Quality.

16 MM AIR-2b would minimize the generation of fugitive dust; therefore, the potential
17 adverse effects of the presence of fugitive dust on agricultural fields would be potentially
18 avoided or minimized.

19 Implementation of MM AGR-4a would ensure that water applied in the implementation
20 of the Construction Fugitive Dust Plan to reduce the generation of fugitive dust is
21 potable water that would not adversely affect agricultural production.

22 With the minimization of fugitive dust generation without adversely affecting water
23 quality, the potential effects of dust deposition impacts would, for the reasons stated, be
24 reduced to a level below its significance criteria.

1 **CEQA Finding No. AGR-5**

2 **Agriculture and Soils**

3 Impact: **AGR-5: Loss of Tree Rows**

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Loss of tree rows could reduce agricultural productivity. Tree rows provide a windbreak
11 for agricultural fields, decreasing stresses on individual plants and thus allowing them to
12 grow with fewer disturbances. Along the Center Road Pipeline route, approximately
13 8,372 linear feet of tree rows would potentially be disturbed. There are no known tree
14 rows along the Line 225 Pipeline Loop.

15 Proposed Mitigation

16 MM TerrBio-2g. Tree Avoidance and Replacement

17 Implementation of MM TerrBio-2g would require the Applicant to replace tree rows at
18 ratio of 1:1. Replacement trees would be 15-gallon trees approximately 8 to 10 feet in
19 height. The type of tree planted would be approved by the CDFG and/or the landowner.

20 Therefore, the potential impact of the removal of tree rows would be limited to the period
21 of construction and would be reduced to a level below its significance criteria in the
22 long-term as the planting of larger replacement trees would reduce the time to return to
23 baseline conditions.

1 **CEQA Finding No. AGR-6**

2 **Agriculture and Soils**

3 Impact: **AGR-6:** Impacts from a Leak or Fire Associated with the Natural Gas
4 Transmission Line

5 Class: II

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 If the natural gas transmission line leaked and/or was ignited, the resulting fire could
12 cause the loss of crops or the contamination of the soil in the vicinity of the leak or fire.
13 A leak or rupture in any natural gas transmission line would require immediate response
14 by fire and police departments and SoCalGas. This could disrupt nearby agricultural
15 activities by preventing access to the fields for a number of hours. Plants in the
16 immediate vicinity of the pipe rupture would be lost and other localized crop losses
17 could occur. Although not acutely toxic, soot from the burning of any material in the
18 vicinity of the fire could contaminate nearby crops and would likely require destruction of
19 soot-contaminated plants and/or fruit.

20 Proposed Mitigation

21 MM AGR-6a. Restoration After a Natural Gas Transmission Line Accident.

22 MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System.

23 MM PS-4b. Pipeline Integrity Management Program.

24 MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve
25 Controls or Automatic Line Break Controls.

26 Implementation of MM AGR-6a would ensure that the area would be restored to its
27 original baseline condition should a leak or fire cause damage or contamination.

28 MM PS-3c would increase the overall integrity of the onshore pipelines, thereby
29 reducing the potential for accidents. The purpose of Federal Office of Pipeline Safety
30 pipeline safety advisories is to communicate issues based on experience in order to
31 improve safety.

32 MM PS-4b would increase public awareness by requiring implementation of the Pipeline
33 Integrity Management Program prior to pipeline operations instead of afterwards.

- 1 MM PS-4c would limit the affected area from a potential pipeline accident by allowing
- 2 SoCalGas to automatically control the influx of gas into sections of the pipeline system.
- 3 A team of engineers from the CSLC and CPUC evaluated project-specific pipeline valve
- 4 spacing and design and determined that they were appropriate to limit the potential
- 5 release duration and the quantity of natural gas that might be released from a ruptured
- 6 pipeline segment by reducing the distance between the mainline valves.

- 7 Impacts of this type would be temporary and the effects could be mitigated over the
- 8 long-term, for the reasons stated, to a level below its significance criteria.

1 **CEQA Finding No. AIR-1**

2 **Air Quality**

3 Impact: **AIR-1:** Net Emission Increases of Criteria Pollutants from Construction
4 Activities in Designated Nonattainment Areas

5 Class: I

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

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

13 **Facts Supporting the Finding(s)**

14 Description of the Impact

15 The dispersion modeling analysis indicates the maximum ambient CO and NO₂ impacts
16 caused by emissions from onshore construction activities would be less than applicable
17 National Ambient Air Quality Standards and State Air Quality Standards. However,
18 Project construction activities in Ventura and Los Angeles Counties would generate
19 emissions that exceed quantitative thresholds for ozone precursors, NO_x and ROC, and
20 CO.

21 Proposed Mitigation

22 MM AIR-1d. Gasoline-Fueled Equipment.

23 MM AIR-1e. USEPA Tier 3 Nonroad Engine Standards.

24 MM AIR-1f. Construction Emissions Reduction Plan.

25 MM AIR-1g. Construction Equipment Documentation.

26 MM AIR-1d would require the exclusive use of gasoline fueled equipment that meets
27 specific exhaust emissions standards. This mitigation measure would reduce CO and
28 NO_x emissions by precluding the use of gasoline-fueled construction equipment that
29 does not meet these standards. Air quality analysis predicts that the reduced
30 construction emissions due to this mitigation measure, in combination with other
31 mitigation measures, would not cause CO or NO₂ ambient air quality standards to be
32 exceeded.

33 MM Air-1e would require that all diesel equipment with a rating between 100 and 750
34 horsepower be equipped with engines that comply with USEPA Tier 3 nonroad engine
35 standards. This mitigation measure would reduce air pollutant emissions by precluding

1 the use of applicable construction equipment that does not meet these standards. Air
2 quality analyses predict that the reduced construction emissions due to this mitigation
3 measure, in combination with other mitigation measures, would not cause exceedences
4 of CO or NO₂ ambient air quality standards.

5 MM AIR-1f specifies the preparation of a plan to catalog the emissions reductions
6 elements, including Applicant measures and mitigation measures that the Applicant
7 must incorporate into construction contracts. The plan would also include additional
8 specific measures that represent best management practices for construction activities,
9 which are expected to result in reductions in air pollutant emissions.

10 MM AIR-1g requires the Applicant to provide appropriate documentation to confirm the
11 implementation of Applicant emission reduction measures and mitigation measures.
12 This mitigation does not provide for additional emission reductions, but provides for a
13 mechanism for confirming the emission reductions quantified under Applicant measures
14 and other mitigation measures are achieved.

15 Since Project-related mitigation would not reduce the daily level of NO_x, ROCs, and CO
16 emissions from construction activities to less than the applicable Ventura County Air
17 Pollution Control District and South Coast Air Quality Management District significance
18 thresholds, this impact would remain Class I.

1 **CEQA Finding No. AIR-2**

2 **Air Quality**

3 Impact: **AIR-2:** Violations of Ambient Air Quality Standards Caused by Particulate
4 Emissions from Onshore Construction Activities

5 Class: I

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

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

13 **Facts Supporting the Finding(s)**

14 Description of the Impact

15 Onshore Project construction activities would generate PM₁₀ and PM_{2.5} emissions that
16 could cause or contribute to existing or projected violations of National Ambient Air
17 Quality Standards and/or State Ambient Air Quality Standards.

18 Implementation of the Construction Emissions Reduction Plan and other mitigation
19 measures would lead to the use of equipment engines and control equipment that would
20 emit less diesel particulate matter (PM₁₀ and PM_{2.5}).

21 Measures required under the Construction Fugitive Dust Plan would serve to limit, to the
22 extent feasible, the generation of fugitive dust caused by construction activities.
23 Emission reductions for fugitive PM₁₀ and PM_{2.5} associated with this mitigation measure
24 have already been incorporated into current emission estimates.

25 In addition to emission reduction measures, the Applicant would be required to monitor
26 ambient concentrations of PM₁₀ and PM_{2.5} during construction activities and take
27 appropriate actions to avoid violations of ambient air quality standards.

28 Proposed Mitigation

29 MM AIR-2b. Construction Fugitive Dust Plan.

30 MM AIR-1e. USEPA Tier 3 Nonroad Engine Standards.

31 MM AIR-1f. Construction Emissions Reduction Plan.

32 MM AIR-1g. Construction Equipment Documentation.

1 MM AIR-2b specifies the preparation of a plan to elaborate the fugitive dust control
2 measures that the Applicant must incorporate into construction contracts. The plan
3 would include Applicant proposed measures as well as specific measures required by
4 local rules and regulations that represent best management practices for construction
5 activities. The emission reductions from fugitive control measures are expected reduce
6 PM₁₀ and PM_{2.5} emissions. In addition to emission reduction measures, the Applicant
7 would be required to monitor ambient concentrations of PM₁₀ and PM_{2.5} during
8 construction activities and take appropriate actions to avoid violations of ambient air
9 quality standards. However, air quality analysis predicts that emissions from
10 construction activities would have the potential to contribute to exceedences of PM₁₀
11 and PM_{2.5} ambient air quality standards.

12 MM Air-1e would require that all diesel equipment with a rating between 100 and 750
13 horsepower be equipped with engines that comply with USEPA Tier 3 nonroad engine
14 standards. This mitigation measure would reduce air pollutant emissions by precluding
15 the use of applicable construction equipment that does not meet these standards.
16 However, air quality analysis predicts that emissions from construction activities would
17 have the potential to contribute to exceedences of PM₁₀ and PM_{2.5} ambient air quality
18 standards.

19 MM AIR-1f specifies the preparation of a plan to catalog the emissions reductions
20 elements, including Applicant measures and mitigation measures that the Applicant
21 must incorporate into construction contracts. The plan would also include additional
22 specific measures that represent best management practices for construction activities
23 that are expected to result in reductions in air pollutant emissions. However, air quality
24 analysis predicts that emissions from construction activities would have the potential to
25 contribute to exceedences of PM₁₀ and PM_{2.5} ambient air quality standards.

26 MM AIR-1g requires the Applicant to provide appropriate documentation to confirm the
27 implementation of Applicant emission reduction measures and mitigation measures.
28 This mitigation does not provide for additional emission reductions, but provides for a
29 mechanism for confirming the emission reductions quantified under Applicant measures
30 and other mitigation measures.

31 Despite these mitigation measures, the potential for onshore construction activities
32 (primarily in the form of fugitive dust emissions) to cause an exceedance of applicable
33 ambient air quality standards would exist; therefore, the potential impact remains Class
34 I.

1 **CEQA Finding No. AIR-3**

2 **Air Quality**

3 Impact: **AIR-3:** Violations of Ambient Air Quality Standards, Exposure of the Public
4 to Substantial Pollutant Concentrations, and/or Creation of Objectionable
5 Odors Caused by an Accidental LNG Spill or Pipeline Rupture

6 Class: I

7 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
8 Project that avoid or substantially lessen the significant environmental
9 effect as identified in the final EIR.

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

14 **Facts Supporting the Finding(s)**

15 Description of the Impact

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

21 Proposed Mitigation

22 MM PS-3c. Areas Subject to Accelerated Corrosion, Cathodic Protection System.

23 MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve
24 Controls or Automatic Line Break Controls.

25 MM PS-4d. Treat Shore Crossing as Pipeline HCA.

26 MM PS-4e. Safety Marker Indicating the Presence of Buried Natural Gas Pipeline at
27 Ormond Beach.

28 MM PS-4f. Emergency Response.

29 MM PS-5a. Treat Manufactured Home Residential Community as a High Consequence
30 Area.

31 MM PS-3c would increase the overall integrity of the offshore and onshore pipelines,
32 thereby reducing the potential for accidents. The purpose of Federal Office of Pipeline
33 Safety pipeline safety advisories is to communicate issues based on experience in order
34 to improve safety.

1 MM PS-4c would limit the affected area from a potential pipeline accident by allowing
2 SoCalGas to automatically control the influx of gas into sections of the pipeline system.
3 A team of engineers from the CSLC and CPUC evaluated project-specific pipeline valve
4 spacing and design and determined that they were appropriate to limit the potential
5 release duration and the quantity of natural gas that might be released from a ruptured
6 pipeline segment by reducing the distance between the mainline valves.

7 MM PS-4d would provide for implementation of the pipeline integrity management
8 program at beach recreation areas where people could be located in the vicinity of the
9 pipelines. MM PS-4e would improve the safety of the system by enabling members of
10 the public to report gas leaks. MM PS-4f would improve the timeliness and
11 effectiveness of emergency response measures and facilitate evacuation of beach
12 users in the unlikely event of a potential pipeline accident.

13 MM PS-5a would implement additional pipeline safety measures above the level of
14 standards (based on population densities) applicable under law, rule and regulation, for
15 areas along the pipeline route with a predominance of semi-permanent housing. The
16 measure would also increase public awareness by requiring implementation of the
17 Pipeline Integrity Management Program, which requires continuing public education and
18 a public awareness program.

19 However, this impact would exceed air quality significance criteria after application of all
20 feasible mitigation measures and would, therefore, remain Class I.

1 **CEQA Finding No. AIR-4**

2 **Air Quality**

3 Impact: **AIR-4:** Emissions of Ozone Precursors from the FSRU

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Emissions of NO_x and ROC generated from FSRU equipment and the LNG carrier
11 during offloading of LNG could contribute to ambient ozone impacts in the areas
12 downwind of the Project.

13 Proposed Mitigation

14 MM AIR-4b. Ultra-low NO_x SCV Burners.

15 MM Air-4b. requires the Applicant to use burners in the SCVs that are certified for a
16 maximum NO_x emission concentration (4-hour average) of 15 ppm at 3% oxygen.
17 Conventional SCV burners emit 40 ppm NO_x. Use of the 15 ppm burners will reduce
18 emissions attributable to the SCV to 34.6 tons per year. This would result in a reduction
19 of annual NO_x emissions from the FSRU (including emissions attributable to powering of
20 the LNG transfer pumps) to 61.3 tons per year.

21 Based on the USEPA's and the CARB's estimates, the proposed Emissions Reduction
22 Program would provide for NO_x emission reductions greater than the estimated annual
23 NO_x emissions from FSRU equipment (66.1 tons per year) and the LNG carrier during
24 offloading of LNG (9.4 tons per year). These NO_x emission reductions would likely be
25 as effective in mitigating ambient ozone concentrations in onshore air basins as would
26 corresponding NO_x emission reductions occurring at the FSRU and offloading LNG
27 carriers. Thus, AM AIR-4a would reduce emissions of ozone precursors from the FSRU
28 to below the significance criteria.

29 Since the publication of the Final EIR, the Applicant has provided additional information
30 to the USEPA documenting that no further emission control technology can be
31 implemented to further reduce emissions through the application of selective catalytic
32 reduction technology to the submerged combustion vaporizers (SCVs) on the FSRU.
33 However, through a redesign of the SCV technology, the Applicant has identified a
34 modification to the SCV burners and committed to implement new MM AIR-4b, which
35 would further reduce emissions of NO_x (as well as other air pollutants) by specifying
36 more stringent performance standards for the SCVs. This reduction in NO_x emissions

1 from the FSRU would reduce the amount of emissions reductions required to mitigate
2 Impact AIR-4 and increase the emissions reductions available to mitigate Impact AIR-5.

3 The mitigation measure described above would, for the reasons stated, reduce the
4 impact to a level less than significant.

5 The CSLC has reviewed the addition of MM AIR-4b in light of the provisions of the State
6 CEQA Guidelines concerning recirculation and has determined that the redesign of the
7 SCV technology does not involve any new adverse environmental effects that were not
8 previously discussed in the Final EIR, and, in fact, reduce the levels of potentially
9 significant impacts identified in the Final EIR. The criteria listed specifically in section
10 15088.5(a)(1-4) of the State CEQA Guidelines are not met; therefore, the CSLC
11 believes recirculation is unwarranted.

1 **CEQA Finding No. AIR-5**

2 **Air Quality**

3 Impact: **AIR-5: Emissions of Ozone Precursors from Project Vessels Operating in**
 4 **California Coastal Waters.**

5 Class: I

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
 7 Project that avoid or substantially lessen the significant environmental
 8 effect as identified in the final EIR.

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

13 **Facts Supporting the Finding(s)**

14 Description of the Impact

15 Emissions of ozone precursors, NO_x and ROC, generated from LNG carriers, tugboats,
 16 and the crew/supply boat operating in California Coastal Waters could contribute to
 17 ambient ozone impacts in areas located downwind of the Project (see Figure 1). The
 18 definition of California Coastal Waters was developed by the California Air Resources
 19 Board (CARB) to define the area where meteorological conditions could cause air
 20 pollutant emissions from offshore sources (i.e., vessels, platforms) to migrate to
 21 onshore areas. The boundary of California Coastal Waters is defined by a series of
 22 coordinates located in the Pacific Ocean (17 Cal. Code Regs., § 70500). Depending
 23 on the location, California Coastal Waters can extend between approximately 25 to 100
 24 miles off shore from the California coastline. The point where LNG carriers would cross
 25 the boundary of California Coastal Waters is approximately 90 miles (80 nautical miles)
 26 offshore of the coastline of Ventura County and Los Angeles County.

27 LNG carriers would burn natural gas in California Waters. Excluding the emissions
 28 generated for the operation of LNG transfer pumps during offloading of the LNG carrier,
 29 annual ozone precursor emissions from project vessels within California Coastal Waters
 30 would be 84.7 tons of NO_x per year and 28.3 tons of ROC per year. Of these totals,
 31 emissions of NO_x and ROC in Ventura County waters, defined as 3 nautical miles off
 32 the Ventura County coastline, would be 0.28 and 0.12 tons per year, respectively, and
 33 would be caused solely by service vessels and tugs. LNG carriers would operate on the
 34 high seas and in Federal waters and would come no closer than 12.01 nautical miles
 35 from shore, the location of the FSRU.

1 **See Exhibit F-Map 1**

1 Ozone precursors emitted within California Coastal Waters are likely to be transported
2 towards the California coastline and contribute to ambient ground-level ozone impacts
3 on shore within Ventura County and Los Angeles County. The State Lands
4 Commission has determined that this impact is significant as the Project results in a
5 cumulatively considerable net increase of ozone precursor emissions in an area that is
6 upwind of the ozone nonattainment areas of Ventura County and Los Angeles County.

7 Proposed Mitigation

8 MM AIR-5c. Documentation of Engine Specifications.

9 MM AIR-5c. requires the Applicant to prepare and maintain specified documentation
10 that demonstrates implementation of its emission reduction measures (AM AIR-5a. and
11 5b.).

12 The Applicant has incorporated changes into the Project that would lessen Project NO_x
13 and ROC emissions from marine vessels through the use of natural gas in the engines
14 of LNG carriers instead of the more typical diesel or heavy fuel oil (AM AIR-5a) and the
15 use of air pollution control equipment on the diesel-fueled tugboats and crew/supply
16 boat (AM AIR-5b). For AM AIR-5a, natural gas in the LNG carriers would be used at all
17 times while the LNG carriers are operating within California Coastal Waters (i.e., within
18 approximately 90 miles offshore). CARB has determined that air emissions beyond the
19 boundary of California Coastal Waters are not likely to migrate to the California coast or
20 Ventura County waters.

21 This Project represents the first time that LNG carriers serving a port within the United
22 States would operate beyond Federal waters using less-polluting natural gas as a fuel
23 source, rather than diesel or heavy fuel oil. With respect to AM AIR-5b, the air pollution
24 control equipment for the diesel-fueled tugboats and crew/supply boat represents state-
25 of-the-art control technology for marine diesel-fueled vessels.

26 In addition, the Applicant would retrofit engines on two marine vessels (long haul tugs)
27 to reduce NO_x emissions. The CARB estimates that these engine retrofits would
28 generate NO_x emission reductions of 140.4 tons per year that would benefit the regional
29 area of the Project (excepting the Bay Area). The USEPA estimates that the retrofitting
30 of these vessels would result in NO_x emission reductions of 98.7 tons per year
31 (excepting the Bay Area).

32 Since the publication of the Final EIS/EIR, the Applicant has identified a modification to
33 the SCV technology used on the FSRU that would further reduce emissions of air
34 pollutants, including, NO_x and ROC. This modification is discussed further under
35 CEQA Finding AIR-4 and the associated changes to emissions are reflected in the
36 following discussion.

37 As part of air permit-to-construct application procedures, the Applicant committed to the
38 USEPA to achieve emissions reductions to an amount equal to annual NO_x emissions
39 from FSRU equipment and LNG carrier engines used to power LNG transfer pumps
40 (61.3 tons per year). Thus, total NO_x emission reductions designated as beneficial to

1 areas downwind of the Project area would exceed NO_x emissions from the FSRU/LNG
2 pumping by a value of 79.1 tons per year according to the estimates outlined by the
3 CARB or by 37.4 tons per year according to the estimates from the USEPA. These
4 additional NO_x emission reductions are less than the total NO_x emissions estimated for
5 Project vessels operating in California Coastal Waters by about 4.7 tons per year
6 according to the CARB's estimates, or by 47.3 tons per year according to the USEPA's
7 estimates.

8 The State Lands Commission further finds that the Applicant has provided an
9 unprecedented amount of emissions reductions to counterbalance emissions from LNG
10 carriers operating from the boundary of Federal waters to the boundary of California
11 Coastal Waters. While there would be a net increase in emissions of ozone
12 precursors caused specifically by LNG carriers, no further technologies or engineering
13 methods, considered as feasible mitigation measures, are available to further reduce
14 carrier emissions.

15 The Project would, however, create a net increase in NO_x emissions from marine vessel
16 traffic regardless of whether the CARB or USEPA's estimates of NO_x emissions
17 reductions are considered. The Project would also create a net increase in ROC
18 emissions from marine vessel traffic. These net increases in offshore ozone precursor
19 emissions have the possibility of contributing to ambient ozone impacts on shore within
20 Ventura County and Los Angeles County, both of which are designated as
21 nonattainment areas for ozone. The Applicant proposed no further measures to
22 mitigate ozone precursor emissions from Project marine vessels operating in Federal
23 waters/California Coastal Waters beyond those discussed above, but will continue to
24 consult with the CARB and the USEPA.

25 The State Lands Commission finds that the emissions of ozone precursors from project
26 marine vessels represent a significant and unavoidable impact (Class I). The impact
27 remains significant even after the Applicant has incorporated into the Project the use of
28 state-of-the-art technology to control emissions from the tugboats and crew/supply
29 boats that would operate within Ventura County waters [3 nautical miles from the
30 coastline] and in Federal waters. No further feasible technologies or engineering
31 methods are available to further reduce emissions from these particular vessels.
32 Moreover, the NO_x emission reductions associated with the engine retrofit projects
33 proposed by the Applicant would be greater than the NO_x emissions from tugboats and
34 crew/supply boats operating within Ventura County waters and in Federal waters.

1 **CEQA Finding No. AIR-9**

2 **Air Quality**

3 Impact: **AIR-9:** Temporary Increases in Ambient Concentrations of Air Toxic
4 Pollutants Due to Emissions from Construction Activities

5 Class: II

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Project onshore construction activities in Ventura and Los Angeles Counties would
12 generate emissions of air toxic contaminants. The mitigation measures for Impact AIR-
13 5 would reduce air toxic contaminant emissions, and the dispersion modeling analysis
14 indicates the maximum ambient impacts caused by emissions from onshore
15 construction activities would be less than health risk guideline levels.

16 Due to the distance to potential receptors, offshore construction activities would not be
17 expected to result in adverse impacts to sensitive receptors.

18 Proposed Mitigation

19 MM AIR-1e. USEPA Tier 3 Nonroad Engine Standards.

20 MM AIR-1f. Construction Emissions Reduction Plan.

21 MM AIR-1g. Construction Equipment Documentation.

22 MM Air-1e would require that all diesel equipment with a rating between 100 and 750
23 horsepower be equipped with engines that comply with USEPA Tier 3 nonroad engine
24 standards. This mitigation measure would reduce air pollutant emissions by precluding
25 the use of applicable construction equipment that does not meet these standards. Air
26 quality analyses predict that the reduced construction emissions due to this mitigation
27 measure would reduce impacts from air toxic contaminant emissions to less than health
28 risk guideline levels.

29 MM AIR-1f specifies the preparation of a plan to catalog the emissions reductions
30 elements, including Applicant measures and mitigation measures that the Applicant
31 must incorporate into construction contracts. The plan would also include additional
32 specific measures that represent best management practices for construction activities,
33 which are expected to result in reductions in air pollutant emissions.

- 1 MM AIR-1g requires the Applicant to provide appropriate documentation to confirm the
- 2 implementation of Applicant emission reduction measures and mitigation measures.
- 3 This mitigation does not provide for additional emission reductions, but provides for a
- 4 mechanism for confirming the emission reductions quantified under Applicant measures
- 5 and other mitigation measures.

- 6 Implementation of the mitigation measures described above would, for the reasons
- 7 stated, reduce the impacts to less than health risk guideline levels, and the impact
- 8 would be reduced to a level below its significance criteria.

1 **CEQA Finding No. BioMar-2**

2 **Marine Biology**

3 Impact: **BioMar-2:** Temporary Avoidance of the Area Due to Increased Turbidity
4 from Construction Activities Offshore or Accidental HDB Release of
5 Drilling Fluids

6 Class: II

7 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
8 Project that avoid or substantially lessen the significant environmental
9 effect as identified in the final EIR.

10 **Facts Supporting the Finding(s)**

11 Description of the Impact

12 A release of drilling fluids and bentonite into the subtidal environment during HDB
13 operations could temporarily increase turbidity. Increases in turbidity at the offshore exit
14 point could cause fish to avoid this area. Overall impacts on fish and benthic
15 communities would be negligible, however, considering the limited area impacted by a
16 release event or by construction activities.

17 Proposed Mitigation

18 MM WAT-3a. Drilling Fluid Release Monitoring Plan.

19 MM WAT-3a would require a plan of specified content to minimize the potential for
20 releases of drilling fluids and require drilling fluids to be properly cleaned up and
21 appropriate agencies notified should a release occur. The plan would incorporate best
22 management practices that have been proven in other projects to reduce the impacts
23 from releases of drilling fluids.

24 With the implementation of the proposed mitigation measure, the impact on marine
25 species would, for the reasons stated, be reduced to a level below its significance
26 criteria.

1 **CEQA Finding No. BioMar-3**

2 **Marine Biology**

3 Impact: **BioMar-3:** Temporary or Permanent Alteration or Disturbance of Marine
4 Biota Behavior or Sensitive Habitats

5 Class: II

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Construction and/or operational activities could alter EFH or sensitive habitats (beach
12 spawning areas or hard bottom substrate,) resulting in cessation or reduction of feeding
13 or reproduction, area avoidance, or changes in migration patterns. The Applicant would
14 avoid critical spawning habitat for special status species (grunion) and sensitive habitats
15 (hard bottom areas) on which many sensitive species rely for survival. The Applicant
16 would use lighting sparingly and in limited areas and intensities and would also use
17 lighting controls such as shielding devices. The Applicant would also use noise
18 reduction measures including muffling during construction.

19 Proposed Mitigation

20 MM BioMar-3b. Monitoring.

21 MM BioMar-3c. Avoidance.

22 MM NOI-1A. Efficient Equipment Usage.

23 MM BioMar-3b would prevent interference with spawning by avoiding construction
24 during spawning events by requiring monitoring of Ormond Beach during grunion
25 spawning periods and requiring that a qualified biologist determine when construction
26 will begin.

27 MM BioMar-3c would reduce impacts on sensitive species by requiring that hard bottom
28 habitat be avoided.

29 Under MM NOI-1a, operation of equipment on an as-needed basis would result in fewer
30 pieces of equipment operating simultaneously. The operation of less equipment at any
31 given time would reduce the overall noise level. By using equipment engine covers and
32 mufflers in good working condition, a reduction of up to 20 dBA could be achieved for
33 individual pieces of equipment.

- 1 The implementation of the mitigation measures described above would, for the reasons
- 2 stated, reduce impacts to a level below its significance criteria.

1 **CEQA Finding No. BioMar-5**

2 **Marine Biology**

3 Impact: **BioMar-5: Noise Disrupting Marine Mammal Behavior**

4

5 Class: I

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

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

13 **Facts Supporting the Finding(s)**

14 Description of the Impact

15 Noise from construction and operation vessels or equipment could disrupt migrations;
16 interfere with or mask communications, prey and predator detection, and/or navigation;
17 cause adverse behavioral changes; or result in temporary or permanent hearing loss.
18 Project designs and manufacturers' noise source levels data for the proposed
19 machinery elements were used to calculate estimated radiated noise potentially
20 introduced to the marine environment by the Project. Project noise levels and reduction
21 levels were estimated using data from the literature and based on basic physics,
22 acoustic theory, and empirical formulations. Avoiding the gray whale migration season
23 would reduce the numbers of certain marine mammals exposed to noise during
24 construction. No impulse sounds are anticipated during normal construction and
25 operational activities; therefore, death of deep-diving cetaceans due to impulse noise is
26 unlikely.

27 For both marine mammals protected under the Endangered Species Act and marine
28 mammals protected under the Marine Mammals Protection Act., significant noise levels
29 are defined by NMFS as follows:

- 30 • Level A take threshold for continuous noise = 180 dB re 1 μ Pa --- rms
- 31 • Level B take threshold for continuous noise = 120 dB re 1 μ Pa --- rms.

32 The Applicant reports worst case construction noise levels for both the offshore marine
33 pipeline spreads and installation of the FSRU mooring and riser systems would be 180
34 dB re 1 μ Pa --- rms. The worst case scenarios in both construction areas (all equipment
35 continuously running at the same time and place) is unlikely. In addition, the application
36 of mitigation measures to reduce noise generated would be expected to bring
37 construction noise to below the Level A harassment threshold. However, the Applicant

1 has estimated that the zone of noise influence representing the Level B harassment
2 threshold would have a radius of 10 km from the source.

3 Six out of the seven operating scenarios proposed by the Applicant have noise source
4 levels that exceed 180 dB re 1 μ Pa --- rms by 1.6 to 12.6 dB. One operating scenario
5 which can be used approximately 90 percent of the time uses vibration isolators to bring
6 the noise source level slightly below the Level A harassment threshold, but it would still
7 be well above the Level B harassment threshold.

8 Proposed Mitigation

9 MM BioMar-5a. Noise Reduction Design.

10 MM BioMar-5b. Acoustic Monitoring Plan.

11 MM BioMar-5c. Helicopter Altitude.

12 MM NOI-1a. Efficient Equipment Usage

13 MM BioMar-5a would reduce noise from the operation of the FSRU by incorporating
14 noise reduction strategies in the design to reduce noise output to the maximum extent
15 possible. Proposed noise reduction designs would reduce the radius distance from the
16 Project activities noise that could be heard by marine mammals and would reduce the
17 intensity of Project related noise, thus these measures would reduce the number of
18 individuals potentially affected by such noises.

19 MM BioMar-5b would allow for adaptive management during project operations. To
20 ensure that the proposed noise reduction techniques are effective, the Acoustic
21 Monitoring Plan will require that site-specific baseline and empirical data be obtained,
22 behaviors of marine mammals exposed to construction and operational noise be
23 tracked and documented, and acoustic monitoring results be compared to NOAA
24 Fisheries (NMFS) accepted thresholds to determine whether noise levels can be
25 reduced and whether continued or future monitoring is necessary.

26 Under MM NOI-1a, operation of equipment on an as-needed basis would result in fewer
27 pieces of equipment operating simultaneously. The operation of less equipment at any
28 given time would reduce the overall noise level and thus potentially reduce the number
29 of marine mammals that could be exposed to noise. Additionally, efficient use of
30 equipment during construction and operations would reduce the duration of time and
31 intensity of certain noises which may be introduced into the marine environment. By
32 using equipment engine covers and mufflers in good working condition, a reduction of
33 up to 20 dBA could be achieved for individual pieces of equipment.

34 MM BioMar-5c would require maintenance of a minimum helicopter altitude (except
35 during take-off and landing) to reduce noise that may disrupt marine mammals due to
36 the infrequent use of helicopters.

37 Implementation of the mitigation measures described above would, for the reasons
38 stated, reduce the intensity and duration of anthropogenic noise introduced to the

1 marine environment and would thus reduce impacts on marine mammals, but it is
2 unclear whether impacts would be reduced to a level below its significance criteria;
3 therefore this impact is considered potentially significant after application of all feasible
4 mitigation.

1 **CEQA Finding No. BioMar-6**

2 **Marine Biology**

3 Impact: **BioMar-6: Mortality and Morbidity of Marine Biota from Spills**

4 Class: I

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

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

12 **Facts Supporting the Finding(s)**

13 Description of the Impact

14 Although rare, an accidental release of a significant amount of oil or fuel during
15 construction or operation, or LNG spills or a natural gas leak from subsea pipelines,
16 could cause morbidity or mortality of marine biota, including fish, invertebrates,
17 seabirds, and sea turtles, through direct contact or ingestion of the material. In the
18 event of an oil or fuel spill, contingency plans would be implemented and the released
19 material would be recovered to the extent possible. A large accidental release of LNG
20 into the marine environment could have a potentially significant impact on marine
21 organisms, including hypothermia, frostbite, or death, but would dissipate rapidly unless
22 ignited; a fire could injure seabirds of other species that would come into contact with
23 flames or smoke.

24 Although information about the effects of methane and mercaptan on marine organisms
25 is limited, a leak of natural gas (with the odorant mercaptan added) from the subsea
26 pipelines could potentially impact marine organisms depending on the location and
27 volume of the release, as well as exposure time and environmental conditions. If
28 accidentally released from the pipeline, the gases would be quickly dispersed in the
29 water column due to the oceanic conditions (currents and upwelling) and would not
30 remain either in the water column or the sediments long enough to cause asphyxiation
31 to marine organisms.

32 Proposed Mitigation

33 MM PS-1e. Cargo Tank Fire Survivability.

34 MM PS-1f. Structural Component Exposure to Temperature Extremes.

35 MM PS-1g. Pre- and Post-Operational HAZOPs.

1 MM PS-1e would improve the ability of LNG storage tanks to withstand the effects of a
2 fire and could also potentially limit the extent of damage caused by an incident. It is
3 expected that additional advances in cargo tank insulation will be made in the near
4 future, and this mitigation measure would help to ensure that the best available
5 technology is used.

6 MM PS-1f would reduce the likelihood of a major structural failure by requiring
7 consideration of potentially improbable but high consequence events during Project
8 design. Safety engineering, HAZOPs, and quantitative risk assessment (QRA) are
9 widely used in processing industries to improve safety; these methodologies represent
10 best management practices.

11 MM PS-1g would reduce the likelihood of a potential emergency incident at the FSRU
12 and would improve the crew's response if such a situation were to occur. HAZOPs
13 have been recognized to reduce risk by both industry and regulations such as the
14 California and Federal Risk Management and Prevention Programs. Conducting a
15 HAZOP prior to operation would help to refine operations practices and emergency
16 response provisions and subsequent HAZOPS during operations would critically
17 evaluate actual practices.

18 The proposed design/engineering measures are directed at reducing the potential for
19 such a spill to occur; and limiting the duration and area of exposure if such a spill does
20 occur, thus reducing the potential for impacts to marine organisms. However, even with
21 the implementation of the measures above, impacts on marine biota from a large
22 accidental release of LNG or fuel would remain potentially significant after application of
23 all feasible mitigation.

1 **CEQA Finding No. BioMar-8**

2 **Marine Biology**

3 Impact: **BioMar-8:** Release of LNG, Natural Gas, Fuel, or Oil Causes Injury or
 4 Mortality of Marine Mammals

5 Class: I

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
 7 Project that avoid or substantially lessen the significant environmental
 8 effect as identified in the final EIR.

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

13 **Facts Supporting the Finding(s)**

14 Description of the Impact

15 A release of LNG, natural gas, fuel, or oil could cause injury or mortality of marine
 16 mammals through direct contact or ingestion of the material. Small LNG spills would
 17 rapidly dissipate but marine mammals in the area of a large LNG spill or resulting fire
 18 would likely suffer mortality. Although cleanup operations would reduce impacts of a
 19 diesel or other fuel spill, marine mammals could suffer adverse effects. Any impacts on
 20 marine mammals during a spill event or clean-up would be documented and reported in
 21 accordance with regulatory requirements.

22 Proposed Mitigation

23 MM PS-1e. Cargo Tank Fire Survivability.

24 MM PS-1f. Structural Component Exposure to Temperature Extremes.

25 MM PS-1g. Pre- and Post-Operational HAZOPs.

26 MM MT-3f. Live Radar and Visual Watch.

27 MM PS-1e would improve the ability of LNG storage tanks to withstand the effects of a
 28 fire and could also potentially limit the extent of damage caused by an incident. It is
 29 expected that additional advances in cargo tank insulation will be made in the near
 30 future, and this mitigation measure would help to ensure that the best available
 31 technology is used.

32 MM PS-1f would reduce the likelihood of a major structural failure by requiring
 33 consideration of potentially improbable but high consequence events during Project
 34 design. Safety engineering, HAZOPs, and quantitative risk assessment (QRA) are

1 widely used in processing industries to improve safety; these methodologies represent
2 best management practices.

3 MM PS-1g would reduce the likelihood of a potential emergency incident at the FSRU
4 and would improve the crew's response if such a situation were to occur. HAZOPs
5 have been recognized to reduce risk by both industry and regulations such as the
6 California and Federal Risk Management and Prevention Programs. Conducting a
7 HAZOP prior to operation would help to refine operations practices and emergency
8 response provisions and subsequent HAZOPS during operations would critically
9 evaluate actual practices.

10 Finally, MM MT-3f would reduce the likelihood of a collision because the crew would
11 have early warning of nearby vessels or aircraft and would assist in managing an
12 incident should one occur. The provision for live radar and visual watch at the vessel
13 control center of the FSRU is comparable to the established and proven in service,
14 policies, and procedures of the Louisiana Offshore Oil Port (LOOP), the only operational
15 oil deepwater port in the U.S. These measures would reduce the potential for incidents
16 due to operational errors, upsets, or equipment failures or natural phenomena.

17 No measures directed specifically at marine mammals are available to mitigate the
18 effects of a large LNG spill event. The proposed design/engineering measures are
19 directed at reducing the potential for such a spill to occur; limiting the duration and area
20 of exposure would reduce the potential for impacts to marine mammals. However, even
21 with the implementation of the measures above, impacts on marine mammals from a
22 large accidental release of LNG or fuel would remain potentially significant after
23 application of all feasible mitigation.

1 **CEQA Finding No. BioMar-10**

2 **Marine Biology**

3 Impact: **BioMar-10: Entanglement of Marine Mammals and Turtles**

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Marine mammals or sea turtles could become entangled in construction or operation
11 equipment, causing injury or mortality.

12 Proposed Mitigation

13 MM BioMar-10a. Deployment of Potentially Entangling Material, and

14 MM BioMar-10b. Notification.

15 Under MM BIOMAR-10a, monitors would observe the deployment of materials that have
16 the potential to entangle marine mammals and would ensure that the potentially
17 entangling material is deployed only for the amount of time needed. If an entanglement
18 appears likely, operators would remove as much potentially entangling material as
19 possible and make sure that slack is taken out of remaining material.

20 Under MM BioMar-10b, in the unlikely event that a marine mammal or sea turtle is
21 entangled, it would be reported immediately to the stranding coordinator at NOAA
22 Fisheries in Long Beach and Santa Barbara so that a rescue effort can be initiated.

23 Implementation of the mitigation measures discussed above would reduce impacts on
24 marine mammals to a level below the significance criteria by reducing the amount of
25 potentially entangling material in the water column, by providing monitors to observe
26 activities, and by implementing a notification system that would immediately lead to
27 rescue efforts, thus reducing the possibility of a marine mammal or sea turtle becoming
28 entangled and increasing probability of a successful rescue if entanglement occurs.

1 **CEQA Finding No. TerrBio-1**

2 **Terrestrial Biology**

3 Impact: **TerrBio-1: Temporary Increase in Sedimentation**

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Construction activities could cause increased sedimentation and soil erosion, and
11 expose contaminated soils during trenching activities.

12 Proposed Mitigation

13 MM TerrBio-1b. Spill Containment/Management.

14 MM WAT-3a. Drilling Fluid Release Monitoring Plan.

15 MM WAT-4a. Strategic Location for Drilling Fluids and Cuttings Pit.

16 Under MM TerrBio-1b, the Applicant or its designated representative would be required
17 to prevent and respond to spills and prevent contamination of soils and water. These
18 measures are best management practices and are recognized measures to prevent
19 spills and clean them up if they should occur.

20 MM WAT-3a would require a plan to minimize the potential for releases of drilling fluids
21 and require drilling fluids to be properly cleaned up and appropriate agencies notified
22 should a release occur. The plan would incorporate best management practices that
23 have been proven in other projects to reduce the impacts from releases of drilling fluids.

24 MM WAT-4a would ensure that drilling fluids and cuttings would be collected in a pit
25 located sufficiently far from stream banks, stream overflow areas, and groundwater
26 such that drilling fluids and cutting remain in the pit. In addition, the pit would be
27 protected with silt fencing, recontoured and revegetated at the completion of drilling
28 spoils disposal. The pit would be monitored in the event of a drilling fluid release to
29 ensure that effective cleanup measures would be taken.

30 Mitigation measures avoid or reduce the potential for soil and hazardous materials to
31 enter wetlands, surface water features, and sensitive habitat by requiring construction
32 barriers such as erosion control devices and buffer set-backs from sensitive habitat.

- 1 Impacts on water quality from sedimentation would have adverse impacts on special
- 2 status plants or wetlands; however, with implementation of the mitigation measures
- 3 described above, impacts would, for the reasons stated, be reduced to a level below its
- 4 significance criteria.

1 **CEQA Finding No. TerrBio-2**

2 **Terrestrial Biology**

3 Impact: **TerrBio-2:** Temporary or Permanent Impacts Regarding Construction,
4 Operation, and Maintenance Effects on Rare and Special Status Plants

5 Class: II

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Upland vegetation removal during onshore pipeline construction, maintenance, and
12 repair activities could result in the loss of special status plants.

13 Proposed Mitigation

14 MM TerrBio-2f Riparian Avoidance and Restoration.

15 MM TerrBio-2g Tree Avoidance and Replacement.

16 MM TerrBio-2f requires that the Applicant or its designated representative avoid,
17 minimize, and compensate for impacts on riparian habitat during construction.
18 Preplanning of restoration, monitoring, and replacement of habitat and trees would
19 effectively reduce impacts on riparian habitat.

20 MM TerrBio-2g requires that the Applicant or its designated representative, to the extent
21 possible, avoid, minimize, and compensate for impacts on trees. Implementation of
22 MM TerrBio-2g would require the Applicant to replace tree rows at ratio of 1:1.
23 Replacement trees would be 15-gallon trees approximately 8 to 10 feet in height. The
24 type of tree planted would be approved by the CDFG and/or the landowner. Therefore,
25 the potential impact of the removal of tree rows would occur primarily during the period
26 of construction and would be reduced to below its significance criteria in the long-term.

27 Impacts on rare and special status plants would be reduced by the application of the
28 mitigation measures described above to a level below its significance criteria by
29 avoiding or reducing impacts on special status plants, sensitive and high-value wildlife
30 habitats, and trees protected by local ordinance or policies and subsequently through
31 restoration activities.

1 **CEQA Finding No. TerrBio-3**

2 **Terrestrial Biology**

3 Impact: **TerrBio-3:** Temporary or Permanent Changes to Wetlands or Waters of
4 the U.S. during Construction

5 Class: II

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Construction (such as trenching) in wetlands or waters of the U.S. could remove
12 vegetation, disrupt the hydrology of the wetlands within and adjacent to the construction
13 area, or alter the habitat for special status plant species.

14 Proposed Mitigation

15 MM TerrBio-3a. Avoid, Minimize, or Reduce Impacts on Wetlands.

16 MM TerrBio-2f. Riparian Avoidance and Restoration.

17 MM TerrBio-3a requires that wetland areas be identified and marked, including those
18 containing special status species; that construction ROWs through wetlands and waters
19 be limited; that operation of construction equipment within wetlands and waters be
20 limited; and that prefabricated mats be used in saturated areas and areas with standing
21 water. Taking these precautions when working in or near waters of the United States
22 are well established practices that have been demonstrated to successfully reduce
23 impacts.

24 MM TerrBio-2f requires that the Applicant or its designated representative avoid,
25 minimize, and compensate for impacts on riparian habitat during construction.
26 Preplanning of restoration, monitoring, and replacement of habitat and trees would
27 effectively reduce impacts on riparian habitat.

28 Implementation of these mitigation measures would result in reduced impacts overall by
29 avoiding impacts on special status species and by limiting the area in which
30 construction would occur. In addition, special precautions would be taken when
31 operating within wetlands and waters of the United States that would avoid or reduce
32 impacts on wetlands and waters of the United States.

33 With the implementation of mitigation measures described above, the impact would, for
34 the reasons stated, be reduced to a level below its significance criteria.

1 **CEQA Finding No. TERRBIO-5**

2 **Terrestrial Biology**

3 Impact: **TerrBio-5:** Direct Permanent Impact on Wildlife Mortality

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Construction activities associated with pipeline installation, staging areas, HDD or HDB
11 locations, and access roads could cause the mortality of small mammals, reptiles, and
12 other less-mobile species.

13

14 Proposed Mitigation

15 MM TerrBio-5a, Pre-Construction Wildlife Surveys.

16 MM TerrBio-5a requires that, to minimize the potential for causing mortality of local
17 wildlife, the Applicant engage a qualified wildlife biologist to conduct additional pre-
18 construction surveys in advance of any vegetation clearing, or excavation or other
19 activity that causes disturbance to surface soils. Surveys would be completed by a
20 competent biologist, familiar with local birds, mammals, amphibians, and reptiles, with
21 survey requirements including any relevant agency protocols, and survey seasons. By
22 identifying whether sensitive species are present, prescribed measures can be
23 implemented as needed to reduce potential impacts.

24 It should be noted that for purposes of the impact analyses and resultant mitigation in
25 the Final EIR, all relevant species are presumed to exist in the vicinity of the proposed
26 Project.

27 With the implementation of this measure, the impact would, for the reasons stated, be
28 reduced to a level below its significance criteria.

1 **CEQA Finding No. GEO-1**

2 **Geology**

3 Impact: **GEO-1:** Worsens Existing Unfavorable Geologic Conditions and/or
4 Releases Toxic or Other Damaging Material into the Environment

5 Class: II

6 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
7 Project that avoid or substantially lessen the significant environmental
8 effect as identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Construction activities could temporarily worsen existing unfavorable geologic
12 conditions. Trenching and boring activities could increase erosion, differential
13 compaction, or scour, resulting in hazardous conditions for the pipelines. The trenching
14 or boring could also provide preferential flow paths for fluids in the subsurface. During
15 installation, transitory and sporadic erosion and scour such as during a rainstorm could
16 occur that could expose the onshore pipelines. During construction frac-outs (loss of
17 drilling fluid) may occur.

18 Proposed Mitigation

19 MM GEO-1b. Backfilling, Compaction, and Grading.

20 MM WAT-3a. Drilling Fluid Release Monitoring Plan.

21 MM GEO-1b would limit the construction effects on unfavorable geologic conditions
22 through adequate planning and design such as proper backfilling and compaction and
23 other standard construction practices, and geologic conditions would be restored to their
24 preexisting conditions.

25 MM WAT-3a would require a plan to minimize the potential for releases of drilling fluids
26 and require drilling fluids to be properly cleaned up and appropriate agencies notified
27 should a release occur. The plan would incorporate best management practices that
28 have been proven in other projects to reduce the impacts from releases of drilling fluids.

29 With the implementation of the mitigation measures described above, the impact would
30 be reduced, for the reasons stated, to a level below its significance criteria.

1 **CEQA Finding No. GEO-2**

2 **Geology**

3 Impact: **GEO-2: Cause a Loss of a Unique Paleontological Resource**

4 Class: II

5 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
6 Project that avoid or substantially lessen the significant environmental
7 effect as identified in the final EIR.

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Construction activities could disturb or destroy paleontological resources; such impacts
11 are typically permanent. Several areas along the Center Road Pipeline and Line 225
12 Pipeline Loop are tentatively classified as having a high sensitivity for containing
13 significant paleontological resources.

14 Proposed Mitigation

15 The following Agency Recommended Mitigation Measure (MM) has been identified to
16 reduce this impact:

17 MM GEO-2a. Inspection.

18 MM GEO-2a would minimize potential impacts on significant paleontological resources
19 through identification and protection of such resources. The paleontologist supervising
20 the excavation will have the ability to stop construction if potentially significant resources
21 are identified and threatened by the Project. The paleontological monitoring of
22 excavations that would be conducted by a qualified paleontologist is consistent with
23 standard construction practices used for similar projects to protect such resources.

24 With the implementation of the mitigation measure described above the impact would,
25 for the reasons stated, be reduced to a level below its significance criteria.

1 CEQA Finding No. GEO-3**2 Geology**

3 Impact: **GEO-3:** Expose People or Structures to Adverse Effects Due to Direct
4 Rupture along Fault Lines, Ground Shaking, or Seismic-related Ground
5 Failure

6 Class: II

7 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
8 Project that avoid or substantially lessen the significant environmental
9 effect as identified in the final EIR.

10 Facts Supporting the Finding(s)**11 Description of the Impact**

12 Damage to pipelines or other facilities could occur due to direct rupture (ground offset)
13 along fault lines. The offshore gas pipelines could be adversely affected by seismic
14 activity but would be designed to accommodate, based on the then most current
15 information, anticipated maximum lateral/vertical motion from earthquakes (permanent
16 deformation of seafloor) during the final design stage. If seafloor motion were to exceed
17 allowable stresses in the pipelines, pipelines could rupture and cause a leak. The loss
18 of pressure should induce the safe shut-down of the system and natural gas would rise
19 to the surface. Onshore pipelines would be similarly designed to accommodate
20 anticipated displacement by earthquakes and a loss in pressure would activate their
21 shut-down system. The CSLC requires the incorporation of current seismological
22 engineering guidelines and other recognized industry guidelines for seismic-resistant
23 design at all fault crossings that are subject to State jurisdiction.

24 Proposed Mitigation

25 MM GEO-3c. Geotechnical Studies.

26 MM GEO-3d. Design and Operational Procedures.

27 MM PS-4c. Install Additional Mainline Valves Equipped with Either Remote Valve
28 Controls or Automatic Line Break Controls.

29 MM GEO-3c would ensure that the pipeline is adequately planned by requiring
30 approved final site-specific geotechnical and seismic hazard studies be conducted prior
31 to final pipeline design and construction. Such studies covering suspected active fault
32 crossings to accurately define the fault plane location, orientation, and direction of
33 anticipated offset, and which include the magnitude of the anticipated offset at the fault
34 locations have been successfully used in similar construction projects to refine fault
35 crossing design parameters.

1 MM GEO-3d would ensure that the pipeline is adequately planned and designed by
2 requiring evaluation of a larger trench, engineered backfill, thicker wall pipe, and
3 telemetric control for final pipeline design. These measures reduce the likelihood that
4 the pipeline would rupture.

5 MM PS-4c would limit the affected area from a potential pipeline accident by allowing
6 SoCalGas to automatically control the influx of gas into sections of the pipeline system.
7 A team of engineers from the CSLC and CPUC evaluated project-specific pipeline valve
8 spacing and design and determined that they were appropriate to limit the potential
9 release duration and the quantity of natural gas that might be released from a ruptured
10 pipeline segment by reducing the distance between the mainline valves.

11 With the implementation of the mitigation measures described above, the impact would
12 be reduced, for the reasons stated, to a level below its significance criteria.

1 **CEQA Finding No. GEO-4**

2 **Geology**

3 Impact: **GEO-4:** Cause Severe Damage to Project Components as a Direct
4 Consequence of a Geologic Event, Releasing Toxic or Other Damaging
5 Materials into the Environment

6 Class: II

7 Finding(s): a) Changes or alterations have been required in, or incorporated into, the
8 Project that avoid or substantially lessen the significant environmental
9 effect as identified in the final EIR.

10 **Facts Supporting the Finding(s)**

11 Description of the Impact

12 Ground shaking from earthquakes, which is of a transitory and sporadic nature, could
13 damage Project components. The aboveground structures, such as the offshore part of
14 the pipelines or the onshore processing facilities, would be subject to strong ground
15 shaking, and strong earthquake-induced ground shaking could result in significant
16 damage to aboveground structures and lead to failure of open trenches during
17 construction. Ground shaking generally impacts buried modern welded pipelines only
18 when the shaking induces mass movement such as liquefaction, differential settlement,
19 or landslides. Pipe damage also may result from transient ground deformation caused
20 by the peak ground velocity of the seismic wave.

21 Proposed Mitigation

22 MM GEO-4a. Design for Ground Shaking.

23 MM GEO-4a would allow pipelines and other structures to withstand intense ground
24 shaking without collapsing or rupturing by requiring employment of proper seismic
25 design. The design guidelines that would be followed are widely used and accepted in
26 the industry.

27 With the implementation of the mitigation measure described above, the impact would,
28 for the reasons stated, be reduced to a level below its significance criteria.

1 **CEQA Finding No. HAZ-2**

2 **Hazardous Materials**

3 Impact: **HAZ-2:** Release of Oil or Hazardous Materials Spills Could Result in Soil
4 Contamination due to Pipeline Construction Activities

5 Class: II

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

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Activities associated with site preparation, construction, and drilling, as well as
12 operations and maintenance activities, could result in an accidental spill of hazardous
13 materials or oil and exposure of workers or the public. Operation of horizontal
14 directional drilling (HDD) or horizontal directional bore (HDB) equipment could result in
15 the accidental release of bentonite drilling fluid, a non-hazardous drilling fluid.
16 Construction activities could also result in spills from accidents or improper handling or
17 disposal of fuels or hazardous materials. Vehicle accidents could result in fuel spills
18 from rupturing of fuel tanks, and hazardous materials spills could occur if hazardous
19 material containers were compromised. A spill could expose workers and the public to
20 levels of hazardous materials in excess of applicable regulations. Improper handling or
21 containment of hazardous materials stored on site also may result in spills to which the
22 public or workers could be exposed.

23 The Applicant, or its designated representative, would maintain hazardous materials at
24 the staging areas in proper storage containers and with sufficient secondary
25 containment in accordance with best management practices, in addition to compliance
26 with Federal and State regulations. Hazardous materials stored temporarily in staging
27 areas would be stored on pallets within fenced and secured areas and protected from
28 exposure to weather.

29 Proposed Mitigation

30 MM HAZ-2a. Maintain Equipment.

31 MM HAZ-2b. Hazardous Material Contingency Plan.

32 MM WAT-3a. Drilling Fluid Release Monitoring Plan.

33 MM HAZ-2a requires the maintenance of equipment in operating condition to reduce the
34 likelihood of fuel or oil line breaks and leakage.

- 1 MM HAZ-2b requires the preparation and prior approval of a Hazardous Material
2 Contingency Plan and training workers in the implementation of the plan would ensure
3 that contaminated soil and groundwater would be properly managed and would reduce
4 the likelihood of spills of hazardous materials.
- 5 MM WAT-3a would require a plan to minimize the potential for releases of drilling fluids
6 and require drilling fluids to be properly cleaned up and appropriate agencies notified
7 should a release occur. The plan would incorporate best management practices that
8 have been proven in other projects to reduce the impacts from releases of drilling fluids.
- 9 With the implementation of the measures described above, this impact would, for the
10 reasons stated, be reduced to a level below its significance criteria.

1 **CEQA Finding No. HAZ-3**

2 **Hazardous Materials**

3 Impact: **HAZ-3:** Release of Existing Contaminants from Sediments, Soils, or
4 Groundwater

5 Class: II

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

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Construction activities could unearth existing contaminated sites onshore and offshore,
12 causing potential health hazards to construction workers, the public, and marine and
13 terrestrial ecology.

14 The offshore route would not pass through any known hazardous material sites;
15 therefore, encountering offshore contamination during construction would be unlikely.

16 There are potential hazardous material or hazardous waste sites within 0.5 mile (0.8
17 km) of the proposed Center Road Pipeline and Line 225 Pipeline Loop routes, and
18 onshore oil seeps have been identified in the general area near the Line 225 Pipeline
19 Loop. In addition, the alignment of the Line 225 Pipeline Loop from approximately MP
20 0.35 to MP 1.0 would follow the southern edge of Operable Unit (OU) 1 south of the
21 Whittaker-Bermite cleanup site and OU 2 from about MP 1.0 to MP 1.35.

22 Construction crews could potentially encounter contaminated soil or water during
23 trenching and drilling operations. In addition, an unknown or unrecorded disposal site
24 may be encountered. If potential contamination is uncovered, members of the public
25 could be exposed through direct contact or inhalation of contaminated materials.
26 Adverse health effects, however, are unlikely to occur from a short-term exposure to
27 contaminated soils or waters.

28 Proposed Mitigation

29 MM HAZ-3a. Consult with the Department of Toxic Substances Control (DTSC)
30 Regarding Cleanup of Soil and Groundwater at Whittaker-Bermite Site (MP 0.2 to 1.25).

31 MM HAZ-3b. Onshore Surveys.

32 MM HAZ-3a Consultation regarding the progress of cleanup at the Whittaker-Bermite
33 site would help to avoid encountering contaminated soil and groundwater during

1 construction and would identify how to handle any newly discovered contaminated soils
2 to minimize exposure of workers and the public to these contaminants. .

3 MM HAZ-3b. Although much of the onshore pipeline routes pass through existing
4 ROWs that have been previously cleared for the presence of hazardous materials,
5 conducting surveys for areas where the new onshore pipeline routes diverge from
6 existing ROWs would help to identify contaminated soils so that they can be properly
7 managed during construction.

8 With the implementation of the measures described above, this impact would, for the
9 reasons stated, be either avoided or reduced to a level below its significance criteria.

1 **CEQA Finding No. HAZ-4**

2 **Hazardous Materials**

3 Impact: **HAZ-4: Potential Disturbance or Detonation of Unexploded Ordnance due**
4 to Onshore or Offshore Construction

5 Class: II

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

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Offshore pipeline installation and onshore pipeline construction activities could
12 encounter UXO, causing an explosion that could result in serious injuries or fatalities to
13 workers or the public, and—for offshore locations—serious injuries or fatalities to marine
14 life from subsurface blast pressures.

15 Approximately 12.2 NM (14 miles or 22.6 km) of the subsea pipeline, i.e., from MP 3 to
16 MP 17, would lie within the Point Mugu Sea Range. Although the proposed pipeline
17 route is not an area where missiles are not ordinarily targeted, UXO, drones, or other
18 debris from missile testing may be located near or within the proposed subsea pipeline
19 corridor. Onshore, the part of the proposed Line 225 Pipeline Loop route from about
20 MP 0.2 to about MP 1.25 runs along the southern boundary of the Whittaker-Bermite
21 cleanup site, where UXO has been identified as a site-wide concern. However, the
22 existing Line 225 pipeline ROW was cleared of UXO during its construction in the late
23 1950s and early 1960s and has been patrolled and maintained on a routine basis for the
24 past five decades. Because of its location within an existing ROW, the Line 225 Loop
25 pipeline would not likely encounter UXO.

26 Proposed Mitigation

27 MM HAZ-4a. Offshore Surveys.

28 MM HAZ-4b. Coordination with the California Department of Toxic Substances Control.

29 MM HAZ-4a Conducting offshore surveys for UXO within the Point Mugu Sea Range
30 would minimize the chance of encountering UXO.

31 MM HAZ-4b. Coordinating with the DTSC regarding the Whittaker-Bermite site would
32 minimize the chances of encountering UXO during the construction of the Line 225
33 Pipeline Loop.

- 1 With the implementation of the mitigation measure described above, this impact would,
- 2 for the reasons stated, be reduced to a level below its significance criteria.

1 **CEQA Finding No. LU-2**

2 **Land Use**

3 Impact: **LU-2: Disruption to Adjacent Properties**

4 Class: II

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

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Construction may cause temporary disturbances or nuisances to nearby residents and
11 businesses or to special land uses. Construction nuisances include noise, light, dust,
12 and traffic delays. Construction in business or residential areas would mainly occur in
13 existing road ROWs. Although installation of the onshore pipelines could cause some
14 inconvenience to some businesses and residences along the route, the contractor
15 would provide temporary access at all times during construction.

16 Proposed Mitigation

17 MM LU-2c. Coordinate with Other Utilities.

18 MM NOI-6a. Post Signs.

19 MM NOI-6b. Equipment Location.

20 MM TRANS-1a. Traffic Control Plans.

21 MM LU-2c would reduce or eliminate temporary nuisances by requiring coordination
22 with other utility service providers to ensure that conflicting maintenance or construction
23 activities are minimized during construction.

24 MM NOI-6a would require signs with information on the construction schedule and
25 contacts so that nearby receptors could take the construction noise into account in
26 planning their activities and would have contact provided to which concerns could be
27 expressed.

28 MM NOI-6b would require stationary equipment, such as compressors and welding
29 machines to be located in areas of the construction site away from the residences. This
30 would allow for more noise attenuation over distance, thereby reduce the noise level at
31 the residences.

32 MM TRANS-1a would require preparation and approval of traffic control plans that detail
33 the location, schedule, signage, and safety procedures for lane and road closures
34 based on final pipeline engineering design. This would ensure continued flow of non-

1 Project related traffic around the area under construction and would avoid disrupting
2 both access by emergency and other vehicles and would ease congestion by, for
3 example, maintaining two-way traffic, ensuring continued flow of traffic around the area
4 under construction, and allowing continued access to residences, businesses, etc.

5 With implementation of the mitigation measures described above, this impact would, for
6 the reasons stated, be reduced to a level below its significance criteria.

7

1 **CEQA Finding No. NOI-1**

2 **Noise**

3 Impact: **NOI-1: Noise Generated During the Installation of the Floating Storage**
4 **and Regasification Unit (FSRU) and Offshore Pipelines**

5 Class: II

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

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Noise generated by vessels or equipment during installation of the mooring system,
12 FSRU, and offshore pipelines could result in temporary increases in noise levels in the
13 area, which could impact sensitive noise receptors such as recreational boaters or
14 fishers.

15 Installation of the FSRU and tie-in to the mooring point would be anticipated to require
16 approximately 24 days total, using 12-hour workdays. Installation of the offshore
17 pipelines is anticipated to require approximately 35 days. Similar vessels and
18 equipment would be used for the construction of the offshore pipelines. The size and
19 horsepower of the equipment that would be used for installation of the FSRU and the
20 subsea pipeline would vary, ranging from 1,500-hp crew boats that would transport
21 workers to 25,000-hp dynamically positioned vessels that would be used to position the
22 pipes directly onto the seafloor.

23 Noise generated by construction vessels would add to ambient noise in the vicinity of
24 the Project caused by existing vessel traffic. Project construction noise has been
25 designated a Class II impact because of the potential for the project to increase noise
26 by greater than 10 dBA over ambient background noise levels, but only for a temporary
27 and limited period of time.

28 Project construction noise would be locally concentrated for brief durations of time as
29 construction activities progress seaward along the route of the pipelines. Although no
30 one lives in the area, commercial, fishing, and recreational vessels transit the area
31 regularly. The crews of these vessels could encounter the construction vessels or be
32 passed by a supply vessel and be temporarily impacted by noise from Project-related
33 vessels. Recreational boaters and commercial fishing boats could avoid the project
34 area during construction and thereby limit their exposure to project-related noise;
35 however, should they transit the project area, they would temporarily be exposed to
36 greater noise levels.

1 Proposed Mitigation

2 MM NOI-1a, Efficient Equipment Usage,

3 MM MT-1c. Notices to Mariners

4 MM NOI-1a would require the operation of equipment on an as-needed basis which
5 would result in fewer pieces of equipment operating simultaneously. The operation of
6 less equipment at any given time would reduce the overall noise level. By using
7 equipment engine covers and mufflers in good working condition, a reduction of up to
8 20 dBA could be achieved for individual pieces of equipment.

9 MM MT-1c would notify boaters in advance and warn them of construction so that they
10 could avoid transiting near the construction area, which would further reduce potential
11 noise impacts on non-Project-related marine traffic. With the implementation of the
12 mitigation measures described above, this short-term noise impact would, for the
13 reasons stated, be reduced to a level below its significance criteria.

1 **CEQA Finding No. NOI-2**

2 **Noise**

3 Impact: **NOI-2: Long-Term Noise Generated During FSRU Operations**

4 Class: I

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

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

12 **Facts Supporting the Finding(s)**

13 Description of the Impact

14 The FSRU would use power-generating equipment, pumps, compressors, and other
15 rotating equipment that create noise. Noise levels are typically 50 to 55 dBA in the
16 vicinity of the proposed FSRU. Given this background and the predicted noise from the
17 operation of the FSRU of less than 50 dBA at 3.1 miles (5 km), the operating noise
18 would not normally be distinguishable 3.1 miles (5 km) or more from the unit. However,
19 at a lesser distance from the FSRU, the operating noise may become noticeable and at
20 less than 0.6 mile (1 km) noise level could interfere with normal conversation.
21 Recreational boaters and fishers would be prohibited from the safety zone, but noise
22 impacts during Project operations would occur at levels that exceed the significance
23 criteria outside of the safety zone but within the ATBA.

24 Proposed Mitigation

25 MM BioMar-5a, Noise Reduction Design.

26 The Applicant shall work with marine architects, acoustic experts and mechanical
27 engineers and the USCG, among others, to design the FSRU and its equipment to
28 reduce, to the maximum extent feasible, the output of cumulative noise from the facility.
29 This measure would ensure the use of best practices during design of the facility.

30 Implementation of this mitigation measure potentially would reduce the intensity and
31 duration of noise generated by the FSRU. This impact would remain potentially
32 significant and unmitigatable, but of short duration and transient in nature because
33 boaters are presumed to be transiting the area.

1 **CEQA Finding No. NOI-3**

2 **Noise**

3 Impact: **NOI-3: Temporary Noise Generated by Support Vessels During Offshore**
4 **Operations**

5 Class: I

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

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

13 **Facts Supporting the Finding(s)**

14 Description of the Impact

15 LNG carriers, crew boats and supply vessels, or helicopters could temporarily increase
16 noise levels for sensitive receptors, such as recreational boaters and fishers. Vessels
17 associated with offshore operations can be expected to be heard at a noise level of 90
18 dBA at 50 feet (15.2 m) away.

19 Helicopters may be used to access the FSRU; however, the number of trips is not
20 known. Typically, noise from a passing helicopter ranges from 68 to 78 dBA at
21 approximately 1,300 feet (396 m) and is only detectable for 30 seconds.

22 Project noise could be more than 10 dBA above ambient background noise levels.
23 However, recreational boaters and fishers could easily avoid coming into close proximity
24 to crew boats or supply vessels, and all boaters would be transient.

25 Proposed Mitigation

26 No additional mitigation is available to completely reduce this impact.

27 The frequency of noise-producing events would be limited to daytime hours, but marine
28 traffic transiting near vessels or helicopter traffic associated with the Project would still
29 be subject to a short-term significant impact from the vessel/helicopter noise; therefore,
30 this impact would remain potentially significant after application of all feasible mitigation.

1 **CEQA Finding No. NOI-4**

2 **Noise**

3 Impact: **NOI-4:** Temporary Noise Generated During Construction using Horizontal
4 Directional Boring (HDB), Horizontal Directional Drilling (HDD), or Other
5 Drilling Techniques

6 Class: I

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

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

14 **Facts Supporting the Finding(s)**

15 Description of the Impact

16 HDB at the shore crossing and HDD or other drilling techniques at onshore waterways
17 and intersection crossings could temporarily increase noise levels for sensitive
18 receptors. Noise levels could exceed local noise ordinances or permit conditions.

19 HDB operations would generate relatively high noise levels and would occur 24 hours
20 per day for 108 days for construction at the shore crossing (54 days for each HDB).
21 The proposed shore crossing is located next to the Reliant Energy Ormond Beach
22 Generating Station. The closest residence is approximately 1.1 miles (1.8 km) from the
23 HDB entry point and would be in Ventura County; therefore, Ventura County noise
24 ordinances would apply. The anticipated noise level at this residence would be 60 dBA,
25 which exceeds the Ventura County noise ordinances for all periods of the day;
26 therefore, the noise generated during the HDB installation would represent a short-term
27 significant impact.

28 Proposed Mitigation

29 MM NOI-4b, Use Noise Blankets.

30 MM NOI-4c, Limit Heavy Equipment Activity near Residences.

31 MM NOI-4d, Cover the Equipment Engine.

32 MM NOI-4e, Establish Telephone Hotline.

33 MM NOI-4f, Establish Procedures.

1 MM NOI-4b would require the use of noise blankets to fully enclose equipment
2 associated with boring where residences occur within 2,000 feet (610 m) and work
3 occurs after 6 p.m. This would reduce noise during nighttime hours and would attenuate
4 the noise to reduce noise at residences and other sensitive receptors.

5 MM NOI-4c would limit the activity of heavy equipment and would reduce the exposure
6 to vibration for those who might be the most sensitive.

7 MM NOI-4d would require covering the equipment engine that mufflers are in good
8 working condition. These measures have been used successfully on other projects to
9 reduce engine noise.

10 Under NOI-4e, in the event that a noise complaint is received from a resident, the noise
11 monitor would evaluate the noise levels and investigate additional mitigation measures
12 that can be employed to reduce the noise level.

13 MM NOI-4f would establish procedures to stop or curtail drilling/boring or add additional
14 measures to respond to any noise complaints or should any ordinances be exceeded.
15 This would reduce noise disturbance at nearby residences or businesses.

16 Implementation of the mitigation measures described above would reduce the noise
17 levels to the residence in Ventura County from approximately 60 dBA to 40 dBA;
18 therefore at the HDB location, mitigation would, for the reasons stated, reduce the
19 impact to a level below its significance criteria.

20 However, residents and businesses closer than 0.5 miles (0.8 km) to boring at stream
21 crossings and street intersections would still be subject to a short-term significant
22 temporary impact from the construction noise that is likely to exceed local noise
23 ordinances.

1 **CEQA Finding No. NOI-5**

2 **Noise**

3 Impact: **NOI-5:** Temporary Vibration Generated During Horizontal Directional
4 Boring (HDB), Horizontal Directional Drilling (HDD), and Pipeline
5 Construction Activities

6 Class: I

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

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

14 **Facts Supporting the Finding(s)**

15 Description of the Impact

16 HDB, HDD, boring, trenching, and other construction activities could temporarily create
17 vibration levels at sensitive receptors.

18 Along the proposed Center Road pipeline route, there are 9 residential receptors within
19 120 feet (37 m) of the potential HDD or boring activity and 15 for the Line 225 Pipeline
20 Loop, which may be subject to vibration impacts. The construction of the pipeline would
21 cause temporary vibration in the immediate vicinity of the construction sites. On-site
22 construction vibration would occur mainly from heavy-duty construction equipment, e.g.,
23 trucks, backhoes, excavators, loaders, cranes, and drill rigs. Noise and vibration from
24 on-site construction activities may be intermittent or continuous with a short duration.
25 Mobile equipment, e.g., backhoes, excavators, loaders, and cranes, may operate near a
26 vibration-sensitive receptor along the pipeline route at various times during the
27 construction period. Pipeline construction activities along the proposed Center Road
28 pipeline route would be conducted within 120 feet (37 m) of a residential receptor at
29 three locations and for the Line 225 Pipeline Loop at 52 locations.

30 Proposed Mitigation

31 MM NOI-5a, Restricted Work Hours.

32 MM NOI 4c, Limit Heavy Equipment Activity Near Residences.

33 MM NOI-5a would restrict construction hours to 7 a.m. to 7 p.m. Monday through
34 Saturday, with the exception of HDB, would reduce the impact of vibration during
35 evening hours and Sundays when most people are engaged in activities that require
36 lower vibration levels.

- 1 MM NOI-4c would limit the activity of heavy equipment and would reduce the exposure
- 2 to vibration for those who might be the most sensitive.

- 3 Implementation of the mitigation measures described above would, for the reasons
- 4 stated, reduce HDD or boring-generated vibration impacts, but not to a level below the
- 5 significance criteria.

1 **CEQA Finding No. NOI-6**

2 **Noise**

3 Impact: **NOI-6: Noise Generated During Construction of the Onshore Pipeline**

4 Class: I

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

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

12 **Facts Supporting the Finding(s)**

13 Description of the Impact

14 Site preparation, pipeline installation, and construction of aboveground facilities could
15 temporarily increase noise levels for sensitive receptors, such as schools and
16 residences. Noise levels may exceed county and/or city noise ordinances or permit
17 conditions during the installation of the onshore pipeline and associated structures.

18 Construction of the onshore pipelines would cause temporary increases in ambient
19 noise levels in the immediate vicinity of the construction sites. On-site construction
20 noise would occur mainly from heavy-duty construction equipment, e.g., trucks,
21 backhoes, excavators, loaders, cranes, and drill rigs. The worst-case noise level for the
22 construction of the onshore pipeline, excluding HDD, would be 98 dBA at 50 feet (15
23 m). Construction of the onshore pipelines lines would generate noise levels that would
24 have significant impacts.

25 Proposed Mitigation

26 MM NOI-6a. Post Signs.

27 MM NOI-6b. Equipment Location.

28 MM NOI-4c. Limit Heavy Equipment Activity Near Residences.

29 MM NOI-4d. Cover The Equipment Engine.

30 MM NOI-4e. Establish Telephone Hotline.

31 MM NOI-4f. Establish Procedures.

32 MM NOI-5a. Restricted Work Hours.

- 1 MM NOI-6a would require signs with information on the construction schedule and
2 contacts so that nearby receptors could take the construction noise into account in
3 planning their activities and would have contact to which concerns could be expressed.
- 4 MM NOI-6b would require stationary equipment, such as compressors and welding
5 machines to be located in areas of the construction site away from the residences. This
6 would allow for more noise attenuation over distance, thereby reduce the noise level at
7 the residences.
- 8 MM NOI-4c would limit the activity of heavy equipment and would reduce the exposure
9 to vibration for those who might be the most sensitive.
- 10 MM NOI-4d would require covering the equipment engine that mufflers are in good
11 working condition. These measures have been used successfully on other projects to
12 reduce engine noise.
- 13 Under NOI-4e, in the event that a noise complaint is received from a resident, the noise
14 monitor would evaluate the noise levels and investigate additional mitigation measures
15 that can be employed to reduce the noise level.
- 16 MM NOI-4f would establish procedures to stop or curtail drilling/boring or add additional
17 measures to respond to any noise complaints or should any ordinances be exceeded.
18 This would reduce noise disturbance at nearby residences or businesses.
- 19 MM NOI-5a would restrict construction hours to 7 a.m. to 7 p.m. Monday through
20 Saturday, with the exception of HDB, which would reduce the impact of vibration during
21 evening hours and Sundays when most people are engaged in activities that require
22 lower vibration levels.
- 23 Although temporary, noise impacts during construction of the onshore pipeline would
24 potentially exceed noise levels specified in local noise ordinances and would therefore,
25 after the application of all feasible mitigation, exceed significance criteria.

1 **CEQA Finding No. NOI-8**

2 **Noise**

3 Impact: **NOI-8:** Noise Generated During Onshore and Associated Facilities
4 Operations

5 Class: II

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

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 Operations of the aboveground facilities may exceed county and/or city noise
12 ordinances or permit conditions for the long-term. There are no known noises that
13 would be generated by operation of the metering station or associated valve facilities.
14 However, noise may be generated during repair or maintenance of the pipeline. These
15 noises would be similar to those generated during construction, but would be temporary
16 and of shorter term.

17 Proposed Mitigation

18 MM NOI-4c. Limit Heavy Equipment Near Residences.

19 MM NOI-4d. Cover the Equipment Engine.

20 MM NOI-5a. Restricted Work Hours.

21 MM NOI-4f. Establish Procedures.

22 MM NOI-6a. Post Signs.

23 MM NOI-6b. Equipment Location.

24 MM NOI-4c would limit the activity of heavy equipment and would reduce the exposure
25 to vibration for those who might be the most sensitive.

26 MM NOI-4d would require covering the equipment engine that mufflers are in good
27 working condition. These measures have been used successfully on other projects to
28 reduce engine noise.

29 MM NOI-5a would restrict construction hours to 7 a.m. to 7 p.m. Monday through
30 Saturday, with the exception of HDB, would reduce the impact of vibration during
31 evening hours and Sundays when most people are engaged in activities that require
32 lower vibration levels.

- 1 MM NOI-4f would establish procedures to stop or curtail drilling/boring or add additional
2 measures to respond to any noise complaints or should any ordinances be exceeded.
3 This would reduce noise disturbance at nearby residences or businesses.
- 4 MM NOI-6a would require signs with information on the construction. With the schedule
5 posted along the ROW, individuals living near the Project area could plan noise
6 sensitive activities around the construction schedule.
- 7 MM NOI-6b would require stationary equipment, such as compressors and welding
8 machines to be located in areas of the construction site away from the residences. This
9 would allow for more noise attenuation over distance, thereby reduce the noise level at
10 the residences.
- 11 With the implementation of the mitigation measures described above, noise impacts
12 during operation of the onshore pipeline and associated aboveground facilities would,
13 for the reasons stated, be reduced to a level below its significance criteria.
- 14 In addition, reduction of work hours and the use of heavy equipment during construction
15 near residences and providing procedures for receiving and addressing noise related
16 complaints would reduce onshore operational noise impacts to a level below its
17 significance criteria.

1 **CEQA Finding No. REC-3**

2 **Recreation**

3 Impact: **REC-3: Reduce the Quality of the Offshore Recreational Experience**

4 Class: I

5 Finding(s): c) Specific economic, legal, social, technological, or other considerations,
6 including provision of employment opportunities for highly trained
7 workers, make infeasible the mitigation measures or project
8 alternatives identified in the final EIR.

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 During Project operations, the presence of the FSRU would alter the recreational
12 experience of recreational boaters, including visitors on whale-watching trips and other
13 visitors to the Channel Islands National Park (CINP).

14 Proposed Mitigation

15 None.

16 As discussed under impacts to “Aesthetics” the permanent change in character of the
17 seascape from installation and operation of the FSRU could represent a significant
18 impact. Judging the intensity of the impact with respect to recreational boaters is
19 subjective. Some boaters would not find the FSRU to be a significant adverse impact
20 on their recreational experience because they are accustomed to the large ships
21 traveling nearby in the shipping lanes. However, because some recreational boaters
22 would respond to the change in character of the seascape as a significant adverse
23 impact, this document concludes that these boaters would experience a long-term and
24 permanent change in the character of the offshore recreational resource.

25 Therefore, the Project would result in a significant impact on offshore recreation for
26 which no feasible mitigation exists.

1 **CEQA Finding No. REC-5**

2 **Recreation**

3 Impact: **REC-5: Reduce or Restrict Access to Parks or Reduce User Enjoyment**

4 Class: II

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

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Construction activities could temporarily restrict access to parks due to increased traffic
11 congestion or other nuisances in the general area of parks in the vicinity of pipeline
12 construction.

13 Proposed Mitigation

14 MM TRANS-1a. Traffic Control Plans.

15 MM TRANS-1a would require preparation and approval of traffic control plans that detail
16 the location, schedule, signage, and safety procedures for lane and road closures
17 based on final pipeline engineering design. This would ensure continued flow of non-
18 Project related traffic around the area under construction and would avoid disrupting
19 both access by emergency and other vehicles.

20 The implementation of the above measure would, for the reasons stated, ensure that
21 impacts on traffic due to congestion during construction would not significantly reduce or
22 restrict access to parks.

1 **CEQA Finding No. REC-6**

2 **Recreation**

3 Impact: **REC-6: Reduce or Restrict Access to Trails**

4 Class: II

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

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Construction activities for the Line 225 Pipeline Loop would temporarily close the multi-
11 use trails along the South Fork Santa Clara River.

12 Proposed Mitigation

13 MM REC-6a. Trail Closure Signage and Information.

14 MM REC-6b. Trail Restoration.

15 MM REC-6a would require posting signs and disseminating information about the
16 temporary closure of the multi-use trail along the South Fork Santa Clara River which
17 would allow recreationists to make alternative plans during the construction period.

18 MM REC-6b would require restoration of the trail within 21 days after completion of
19 construction so that recreational uses could be resumed.

20 With implementation of the above mitigation measures, disruption of the multi-use trail
21 would be minimized, the trail would be restored in a timely manner, and the impact
22 would be reduced to a level below its significance criteria.

1 **CEQA Finding No. TRANS-1**

2 **Transportation**

3 Impact: **TRANS-1: Temporary Increase in Traffic**

4 Class: II

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

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 During construction, the addition of the construction-related workforce and material
11 deliveries to and from staging areas could temporarily increase traffic during peak
12 construction periods.

13 Proposed Mitigation

14 MM TRANS-1a. Traffic Control Plans.

15 MM TRANS-1b. Notification, Schedule Shifts.

16 MM TRANS-1a would require preparation and approval of traffic control plans that detail
17 the location, schedule, signage, and safety procedures for lane and road closures
18 based on final pipeline engineering design. This would ensure continued flow of non-
19 Project related traffic around the area under construction and would avoid disrupting
20 both access by emergency and other vehicles and would ease congestion by, for
21 example, maintaining two-way traffic, ensuring continued flow of traffic around the area
22 under construction, and allowing continued access to residences, businesses, etc.

23 MM TRANS-1b would require implementation of shall implement best management
24 practices approved by CalTrans and/or the affected local government, such as
25 notification, schedule shifts, and carpooling to reduce the number of construction related
26 trips and minimize increases in traffic.

27 With implementation of the mitigation measures described above, the impact would, for
28 the reasons stated, be reduced to a level below its significance criteria.

1 **CEQA Finding No. TRANS-2**

2 **Transportation**

3 Impact: **TRANS-2: Temporary Traffic Lane Closures**

4 Class: II

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

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 The Project could restrict one or more lanes of major roads, disrupting local traffic flow
11 during peak hours.

12 Proposed Mitigation

13 MM TRANS-1a. Traffic Control Plans.

14 MM TRANS-1a would require preparation and approval of traffic control plans that detail
15 the location, schedule, signage, and safety procedures for lane and road closures
16 based on final pipeline engineering design. This would ensure continued flow of non-
17 Project related traffic around the area under construction and would avoid disrupting
18 both access by emergency and other vehicles and would ease congestion by, for
19 example, maintaining two-way traffic, ensuring continued flow of traffic around the area
20 under construction, and allowing continued access to residences, businesses, etc.

21 With the implementation of this mitigation measure described above, the impact would,
22 for the reasons stated, be reduced to a level below its significance criteria.

1 **CEQA Finding No. TRANS-4**

2 **Transportation**

3 Impact: **TRANS-4: Temporary Closure of Bike Routes**

4 Class: II

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

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Construction could result in temporary closure and/or restricted access to bike paths
11 crossed by the onshore pipelines, which could adversely affect the safety of bicyclists.

12 Proposed Mitigation

13 MM TRANS-4a. Bike Detour Lanes.

14 MM TRANS-4b. Repair Damage to Bike Paths.

15 MM TRANS-1a. Traffic Control Plans.

16 MM TRANS-4a would require appropriate restoration, signage, and timely dissemination
17 of information about the trail closures, which would lessen impacts on bicyclists and
18 would enable ongoing use of a bike path during construction.

19 MM TRANS-4b would require prompt repair of bike paths, which would allow bikers to
20 resume using them soon after construction ceases.

21 MM TRANS-1a would require preparation and approval of traffic control plans that detail
22 the location, schedule, signage, and safety procedures for lane and road closures
23 based on final pipeline engineering design. This would ensure continued flow of non-
24 Project related traffic around the area under construction and would avoid disrupting
25 both access by emergency and other vehicles and would ease congestion by, for
26 example, maintaining two-way traffic, ensuring continued flow of traffic around the area
27 under construction, and allowing continued access to residences, and businesses.

28 .With the implementation of the mitigation measures described above, the impact would,
29 for the reasons stated, be reduced to a level below its significance criteria.

1 **CEQA Finding No. TRANS-5**

2 **Transportation**

3 Impact: **TRANS-5: Damage to Roads During Construction**

4 Class: II

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

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 Roads crossed or paralleled by the onshore pipelines, as well as those used to access
11 the Project, could be temporarily damaged by increased traffic and heavy equipment.

12 Proposed Mitigation

13 MM TRANS-5a. Repair Damage to Roads.

14 MMTRANS-5a stipulates that any damage to roads would be repaired as soon as
15 feasible following construction within the roadways and in no case would the road be in
16 disrepair for more than 21 days.

17 Therefore, the effects would be temporary and of a relatively short duration and
18 implementation of the mitigation measure described above, would, for the reasons
19 stated, reduce the impact to a level below its significance criteria.

1 **CEQA Finding No. WAT-3**

2 **Water Quality and Sediments**

3 Impact: **WAT-3: Short-Term Degradation of Surface Water or Groundwater Quality**
4 due to Accidental Release of Drilling Fluids

5 Class: II

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

9 **Facts Supporting the Finding(s)**

10 Description of the Impact

11 The Project would include shore crossing via HDB. The HDB boring process uses
12 drilling fluid to run the bore motor in the bore head to cut through the earth material, to
13 seal off fractures in the formation, and to lubricate the bore pipe during installation. The
14 drilling fluid is pumped down the inside of the bore pipe and exits through the bore
15 head. Under normal operations, drilling fluids would remain in the HDB boreholes.
16 Drilling fluids from drilling equipment include oils, hydraulic fluid, and drilling fluids
17 (bentonite slurry). If cracks or fissures in the subsurface are encountered during drilling,
18 drilling fluids can travel along them to the groundwater and enter adjacent surface water
19 bodies. Releases of drilling fluids or inadvertent return of drilling fluids such as
20 bentonite could temporarily reduce water quality where released.

21 Proposed Mitigation

22 MM WAT-3a. Drilling Fluid Release Monitoring Plan.

23 MM WAT-3a would require a plan to minimize the potential for releases of drilling fluids
24 and require drilling fluids to be properly cleaned up and appropriate agencies notified
25 should a release occur. The plan would incorporate best management practices that
26 have been proven in other projects to reduce the impacts from releases of drilling fluids.

27 With the implementation of the mitigation measure described above, this impact would,
28 for the reasons stated, be reduced to a level below its significance criteria.

1 **CEQA Finding No. WAT-4**

2 **Water Quality and Sediments**

3 Impact: **WAT-4: Short-Term Increase in Erosion due to Construction Activities**

4 Class: II

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

8 **Facts Supporting the Finding(s)**

9 Description of the Impact

10 During construction, the movement of equipment and materials could destabilize the soil
11 surface and increase erosion potential from water and wind along the route and in the
12 staging areas. Construction activities and loss of vegetation could cause accelerated
13 erosion on steep slopes and in erosion-susceptible soils. Also, construction activities
14 could cause erosion before vegetation is re-established. Any of these scenarios could
15 lead to potential sedimentation of nearby creeks and drainages.

16 The proposed pipelines would cross several streams. During construction, slick bore,
17 case bore, and trenching activities and the excavation of drilling pits could lead to
18 sedimentation of stream channels where water is flowing. This could increase turbidity
19 in those streams to levels above water quality standards. Trenching would likely cause
20 the greatest increase in turbidity.

21 Proposed Mitigation

22 MM WAT-4a. Strategic Location for Drilling Fluids and Cuttings Pit.

23 MM WAT-4b. Transport Excess Trench Spoils Offsite.

24 MM WAT-4c. Monitor Stream Crossing Construction.

25 MM GEO-1b. Backfilling, Compacting and Grading.

26 MM WAT-4a would ensure that drill cuttings and fluids would be contained in pit so that
27 they do not enter water bodies.

28 MM WAT-4b would ensure that excess trench spoils are disposed of properly.

29 MM WAT-4c would ensure that the Applicant or its designated representative is
30 adhering to all legal requirements and mitigation measures.

31 MM GEO-1b would decrease the potential that storm events could cause erosion where
32 the pipelines were installed.

- 1 With the implementation of the mitigation measures described above that are designed
- 2 to alleviate soil erosion during and after construction, the potential erosion impacts
- 3 associated with the Project would, for the reasons stated, be reduced to a level below
- 4 its significance criteria.

1 **CEQA Finding No. WAT-5b**

2 **Water Quality and Sediments**

3 Impact: **WAT-5b:** Degradation of Water Quality due to an Accidental Release of
4 Diesel Fuel from the FSRU, Pipelaying Vessel, or Service Vessels.

5 Class: I

6 Finding(s): c) Specific economic, legal, social, technological, or other considerations,
7 including provision of employment opportunities for highly trained
8 workers, make infeasible the mitigation measures or project
9 alternatives identified in the final EIR.

10 **Facts Supporting the Finding(s)**

11 Description of the Impact

12 The FSRU would store up to 264,000 gallons (1,000 m³) of diesel fuel in USDOT-
13 approved containers within secondary containment. A worst case scenario at the FSRU
14 involves the accidental release of the entire contents of the diesel fuel storage tank to
15 the ocean over a one-hour period under adverse weather conditions with no cleanup
16 response. Under this scenario, the trajectory analyses show that oil could reach the
17 coastline on the mainland from Carpinteria south to Point Fermin near San Pedro after
18 approximately 72 hours, and under Santa Ana wind conditions, the shorelines of
19 Anacapa, Santa Cruz, and Santa Rosa Islands. The Applicant's spill analysis
20 concludes that if the appropriate and effective use of oil spill response equipment, as
21 outlined in the USCG-approved Facility Response Plan, is implemented, it is unlikely
22 that oil would reach the shore.

23 If there were an accidental release of diesel fuel, it would be more likely to occur during
24 the replenishment of the FSRU's diesel supply when supply vessels transfer
25 approximately 350-gallon (1.3 m³) capacity containers to the FSRU. If a container's
26 integrity were damaged during the transfer and a portion or all of its total volume were
27 released, the volume of such release would be relatively small, and its release would
28 activate the Facility Oil Pollution Contingency Plan.

29 The worst case scenario during construction involves a vessel carrying 1,500 m³
30 (396,258 gallons) of fuel losing 25 percent (375 m³ or 99,065 gallons) of its fuel. The
31 trajectory analyses for the 72-hour spill scenario estimates four cases with variable
32 currents and wind directions, in which there is no oil spill response (containment or
33 skimming). The trajectory analyses show potential for oiling coastline on the mainland
34 from approximately Isla Vista and Santa Barbara south to Point Fermin near Los
35 Angeles Harbor. A case with a westerly current presents potential for oiling the
36 shorelines of Anacapa and Santa Cruz Islands. A case with reinforcing wind and
37 currents to the west also presents the potential for oiling the shorelines of Santa Rosa
38 and San Miguel Islands. Due to the lack of southerly flowing offshore currents, the spill
39 analysis shows no trajectories that could transport oil to Santa Catalina or Santa

1 Barbara Islands. When oil spill response with available oil skimming capacity is
2 considered, the extent of shoreline that could be oiled is significantly reduced

3 Proposed Mitigation

4 None.

5 An accidental release of diesel fuel to marine waters of any size would violate Federal
6 and State water quality standards or objectives. Even with the implementation of the
7 Facility Oil Pollution Contingency Plan for the FSRU or the Vessel Oil Pollution
8 Contingency Plan for the pipelaying vessel, impacts on water quality from an accidental
9 release of diesel fuel would remain potentially significant after the application, within
10 such plans, of all feasible mitigation.

1 1.4.4 MITIGATION MEASURES NOT ADOPTED/REJECTED

2 Most of the mitigation measures recommended by the public were incorporated into the
3 Final EIR; however, the following mitigation measures recommended in comments on
4 the EIR were not incorporated either: (1) because they are inappropriate, or (2) rejected
5 as infeasible due to specific economic, technological, legal or other considerations.

6 A mitigation measure may be rejected as infeasible if it is “(in) capable of being
7 accomplished in a successful manner within a reasonable period of time, taking into
8 account economic, environmental, social and technological factors” Public Resources
9 Code Section 21061.1. Legal or other factors, such as providing employment
10 opportunities, may also be considered in making a finding of infeasibility. See Public
11 Resources Codes Section 21081; see also State CEQA Guidelines Section 15091 (a)
12 (3).

13 *4.2 Public Safety*

14 Mitigation Measure A

15 **Extend the exclusion zone or the area to be avoided (ATBA) to encompass the**
16 **maximum hazard zone.**

17 The sizes of the safety zone (the correct terminology for exclusion zone) and the ATBA
18 are governed by Federal and international law and are independent of any analysis of
19 hazards.

20 The Applicant applied to the USCG for the establishment of a safety zone around the
21 FSRU and has requested that an ATBA be established in addition to the safety zone.
22 The FSRU would be able to rotate 360 degrees around the mooring turret. The safety
23 zone would extend 500 m from the circle formed by the FSRU's stern, the outer edge of
24 the facility, rotating around the mooring turret. The safety zone could not unilaterally be
25 made any larger because its size is governed by international law. According to the
26 United Nations Convention on the Law of the Sea and the Continental Shelf Act of 1964
27 (No. 28 of 3 November 1964, as amended by the Continental Shelf Act Amendment Act,
28 No. 17 of 14 November 1977), a safety zone can only extend to 0.27 NM (0.3 mile or
29 0.5 km) as “measured from each point of the outer edge of the installation or device,
30 around any such installations or devices in, on, or above the continental shelf.” It would
31 be difficult if not impossible to change the Convention within a reasonable period of
32 time.

33 The ATBA, a larger circle that would surround the safety zone, would likely extend to 2
34 NM (2.3 miles or 3.7 km) from the stern of the FSRU; however, the actual size of the
35 ATBA would be established through the advice and consent of the Office of Vessel
36 Traffic Management of the USCG. By law, the ATBA could not extend into the
37 coastwise traffic lanes. Figure 4.3-4 of the Final EIR illustrates the potential safety zone
38 and area to be avoided. The ATBA is considered by the USCG to be a
39 recommendatory routing measure. A vessel transiting the ATBA would be requested to
40 restrict its speed to no more than 10 knots (19 km/hour) and to check in and out with the

1 Cabrillo Port vessel operations manager. The USCG would submit a written request to
2 the IMO to establish the ATBA, and the IMO would present the request to its Maritime
3 Navigation Safety Committee. If approved, the ATBA would be implemented within one
4 year from the time of submittal and would appear thereafter on maritime charts
5 published by IMO member nations, including those charts published by NOAA.

6 The suggested mitigation measure was not adopted because it is not feasible under
7 existing law, and changing the law to enable the implementation of the mitigation
8 measure could not be accomplished within a reasonable time period.

9 Mitigation Measure B

10 **Move the FSRU further offshore so that it is at least 7.3 miles, the maximum**
11 **credible extent of a potential natural gas vapor cloud developing as a**
12 **consequence of a release of LNG from the FSRU, from the edge of the shipping**
13 **lanes.**

14 With respect to relocating the FSRU as mitigation, insufficient technical information is
15 available to: (1) establish that such relocation is feasible within the meaning of section
16 15364 of the State CEQA Guidelines; or (2) determine pursuant to the requirements of
17 section 15126.4(a) (1)(D) of the State CEQA Guidelines, whether such mitigation
18 "...would cause one or more significant effects in addition to those that would be caused
19 by the project as proposed..."

20 Moving the FSRU could result in greater potential conflicts with the Point Mugu Sea
21 Range or closer proximity to the Channel Islands. In addition, geotechnical/seismic
22 hazard reports and preliminary geotechnical studies comparable to those conducted for
23 the proposed FSRU and routes of the offshore pipelines would be needed to evaluate
24 geotechnical and seismic hazards. For example, Alternative Offshore Pipeline Route 1
25 was eliminated from further consideration because seismic design analysis and review
26 indicated that there was greater potential for turbidity flows along this pipeline route. As
27 another example, information regarding potential historic resources such as shipwrecks
28 or the presence of hard bottom habitat that would be revealed by geophysical surveys is
29 not available. The offshore pipelines would also be longer, which could potentially
30 result in greater environmental impacts, and would result in considerable additional
31 expense.

32 As discussed in Section 4.2.7.6 of the Final EIR, a vapor cloud fire could occur if
33 released LNG were to evaporate and disperse downwind before encountering an
34 ignition source. Unlike a pool fire, the entire cloud does not ignite at once and may burn
35 back to the source of the release. The Independent Risk Assessment (IRA) determined
36 that the greatest distance from the FSRU within which public impacts would occur is 6.3
37 NM (7.3 miles or 11.7 km), which would result from the intentional breach of two Moss
38 tanks. This hazard distance encompasses the TSS shipping lanes, but extends no
39 closer than 5.71 NM from the nearest mainland landfall.

1 Detailed technical, engineering, and environmental information does not exist to
2 evaluate potentially significant effects of relocating the FSRU, and subsequently
3 determine whether the measure is feasible and whether it would cause one or more
4 significant effects in addition to those caused by the proposed Project. Therefore, the
5 mitigation is not adopted.

6 *4.3 Marine Traffic*

7 **Use U.S. crews on all LNG carriers calling at the FSRU for safety and security** 8 **reasons.**

9 Under the Deepwater Port Act, the Maritime Administration (MARAD) and the USCG
10 are responsible for ensuring that LNG imported through Deepwater Port Act-licensed
11 facilities into the U.S. are accommodated safely and securely as part of the ongoing
12 balance of national security and energy security interests with environmental and safety
13 concerns. In addition to other training requirements, all marine personnel must have
14 IMO11 mandated Standards of Training, Certification and Watchkeeping (STCW)
15 training and certification as applicable to LNG carriers in international trade. Training
16 requirements apply equally to U.S. and foreign-flagged vessels and crews.

17 On July 12, 2006, the Coast Guard and Maritime Transportation Act of 2006 (H.R. 889)
18 was passed into law. The Act states that the plan submitted with the deepwater port
19 application must include the nation of registry for, and the nationality or citizenship of
20 officers and crew serving on board LNG carrier vessels that are reasonably anticipated
21 to be servicing the DWP.

22 While MARAD encourages the use of U.S. crews for LNG vessels calling at U.S.
23 deepwater ports, it cannot at present legally require this. Therefore, because it is not
24 legally enforceable, this mitigation is not adopted.

25 *Section 4.6 Air Resources*

26 Mitigation Measure A

27 **Reduce emissions of diesel particulate matter by using alternative clean fuel**
28 **technology such as electric or compressed natural gas-powered construction**
29 **equipment with oxidation catalysts instead of gasoline- or diesel-powered**
30 **engines. Alternatively, reduce particulate matter emissions by using**
31 **construction equipment fitted with diesel particulate filters.**

32 This mitigation is not included in Section 4.6 of the Final EIR because the Applicant
33 would use onshore construction equipment compliant with USEPA Tier 2, 3, or 4
34 nonroad engine standards. Further, MM AIR-1e would require that all onshore
35 construction equipment with a rating between 100 and 750 hp utilize engines compliant
36 with USEPA Tier 3 nonroad engine standards. USEPA's Tier 2, 3, and 4 nonroad
37 engine standards include more stringent emission standards for particulate matter from
38 diesel engines. Therefore, the measure is not adopted because it duplicates already
39 recommended mitigation.

1 Mitigation Measure B

2 **Require that the natural gas imported by the proposed Project complies with the**
3 **South Coast Air Quality Management District's 1360 Wobbe Index.**

4 As indicated in Section 4.6.2 of the Final EIR, the natural gas imported by the proposed
5 Project would need to meet the requirements of Rule 30 and General Order 58-A of the
6 California Public Utilities Commission (CPUC). Rule 30, as described, has specific
7 requirements, including a heating value range. The quality of natural gas distributed in
8 Southern California from the Project would be subject to a tariff agreement negotiated
9 between the Applicant and the Southern California Gas Company (SoCalGas). Tariff
10 agreements, and the pipeline-quality gas specifications contained within, must be
11 approved by the CPUC to ensure public health and safety for end-users and protection
12 of the environment (particularly air quality).

13 Several factors relating to the natural gas to be delivered by the Applicant are not
14 known at this time: (1) the precise heat content of the natural gas to be imported, other
15 than it will meet the then existing standards, as described above, for such imports; (2)
16 the sector of SoCalGas's market to which the gas will be diverted, e.g., there is no
17 known, dedicated end user or designated sector for the supply (although BHPB states
18 that 18 entities representing a range of natural purchasers have executed letters of
19 interest regarding the possible purchase of natural gas from the Project) (3) the
20 character of the natural gas with which the gas received from the Applicant may be
21 blended within the SoCalGas distribution system and the resultant heat content of such
22 blend; and (4) whether the gas will be consumed within the South Coast Air Basin.
23 While the potential exists for changes in NO_x emissions due to the burning of natural
24 gas with higher heating values than that acceptable to the South Coast Air Quality
25 Management District, i.e., 1,360 on the Wobbe Index, it would be speculative, based on
26 the above factors, to determine that such would be the case and to subsequently
27 attempt to quantify any related changes in emission levels within the South Coast Air
28 Basin.

29 In addition, an analysis of the impacts of the CPUC rulemaking is beyond the scope of
30 the requirements of the CEQA and information adequate to further evaluate this
31 proposed mitigation measure is not available.

32 Therefore, this mitigation is not adopted.

33 *4.8 Terrestrial biological resources*

34 **Prohibit salvage of soil in weedy areas and limit salvage to areas where there is a**
35 **natural seed bank.**

36
37 AM TerrBio-4a provides for weed management and includes salvage and replacement
38 of topsoil wherever the pipeline is trenched through open land. Any changes in the
39 weed management program would be made in consultation with Federal, State and
40 local agencies. As discussed in Section 4.13.3 of the Final EIR, approximately 90

1 percent of the lands adjoining the proposed Center Road Pipeline route are in
2 agricultural use; in residential and business areas, the ROW would be located in
3 existing streets or other ROW in accordance with the franchise agreement.

4 The suggested mitigation measure is duplicative of already recommended mitigation. In
5 addition, insufficient information is available to determine whether the mitigation
6 measure would cause one or more significant effects in addition to those that would be
7 caused by the Project as proposed. Limiting areas of salvage to areas where there is a
8 natural seed bank could result in the removal of topsoil that would in turn create other
9 potentially significant impacts such as reduction of soil productivity or soil erosion.

10 Therefore, the mitigation is not adopted.

1 1.5 FINDINGS FOR ALTERNATIVES

2 The detailed evaluation of a potential alternative to the proposed Project by the USCG,
3 MARAD, and CSLC is based on reasonableness. According to the Deepwater Port Act,
4 the California Environmental Quality Act (CEQA), and the State CEQA Guidelines
5 (California Code of Regulations, Title 14, 15000 et seq.) and its implementation
6 regulations, governmental decision-makers must consider reasonable alternatives when
7 a proposed action could result in significant environmental effects. An EIR shall
8 describe a range of reasonable alternatives to the project, or to the location of the
9 project, which would:

- 10 • Satisfy most of a project's basic objectives, including its purpose and need;
- 11 • Avoid or substantially lessen one or more of a project's significant effects; and
- 12 • Be feasible.

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

16 Seven alternatives were considered reasonable and evaluated in the EIS/EIR:

- 17 • Santa Barbara Channel/Mandalay/Gonzales Road Deepwater Port Alternative;
- 18 • Center Road Pipeline Alternative 1;
- 19 • Center Road Pipeline Alternative 2;
- 20 • Center Road Pipeline Alternative 3;
- 21 • Line 225 Pipeline Loop Alternative;
- 22 • Point Mugu/Casper Road Pipeline Alternative; and
- 23 • Arnold Road Shore Crossing/Arnold Road Pipeline Alternative.

24 Three alternative sources of energy to take the place of natural gas were considered but
25 not evaluated as reasonable alternatives to the proposed Project:

- 26 • Energy Conservation Alternative;
- 27 • Renewable Energy Sources Alternative; and
- 28 • **RETROFITTING EXISTING POWER PLANTS ALTERNATIVE.**

29
30 An additional means to transport additional natural gas to California was examined, but
31 not evaluated as a reasonable alternative to the proposed Project.

- 32 • New or Expanded Pipeline Systems.

33 Eighteen terminal alternative locations were considered but not evaluated as
34 reasonable alternatives. Offshore regions considered were: Washington/Northern
35 Oregon, Southern Oregon/Northern California, San Francisco Bay to Point Conception,

1 and Los Angeles to the Mexican border. Specific offshore locations considered
2 included: Northern Baja Mexico, Gaviota Pass, Camp Pendleton, Deer Canyon,
3 Anacapa Island, Chinese Harbor, Smugglers Cove, San Pedro Point, West side of the
4 Channel Islands. Onshore locations included: Horno Canyon at Camp Pendleton,
5 Rattlesnake Canyon, Little Cojo at Point Conception, Deer Canyon, and the Channel
6 Islands.

7 Four alternative deepwater port concepts were considered but not evaluated as
8 reasonable alternatives to the proposed Project:

- 9 • Single-point mooring direct regasification floating facility;
- 10 • Multiple-point mooring direct regasification floating facility;
- 11 • Fixed platform; and
- 12 • Fixed platform with a gravity-based structure.

13 The following discussion presents the findings for alternatives both eliminated from
14 analysis and alternatives evaluated in the Final EIR.

15 **1.5.1 FINDINGS ON ALTERNATIVES ELIMINATED FROM DETAILED ANALYSIS**
16 **IN THE FINAL EIR**

17
18 The following findings describe the potential alternatives that were determined not to be
19 reasonable alternatives according to the criteria listed in Section 1.5. Accordingly, these
20 alternatives were not evaluated in detail in the Final EIR.

21 **FINDING FOR ENERGY CONSERVATION ALTERNATIVE**

22 Description: This alternative considered increasing energy conservation and
23 efficiency measures as a means of meeting the California's natural
24 gas and energy needs.

25 Finding(s): The use of energy conservation and efficiency or a combination
26 thereof, to meet California's energy needs is considered
27 inadequate, speculative and an infeasible alternative to meet
28 California's increasing demands for replace the energy in the short-
29 and mid-term. In addition, energy conservation and efficiency
30 would not accomplish most of the Project objectives, which include
31 supplying energy in the form of natural gas and diversifying the
32 State's supply of natural gas.

33 **Facts Supporting the Finding(s)**

34 Energy conservation measures were considered but not evaluated as a reasonable
35 alternative because they are ongoing activities that would occur regardless of whether
36 or not the proposed Project proceeds. In addition, energy conservation measures are
37 already factored into California's energy supply and demand analyses, which conclude
38 that additional supplies of natural gas are necessary, after full consideration of the

1 projected contributions of energy conservation, to meet California's projected energy
2 demands. Denial of the Project would not reduce the amount of natural gas required to
3 meet projected State needs.

4 The State of California is actively working to decrease its per capita use of electricity
5 through increased energy conservation and efficiency measures. Energy conservation
6 measures include actions such as improving new and remodeled building efficiency,
7 improving air conditioner efficiency and appliances, and creating customer incentives to
8 reduce energy demand. According to the State of California's Energy Action Plan II:
9 Implementation Roadmap for Energy Policies, cost effective energy efficiency is the
10 State of California's first choice for meeting California's energy needs because it
11 represents the least costly, most reliable, and most environmentally sensitive resource,
12 and minimizes California's contribution to climate change. California's energy efficiency
13 programs are the most successful in the nation and the State wants to continue to build
14 upon them.

15 In addition, the CPUC has established an ongoing rulemaking, R.01-08-028, Order
16 Instituting Rulemaking to Examine the Commission's Future Energy Efficiency Policies,
17 Administration and Programs. CPUC Decision D.04-09-060, Interim Opinion: Energy
18 Savings Goals for Program Year 2006 and Beyond defines and establishes an energy
19 efficiency program with policies and goals for electricity and natural gas savings with
20 planned updates of these goals every three years. It also translates the Energy Action
21 Plan's mandates into explicit, numerical electricity and natural gas savings goals for
22 California's four largest investor-owned utilities.

23 Statewide investor-owned utilities (IOUs) programs, such as Single and Multi-Family
24 Energy Efficiency Rebates, Residential Appliance Recycling, CA Energy Star New
25 Homes, and Savings by Design, are responsible for most of the energy savings and
26 peak impacts from conservation and efficiency. CPUC policy requires the major
27 California IOUs to implement all cost-effective energy efficiency. Future cost-effective
28 energy efficiency is first assumed to be implemented before the IOUs complete demand
29 calculations and determine what generation resources are needed to meet additional
30 demand. According to the CEC, although increases in conservation, efficiency, and use
31 of renewable energy sources are expected to moderate future demand, the policies and
32 mandates in place do not suggest that incorporating conservation, energy efficiency,
33 and the use of renewable energy resources will meet all future IOU portfolio needs.

34 The Energy Action Plan II, prepared by the California Energy Commission (CEC) and
35 the California Public Utilities Commission (CPUC), expressly acknowledges, in full
36 consideration of energy conservation data and programs, the need to ensure a reliable
37 supply of reasonably priced natural gas. Even taking into account increased
38 conservation measures, natural gas demand is expected to increase by about 0.7
39 percent annually, from 2006 to 2016, according to the CEC's 2005 Integrated Energy
40 Policy Report Committee Final Report. The CEC's energy demand forecasting models
41 quantify and incorporate conservation and energy efficiency contributions, including the
42 mandatory building and appliance standard upgrades and demand reductions from
43 customer response to energy price increases. Conservation and energy efficiency that

1 is reasonably expected to occur is incorporated into the CEC models, as statutorily
 2 required. Therefore, additional natural gas would be needed in California despite
 3 energy conservation and efficiency measures.

4 Although some energy conservation measures can be implemented in the short- and
 5 mid-term, many measures to improve energy conservation address long-term energy
 6 policy and usage considerations. For example, a measure such as changing the energy
 7 efficiency requirements for a building requires a considerable amount of time to
 8 implement. Older buildings will be grandfathered; therefore, they will not implement the
 9 new building codes. It will take time for new building stock to be built to the new
 10 standards to replace older buildings. Similarly, once energy efficiency standards are
 11 adopted for appliances, a phase-in period is required as the new appliances are
 12 purchased and the old, less energy-efficient appliances continue to be used until the
 13 end of their economic lives. These types of energy efficiency improvement strategies
 14 and policies are necessarily long-term. Even assuming increased conservation would
 15 occur, additional natural gas supplies would be required according to the CEC and the
 16 CPUC projections.

17 The CSLC does not have authority to initiate or implement additional broad-based, long-
 18 term energy conservation policy measures beyond those previously described. It also
 19 does not have control over whether such measures will be proposed, approved, and
 20 implemented, or the time frame over which these actions might occur. Nonetheless, the
 21 agency’s actions could impact the State’s energy supply mix. Any decision by the
 22 government to increase subsidies or otherwise promote additional conservation would
 23 be independent of actions taken on this DWP application by the CSLC.

24 Energy conservation is, therefore, not a reasonable alternative to the Project and is not
 25 evaluated as such in the Final EIR. Energy conservation is discussed, however, as part
 26 of the baseline energy conditions for the proposed Project in Section 4.10.1, “Energy
 27 and Minerals – Environmental Setting.” Section 4.10.1.3 of the Final EIR contains an
 28 additional discussion of the California Energy Action Plan.

29 **FINDING FOR RENEWABLE ENERGY SOURCES ALTERNATIVE**

30 Description: This alternative considered the increased availability and use of
 31 renewable energy sources such solar, wind, geothermal, and
 32 hydropower as a means of replacing California’s need for natural
 33 gas.

34 Finding(s): The use of renewables to meet California's energy needs is
 35 considered inadequate, speculative, and an infeasible alternative to
 36 meet California's increasing energy demands in the short- and mid-
 37 term. These options are not considered to be potentially feasible
 38 alternatives to the proposed Project. In addition, renewable energy
 39 sources would not accomplish most of the Project objectives, which
 40 include supplying energy in the form of natural gas and diversifying
 41 the State's supply of natural gas.

1 Facts Supporting the Finding(s)

2 Similar to energy conservation, renewable energy is not evaluated as a reasonable
3 alternative to the proposed Project because such sources are already factored into
4 California's energy supply and demand analyses, which conclude that additional
5 supplies of natural gas are necessary, after full consideration of the projected
6 contributions of renewable sources, to meet California's projected energy demands.
7 Renewable sources include solar, wind, geothermal, hydropower, and others. Any
8 decision by the government to increase subsidies or otherwise promote renewables
9 would be independent of actions taken on this DWP application.

10 The State of California already has legislated aggressive programs to increase the
11 quantity of electricity generated from renewable energy sources to 20 percent, from the
12 current 11 percent, by 2017. Senate Bill 107, passed in 2006 and it addresses public
13 interest energy research, demonstration, and development program for renewable
14 energy and requires retail electricity sellers to meet the 20 percent renewables
15 requirement by 2010 instead of 2017. In the recently published Energy Action Plan II,
16 the State's objective is to accelerate its goal of generating 20 percent of its electricity
17 from renewables from 2017 to 2010 and to generate 33 percent of the State's electricity
18 with renewables by 2020.

19 A component of State policy is to diversify the electricity system with renewables, partly
20 in response to growing natural gas dependence. The CEC has recommended that
21 California diversify its natural gas supply because the State relies on out-of-state
22 sources for 87 percent of its natural gas supplies, and neighboring states are increasing
23 their demand for supplies. However, administrative procedures have hindered the
24 State's goals to meet its renewable energy goals. Lawrence Berkeley National
25 Laboratory notes that one of the reasons renewables have come on line more slowly
26 than expected in California is that California's Renewables Portfolio Standard Program,
27 established by Senate Bill 1078 in 2002, is unique in its design and complexity as
28 compared to similar programs across the country. Further, a study commissioned by
29 the CEC indicates that some signed renewable energy contracts nationwide do not
30 result in operating facilities. The rate of contract failure is conservatively between 20
31 and 30 percent. Contract failure is a significant factor in renewable procurement
32 strategies and may contribute to missing State renewable targets.

33 California's natural gas demand growth is expected to be slower than the rest of the
34 nation's due to the State's energy efficiency programs and the use of renewable energy
35 for electricity generation. Nevertheless, total natural gas demand in California is
36 projected to increase by 0.7 percent per year from 2006 to 2016. The CEC's energy
37 forecasting model assumes that California's large IOUs and suppliers from other
38 Western states will meet their Renewable Portfolio Standards obligations. Renewable
39 energy is also factored into future capacity expansion calculations throughout the
40 Western U.S., which forecast how much natural gas-fired generation, and therefore
41 natural gas supply, will be needed for Western power plants, annually. The minimum
42 Renewable Portfolio Standard is an annual procurement target for each of California's
43 major IOUs that increases by at least 1 percent each year until it reaches a statutory

1 maximum of 20 percent (with a three-year flexible compliance rule for meeting this
2 target). Thus, the CEC's projections of future energy demand incorporate the growing
3 use of renewable sources and still conclude that the need for natural gas will increase.

4 California's major investor owned utilities have signed contracts for 1,700 to 3,000
5 megawatts of renewable capacity since 2002, and PG&E made its fourth solicitation on
6 June 29, 2006, asking suppliers to provide bids for renewable energy. California's use
7 of renewable energy has increased by 1 percent of the State's total electricity use in the
8 last four years despite statewide support for enhanced use of renewable energy.

9 Southern California Edison (SCE) is the major power producer in the Southern
10 California region. SCE procures more than 13 million megawatt-hours of renewable
11 energy per year. Its renewable portfolio can deliver more than 2,700 megawatts (MW)
12 of electricity, including 1,021 MW from wind, 892 MW from geothermal, 354 MW from
13 solar, 221 MW from biomass, and 128 MW from SCE-owned small hydroelectric. In
14 November 2006, SCE signed and will submit to the CPUC seven new long-term
15 contracts with renewable energy power generators for up to 324 MW of clean power.

16 Seven wind projects are planned and proposed in Southern California. The projected
17 energy from the planned and proposed wind projects is 673 MW. The power would be
18 generated for seven utilities in the Southern California area. The new and existing wind
19 projects are spread throughout California.

20 In addition to wind energy projects, solar energy projects are planned or in place. In
21 August 2005, SCE announced that it would develop, in conjunction with Stirling Energy,
22 a 4,500-acre (1,820 hectare) solar facility near Victorville, California that would initially
23 produce 500 MW. Approvals are still necessary before construction is to begin, but it is
24 anticipated that 40 dishes that would generate 1 MW will be in place by the end of 2006.
25 The operators plan to generate 50 MW by 2008 and 500 MW by 2011. In September
26 2005, Stirling Energy Systems announced that it would provide San Diego Gas and
27 Electric with between 300 and 900 MW of solar power from a solar facility that would be
28 located in the Imperial Valley. The contract is subject to CPUC approval.

29 The projects listed above demonstrate that renewable energy sources are being
30 developed independently of the proposed Project. The CEC's projections of future
31 natural gas supply needs for the State include the assumption that renewable energy
32 projects will be implemented, yet still conclude that additional natural gas supplies are
33 necessary.

34 The CPUC recently reaffirmed that both the State's Integrated Energy Policy Report and
35 Energy Action Plan recognize the need for additional natural gas supplies from LNG
36 terminals on the West Coast:

37 "However, even with strong demand reduction efforts and our goal of 20%
38 renewables for electric generation by 2010, demand for natural gas in California
39 is expected to roughly remain the same, rather than decrease, over the next 10
40 years. This is because, a substantial portion of the other 80% of electric
41 generation (not met by renewable energy sources) will need natural gas as its

1 fuel source, and natural gas will still be needed for the growing number of
2 residential and business customers of the natural gas utilities.”

3 The CSLC does not have authority to initiate or implement additional new broad-based
4 policies to promote the expanded use of renewable energy resources beyond what is
5 already anticipated under the State's existing aggressive program. Nonetheless, the
6 agency's actions with respect to the proposed Project could impact the State's energy
7 supply mix and might indirectly affect energy costs. Based on all information presently
8 available, it does not appear that Project approval would modify the role of renewable
9 sources in the State's energy supply mix; however, denial of the proposed Project would
10 not reduce the amount of natural gas required to meet the State's projected needs.

11 Therefore, renewable energy is not evaluated as an alternative to the proposed Project
12 in the EIS/EIR because such measures would not eliminate the need for both short- and
13 mid-term supplies of additional natural gas, which is the Project's proposed purpose
14 pursuant to the provisions of the Deepwater Port Act. In addition, increased use of
15 energy from renewable sources would occur with or without the proposed Project and
16 use of additional renewable sources beyond the State's existing mandates is not within
17 the control of the lead agencies.

18 **FINDING FOR RETROFITTING EXISTING POWER PLANTS ALTERNATIVE**

19 Description: This alternative considered the retrofitting existing power plants
20 through the installation of more efficient natural gas-fired turbines at
21 existing natural gas-fired electricity generation plants as a means to
22 meet California's natural gas and energy needs.

23 Finding(s): Retrofitting existing power plants would not accomplish most of the
24 Project objectives, which include supplying energy in the form of
25 natural gas and diversifying the State's supply of natural gas.
26 Further, the State's determination of the need for additional natural
27 gas supplies takes into account the re-powering of existing power
28 plants and still concludes that new gas supplies are needed.

29 **Facts Supporting the Finding(s)**

30 The installation of more efficient natural gas-fired turbines at existing natural gas-fired
31 electricity generation plants (“turbine re-powering”) was considered but not evaluated as
32 a reasonable alternative for further analysis in the Final EIR for several reasons: (1) the
33 CEC has determined that the State's natural gas supply must be increased whether or
34 not turbine re-powering occurs; and (2) the proposed turbine re-powering would occur at
35 locations and power plants over which the CSLC has no jurisdiction and that the
36 Applicant for the proposed Cabrillo Port Project does not own, control, or have the
37 experience or expertise to operate.

38 The re-powering of natural gas-fired power plants is being driven by economic and
39 environmental factors not directly related to natural gas supply, i.e., primarily the
40 inefficiency of operating these older power plants and the cost of complying with air

1 quality regulations. The turbine re-powering alternative is moving forward and would
2 not be affected by a decision on the proposed Project.

3 The main agency with jurisdiction over the operation of existing natural gas power
4 plants in California is the CEC, which has recently approved or is considering approval
5 of several turbine re-powering projects. The State of California's 2005 Energy Action
6 Plan II indicates that despite energy-efficient renewable resources, other energy
7 sources, and investments in conventional power plants such as augmenting existing
8 facilities and replacing aging infrastructure, there is no indication that the need to
9 increase California's short-term natural gas supplies can be averted through turbine re-
10 powering. The State's determination of the need for additional natural gas supplies
11 takes into account the re-powering of existing power plants and still concludes that new
12 gas supplies are needed. In sum, there is no indication that proposed turbine re-
13 powering would avert the need to increase California's short-term and mid-term natural
14 gas supplies.

15 **FINDING(S) FOR NEW OR EXPANDED PIPELINE SYSTEMS ALTERNATIVE**

16 Description: This alternative considered the building of new pipelines or the
17 expanding existing natural gas pipeline system to supply natural
18 gas from domestic sources as a means to meet California's natural
19 gas and energy needs.

20 Finding(s): Expanding pipeline systems would not accomplish a key Project
21 objective, which is to diversify the State's supply of natural gas.
22 Further, construction of new or expanded pipeline systems would
23 have environmental consequences along whatever corridors were
24 proposed.

25 **Facts Supporting the Finding(s)**

26 California receives approximately 87 percent of its natural gas supply from other states
27 and western Canada via gas transmission pipelines. Since 2000, California has
28 imported approximately 5.5 billion cubic feet (156 million cubic meters [m³]) per day of
29 natural gas. During the same time, U.S. production of gas has flattened. In-state
30 supplies are limited, and the supplies are allocated. Of the 989 million cubic feet (MMcf)
31 (28 million m³) per day produced in California in 1999, only 48 percent was delivered by
32 natural gas utilities. The remainder was either consumed at or near the point of
33 production or delivered for use by a nonutility pipeline network. In addition, within
34 California an expansion of the existing intrastate network is unlikely because supplies in
35 these fields are diminishing. Expansion of the interstate pipeline network, such as the
36 conversion, by El Paso Natural Gas Company, of approximately 304 miles (489.2
37 kilometers [km]) of an existing oil pipeline (All American Pipeline) to natural gas service
38 could temporarily increase the delivered volumes of gas to or from the State, but it
39 would not increase the diversity of the natural gas supply.

40 Construction of a new gas pipeline would most likely involve disruptive activities through
41 the desert. The Kern River 2003 Expansion Project EIS/EIR states that construction

1 would cause long-term consequences for vegetation and wildlife habitat, which would
2 be removed during construction, as well as potential impacts on threatened and
3 endangered species endemic to the desert, such as the desert tortoise. Although
4 construction of a new pipeline would increase supply and potentially add to the supply
5 from the Rocky Mountains, depending on the source of the natural gas, it would shift the
6 potential environmental impacts from one project to another.

7 Expanded pipeline systems would not meet the Project objective of increasing the
8 diversity of natural gas supplies to California. In addition, construction of new or
9 expanded pipeline systems would have environmental consequences along whatever
10 corridors were proposed. Therefore, new or expanded pipeline systems were not
11 considered as reasonable alternative sources to natural gas to be supplied by the
12 proposed Project.

13 **FINDING(S) FOR NORTHERN BAJA MEXICO LNG TERMINALS AND ASSOCIATED**
14 **PROPOSED INFRASTRUCTURE ALTERNATIVE**

15 Description: This alternative considered the use of new sources of natural gas
16 from new and proposed Northern Baja Mexico LNG Terminals as
17 potential sources to meet California's natural gas needs.

18

19 Finding(s): This alternative was eliminated because it would neither
20 accomplish most of the purposes and objectives of the proposed
21 Project to provide a secure supply of natural gas to either the
22 Southern California or U.S. market nor result in reduced
23 environmental effects relative to the potential effects identified for
24 the proposed Project, but would merely transfer such impacts to
25 another sovereign nation. In addition, the permitting, environmental
26 review, and any ultimate approval of an LNG storage and
27 regasification facility in Baja would be outside the jurisdiction of the
28 CSLC.

29 **Facts Supporting the Finding(s)**

30 The use of Northern Baja Mexico LNG Terminals as a potential reasonable alternative
31 to the proposed Project was eliminated from further analysis in the Final EIR because,
32 in part, it is presently uncertain whether such projects could meet the Project objective
33 of supplying 800 MMcf (22.7 million m³) of natural gas per day from the Pacific Rim
34 directly into the existing Southern California natural gas distribution infrastructure. LNG
35 terminals in Northern Baja would also supply the growing demand for natural gas in
36 Northern Baja. Neither the State of California nor the Federal government has
37 jurisdiction over LNG terminals in another sovereign nation or over contracts governing
38 the distribution of natural gas imported through such terminals.

39 Three LNG terminals are proposed for Baja California: Shell/Sempra's Energia Costa
40 Azul located 14 miles (22.5 km) north of Ensenada; Chevron's Terminal GNL Mar

1 Adentro de Baja California near the Coronado Islands and offshore of Tijuana; and the
2 Moss Maritime LNG Project offshore of Rosarito Beach.

3 As of February 2006, court challenges to the Energia Costa Azul LNG terminal had
4 been resolved. This project has received all of its permits and has begun construction.
5 Commercial operations are expected to begin in early 2008. This project would include
6 a land-based receiving facility and related port infrastructure. Onshore, the project
7 would cover 400 acres (162 hectares [ha]) of land and would have two full containment
8 tanks, open-rack seawater vaporizers, and a 42-mile (68 km) 36- to 42-inch (0.9 to 1.1
9 m) diameter spur pipeline connecting the terminal to the Bajanorte pipeline. As
10 proposed, the facility would have a capacity of 1,000 MMcf (28 million m³) per day;
11 however, there is sufficient space on site to expand the operations to include two
12 additional storage tanks to increase the capacity to an average of 2,000 MMcf (57
13 million m³) per day, with a peak of 2,600 MMcf (74 million m³) per day.

14 Once operations begin, Sempra/Shell anticipates 500 MMcf (14 million m³) per day to
15 serve the needs of Mexico and the remainder would serve the southwestern U.S. This
16 amount is equivalent to half the LNG that would be received at the terminal. The CPUC
17 authorized Sempra Energy and Royal Dutch/Shell Group to create a border point where
18 natural gas converted from LNG could move from Mexican to U.S. pipelines. This
19 action opens up the possibility of importation of natural gas from Mexico to Southern
20 California and other southwestern U.S markets.

21 Sempra stated that it intends to expand the Costa Azul terminal to double its base and
22 peak load capacity. In 2006, Sempra solicited and received commercial interest in
23 additional LNG processing capacity at its facility and announced that it will begin
24 working with shippers to develop terminal agreements. Pending regulatory approval,
25 the expansion could become operational as early as 2010, although SEMPRAs has
26 advised the CEC that no decision on whether to proceed with the expansion will be
27 made for two years. However, to export gas to California from a Baja terminal, new
28 pipelines would have to be built or expanded.

29 As an example, the CSLC and the Federal Energy Regulatory Commission (FERC) are
30 currently preparing a Joint EIS/EIR for the North Baja Expansion Project (FERC Docket
31 No. PF05-14-000, SCH# 2006081127), which proposes "...an interconnect with the
32 existing Southern California Gas Company (SoCalGas) system in Blythe, California, for
33 delivery into California and other southwestern U.S. markets." The purpose of this
34 project is to transport natural gas from the LNG terminal projects in Baja California to
35 California and Arizona. Once all the phases are completed, the total northbound
36 capacity of the North Baja system would be 2,753 million standard cubic feet per day.
37 The components of this project within the United States (California and Arizona) would
38 have adverse environmental effects, which have been analyzed in the Joint EIS/EIR
39 released on September 22, 2006, for a 90-day public review period that ended on
40 December 28, 2006.

41 Of the lead agencies for the proposed Project, only the CSLC has jurisdiction over the
42 proposed North Baja Expansion Project, both as to the right-of-way for the new pipeline

1 and the recommended mitigation measures within the Joint EIS/EIR. Finally, this
2 infrastructure associated with the Shell/Sempra Energia Costa Azul facility, currently
3 under construction, was not analyzed further in this document because a project-
4 specific Draft Joint EIS/EIR, as described above, has been prepared. The North Baja
5 Expansion Project is also discussed under Section 3.3.7.3, "Alternative California
6 Onshore Locations" in the Final EIR.

7 In January 2005, Chevron of Mexico received a Mexican federal permit to construct its
8 proposed Adentro de Baja California project that would be located 8 miles (13 km) off
9 the coast of Tijuana. It would be a gravity-based structure that would be fixed in a depth
10 of water of 65 feet (20 meters [m]). The terminal would be a fixed 980-foot (300 m) long
11 concrete island with two regasification plants, storage tanks, a heliport, and a dock for
12 LNG carriers. At this offshore terminal, the LNG would be regasified using seawater,
13 and a new underwater pipeline would connect with Baja California's existing gas
14 pipeline system. The terminal would have the capacity to produce an average of 700
15 MMcf (20 million m³) per day with a peak capacity of 1,400 MMcf (40 million m³) per day
16 and would serve U.S. West Coast and Mexican markets. Engineering design has
17 begun on this facility, but final investment decision about this facility has not been made.

18 In April 2005, Moss Maritime and its partner, Terminales y Almacenes Maritimos de
19 Mexico (TAMMSA), received permits from the Mexican environmental agency to
20 proceed with an offshore LNG terminal. However, other federal and local permits are
21 still needed before they can begin operations in 2008. Moss Maritime/TAMMSA is
22 proposing to install an FSRU approximately 5 miles (8 km) off the coast of Rosarito
23 Beach in Baja California. The FSRU would have storage facilities, and a pipeline would
24 connect the FSRU to shore. The production capacity would average 297 MMcf (8.4
25 million m³) per day, and the FSRU would be a converted LNG carrier with a storage
26 capacity of 4.4 MMcf (125,000 m³).

27 The CEC estimates that demand for natural gas in Baja California will grow by 7.6
28 percent per year. If one or more of these proposed LNG terminals were brought on-line,
29 the gas demand in Baja California, a region with 2.5 million people, would absorb some
30 of the imported supplies.

31 Because a Baja terminal would be located onshore or in Mexico's territorial waters, the
32 CSLC would not have jurisdiction to license facilities. Also, natural gas would not be
33 transported from the outer continental shelf to the U.S., so MARAD would not have
34 jurisdiction. Therefore, the U.S. would not have control over the design, approval, or
35 monitoring of such facilities.

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

1 This alternative was eliminated because it would neither accomplish most of the
2 purposes and objectives of the proposed Project to provide a secure supply of natural
3 gas to either the Southern California or U.S. market nor result in reduced environmental
4 effects relative to the potential effects identified for the proposed Project, but would
5 merely transfer such impacts to another sovereign nation. In addition, the permitting,
6 environmental review, and any ultimate approval of an LNG storage and regasification
7 facility in Baja, would be outside the jurisdiction of the CSLC.

8 Specifically, the selection of an alternative project location in Mexico, should this be
9 proposed, would be legally infeasible because no agency in the U.S. would have
10 authority over any project in Mexico. Additionally, in May 2005, seven U.S. and
11 Mexican environmental groups filed a challenge to Chevron of Mexico's Adentro De
12 Baja California facility under the North American Free Trade Agreement. In light of all of
13 these issues, it was determined that a Northern Baja site was not a reasonable
14 alternative as defined under the CEQA and that further analysis was therefore
15 inappropriate and unwarranted.

16 **FINDINGS FOR REGIONAL OFFSHORE ALTERNATIVES**

17
18 Description: Other offshore regions were evaluated as possible locations for
19 offshore LNG facilities.

20
21 Finding(s): Several potential alternative sites for offshore terminals along the
22 West Coast of the United States were eliminated from evaluation
23 because they failed to satisfy most of a project's basic objectives,
24 did not avoid or substantially lessen one or more of the Project's
25 significant effects, or were not feasible.

26 **Facts Supporting the Finding(s)**

27 Other potential alternative locations for an offshore LNG terminal along the West Coast,
28 without specifying exact locations within those regions, were identified by the Applicant
29 and during scoping and the public comment period on the October 2004 Draft EIS/EIR.

30 **Washington/Northern Oregon Region**

31 Four onshore LNG terminals are currently proposed in the U.S. Pacific Northwest
32 region, including the Port Westward LNG facility on the Columbia River about 7 miles
33 (11.3 km) from Clatskanie, Oregon; the Warrenton LNG Project in Tansy Point, Oregon;
34 the Northern Star LNG terminal in Bradwood, Oregon; and the Skipanon LNG facility in
35 Warrenton, Oregon. There are no known proposals for offshore terminals at these
36 locations.

37 An area near the mouth of the Columbia River, along the Washington-Oregon border,
38 was considered for the location of an offshore terminal; however, it was eliminated
39 because development of a terminal at this location would require a substantial upgrade
40 of existing pipeline infrastructure, with the potential attendant environmental impacts, in

1 order to reach Southern California. Moreover, if LNG shipments were to originate in
2 Australia, South America, or Southeast Asia, the shipping distance would be greater
3 than that for a location in California and would add to the cost of the gas supply. This
4 terminal location was eliminated from further evaluation as a reasonable alternative due
5 to inadequate site suitability, safety (offshore wind and wave conditions), and other
6 environmental concerns.

7 **Southern Oregon/Northern California**

8 Currently, the Jordan Cove Energy Project, an onshore LNG terminal proposed on the
9 North Spit of Coos Bay, Oregon, is the only LNG project proposed for this region for
10 which an application has been filed with the Federal Regulatory Energy Commission.
11 The proposed facility would have an onshore receiving terminal which would have an
12 average natural gas delivery capacity of 200 MMcf (5.7 million m³) per day. FERC is
13 currently reviewing the application. Excelerate Energy has stated its intent to develop
14 the Pacific Gateway LNG facility offshore of Northern California; however, neither a
15 license application has been filed nor the location identified. The projected baseload for
16 this facility would be 0.6 billion cubic feet per day, with a peak load 1 billion cubic feet
17 per day.

18 The Eureka area was examined as a potential location for an offshore LNG terminal
19 because it is the only location in the Northern California/Southern Oregon region with
20 access to PG&E's main gas transmission systems. However, costs of improving
21 existing access to these gas transmission systems would be very expensive. This
22 alternative would also be located far from Southern California and would require
23 significant new pipeline construction, thereby incurring high pipeline tariffs and not
24 reducing the potential impacts relative to those impacts identified for the proposed
25 Project. Additionally, there could be safety issues because the wave and wind
26 conditions outside the harbor can be severe.

27 In its 1978 Offshore LNG Terminal Study, the California Coastal Commission (CCC)
28 eliminated areas between Point Conception and the Oregon border because of the
29 areas' adverse weather conditions. This alternative was reconsidered to determine
30 whether conditions had changed. However, wind, waves, and fog in those locations
31 could make marine operations hazardous and less reliable. This alternative is not
32 reasonable and was eliminated from further evaluation because of inadequate site
33 suitability, safety (offshore wind and wave conditions), environmental concerns, and
34 because it fails to meet most of the objectives of the proposed Project.

35 **San Francisco Bay to Point Conception**

36 Currently, no known LNG projects are planned or proposed in the area from the San
37 Francisco Bay to Point Conception. Potential alternatives considered in Northern and
38 Central California included sites within San Francisco Bay and Monterey Bay. Even
39 though the CCC eliminated areas between Point Conception and the Oregon border in
40 its 1978 Offshore LNG Terminal Study because of the adverse weather conditions,

1 locations in this region were reconsidered to ascertain whether conditions have
2 subsequently changed.

3 An alternative location in and around the San Francisco Bay was eliminated from further
4 evaluation because of the lack of suitable sites within the bay and because the waters
5 outside the bay from Bodega Bay to Monterey are classified in one of three national
6 marine sanctuaries – Cordell Bank, Gulf of Farallones, and Monterey Bay National
7 Marine Sanctuaries. There are no available sites in remote areas within the Bay where
8 a terminal could be located, and a previously proposed onshore terminal at Mare Island
9 was dropped due to public concern regarding the safety of the facility in a densely
10 populated area. Congested waterways and navigation areas may present a hazard for
11 LNG carriers. In addition, the presence of LNG carriers could disrupt commercial and
12 recreational vessels in this intensively used bay. Therefore, this potential alternative
13 was eliminated because it is infeasible and increases, rather than avoids, potential
14 significant environmental impacts.

15 Siting a terminal anywhere offshore of Monterey Bay would mean that the terminal
16 and/or the offshore pipeline would have to cross through the Monterey Bay National
17 Marine Sanctuary. Altering the seabed of the Sanctuary by placing a structure in it is
18 prohibited in the Sanctuary.

19 The existing pipeline infrastructure in this region would also require significant upgrade
20 or construction of a new large-diameter pipeline to deliver Project gas to the PG&E main
21 gas transmission systems. In addition, a lack of protected areas for LNG carriers would
22 limit operating periods because of the severity of winter storms.

23 The wind-wave conditions of the coast between Point Conception and Monterey Bay
24 would significantly affect transfer operations between LNG carriers and a floating facility
25 and would increase the potential risk of spills. Without significant hull strengthening, the
26 increased swell dynamics in the area north of Point Conception would weaken a floating
27 or fixed structure and would potentially compromise its structural integrity. This
28 alternative also would be located far from Southern California and would require new
29 pipeline construction, thereby incurring high pipeline tariffs and not reducing impacts
30 relative to those effects identified for the proposed Project. Finally, this location was
31 eliminated because of the wind-wave conditions that would not be favorable for an LNG
32 facility and because it would conflict with the intended use of the marine sanctuaries.
33 Sites north of Point Conception would not meet most of the objectives of the proposed
34 Project, are prohibited within the Monterey Bay National Marine Sanctuary, and would
35 require extensive onshore pipeline facilities; therefore, this location was not evaluated
36 further.

37 **Los Angeles to the Mexican Border**

38 Locations for an offshore terminal were considered from Los Angeles to the Mexican
39 border. A component of the CCC's screening guidelines for selection of potential
40 offshore LNG terminals was the proximity to population centers. Areas offshore of Los
41 Angeles and Long Beach were not considered because of the population density of the

1 nearby population centers and the existing and projected significant volume of vessel
2 traffic in the area. San Diego Harbor is unsuitable for an LNG terminal because it would
3 likely interfere with the operations of the U.S. Navy's Pacific Fleet, which is based in the
4 harbor. Significant recreational boating in San Diego Harbor would also pose a difficult
5 security and safety issue for the terminal and for LNG carriers. A number of chemical
6 and conventional weapon disposal sites constrain suitable locations outside San Diego
7 Harbor as well.

8 For the terminal facility and pipeline to avoid these sites, the terminal would have to be
9 sited near the major north-south shipping lanes, which is incompatible with necessary
10 safety buffers. As stated above, the CCC eliminated areas offshore of San Diego in its
11 1978 Offshore LNG Terminal Study. Therefore, because a reasonable site could not be
12 identified, this location was eliminated from further consideration. However, Woodside
13 Natural Gas Inc. submitted an application for a floating LNG terminal 22 miles (35 km)
14 off the coast of Los Angeles.

15 **FINDINGS FOR ALTERNATIVE CALIFORNIA ONSHORE AND OFFSHORE**
16 **LOCATIONS**

17
18 Description: Other California onshore and offshore locations for the LNG
19 terminal were evaluated.

20 Finding(s): Potential alternative locations for onshore and offshore LNG
21 terminals in California were eliminated from evaluation because
22 they failed to satisfy most of the Project's basic objectives, did not
23 avoid or substantially lessen one or more of a project's significant
24 effects, or were not feasible.

25 **Facts Supporting the Finding(s)**

26 In 1978, under the mandate of the California LNG Terminal Siting Act, the CCC studied,
27 based on sites nominated by the public and the CCC, 82 onshore and numerous
28 offshore potential LNG terminal locations as a neutral, environmentally protective
29 agency using specific siting criteria. These two studies represent the most
30 comprehensive review of potential LNG terminal locations in California to date. The
31 studies also included a public consultation process for both onshore and offshore
32 studies, with more than 700 interested persons participating.

33 The LNG Terminal Siting Act specified an onshore siting criterion that the population
34 density could be no more than 10 people per square mile (2.6 square kilometers [km²])
35 within 1 mile (1.6 km) of the terminal and no more than 60 people per square mile (2.6
36 km²) within 4 miles (6.4 km). Other considerations included wind, wave, and fog
37 conditions, proximity to urban areas, earthquake faults, soil conditions, and rugged land.
38 According to the CEC's 2003 Liquefied Natural Gas in California: History, Risks, and
39 Siting, Staff White Paper, the siting criteria used by the CCC and CPUC in the 1970s
40 are still applicable.

41

1 **California Onshore Alternatives**

2 The CCC concluded that any onshore LNG terminal would have serious effects on
3 coastal resources and that all proposed sites would lead to major adverse effects on
4 natural marine and wildlife resources, public recreation areas, and other resources
5 protected by the California Coastal Act of 1976. The marine environment would be
6 disturbed by construction activities, including trenching, blasting, and pile driving.
7 Regular LNG tanker maneuvering, fuel oil deliveries, and tug and line boat activity
8 would continuously bring noise and activity in areas used by seabirds and mammals,
9 including the California gray whale. Because all of the onshore locations are relatively
10 remote and undisturbed, an onshore LNG terminal would also alter the character of the
11 area and disturb valuable wildlife populations.

12 The CCC found that four onshore sites met most of the siting criteria for an onshore
13 LNG terminal location and were feasible when adverse wind and wave conditions,
14 earthquake faults, soil conditions, and other factors were considered. These four sites,
15 in the order ranked by the CCC, were Horno Canyon in Camp Pendleton (San Diego
16 County), Rattlesnake Canyon (San Luis Obispo County), Little Cojo near Point
17 Conception (Santa Barbara County), and Deer Canyon (Ventura County). After the
18 ranking was completed, an earthquake fault was found near the Little Cojo site. Since
19 there was a pending application for this location, it required further evaluation.
20 Contingent upon demonstration of earthquake safety, the CPUC conditionally approved
21 Point Conception (Little Cojo) because of its remote location; however, the proponents
22 cancelled the project when they determined that the then price of natural gas made
23 LNG uncompetitive.

24 The current owners of the land at the Point Conception location approved in 1978—the
25 Bixby Ranch, the Hollister Ranch, and the Archer Trust—objected to the use of their
26 land for industrial development and are considering putting a conservation easement on
27 the property. Consequently, this site is not considered a viable alternative location for
28 an onshore terminal due to seismic conditions and land use conflicts.

29 Aside from those sites evaluated by the CCC, the Final EIR also considered siting of the
30 LNG terminal on one of the Channel Islands and concluded that it was not a feasible
31 option due to potential land use conflicts. The islands north of the proposed facility
32 location are under the jurisdiction of the National Park Service (NPS). Santa Barbara
33 Island, which is located south of the proposed Cabrillo Port location, is also part of
34 CINP. NPS provisions for the CINP are intended to conserve the sensitive marine
35 organisms and other resources that occur in near shore waters of the CINP. Enforced
36 restrictions include limits on marine vessel traffic and public use, special area closures,
37 and designations for specific uses or activities. The presence of an LNG terminal would
38 conflict with the intended purpose of the CINP and therefore is not a reasonable or
39 feasible alternative.

40 San Nicolas Island, another Channel Island, is owned by the U.S. Navy. Part of its
41 intended use is ordnance and missile testing; therefore, the presence of an LNG
42 terminal would conflict this use and is not a reasonable or feasible alternative. No

1 onshore Channel Island location represents a feasible alternative; thus, siting an LNG
2 facility onshore of one of the Channel Islands was eliminated from further consideration
3 in this document.

4 Compared to the site proposed by the Applicant, onshore LNG terminals, although
5 potentially feasible, would neither avoid nor lessen one or more of the potentially
6 significant effects on the environment identified for the proposed Project. For example,
7 marine traffic would increase, which is counter to the purpose of the Deepwater Port
8 Act. In addition, under the Deepwater Port Act, MARAD may only consider a DWP
9 beyond 3 nautical miles (NM) (3.45 miles or 5.56 km) from shore.

10 The FERC and the Port of Long Beach have published a Draft EIS/EIR (FERC Docket #
11 CP04-58-000, et al., SCH# 2003091130) for an onshore LNG terminal at the Port of
12 Long Beach, proposed by Sound Energy Solutions (SES). On January 22, 2007, the
13 Long Beach Board of Harbor Commissioners disapproved the proposed project.
14 However, due to the late timing and uncertainty of the proposed action, information on
15 the Port of Long Beach project is provided in the Cabrillo Port Final EIR. The onshore
16 LNG terminal could be authorized whether or not Cabrillo Port were licensed, and both
17 projects could be licensed simultaneously. Hence, an onshore LNG terminal at the Port
18 of Long Beach is an independent project, and, as such, may not represent a
19 replacement of the proposed Project. Furthermore, it is difficult to compare the
20 environmental impacts of the SES LNG terminal and the proposed Project because
21 each analysis is based on different project-specific significance criteria by which impacts
22 were evaluated and the nature and extent of the risk analyses for the Cabrillo Port and
23 the Port of Long Beach differ. Last, as indicated above, the SES LNG terminal has been
24 disapproved by the Long Beach Board of Harbor Commissioners, which renders the
25 project too speculative to be feasible.

26 **California Offshore Alternatives**

27 In 1978, the CCC conducted an offshore terminal study that was similar to the one
28 conducted for onshore LNG terminal siting. The CCC study evaluated potential
29 locations based on the following factors: (1) ownership, use, and character of the area
30 around each site zone; (2) site availability; (3) recreational resources; (4) marine and
31 terrestrial biology; (5) geologic and engineering considerations affecting terminal
32 feasibility; (6) choice of design types; (7) pipeline routing feasibility and impacts; (8)
33 maritime conditions; and (9) construction costs. Site selection criteria included the need
34 for the site to be in water depths less than 750 feet (229 m) due to subsea pipeline
35 installation constraints; have a gently sloping bottom topography; and have a hospitable
36 wind, wave, and swell environment. The depth limitation is no longer applicable
37 because advances in technology enable pipelines to be laid in much deeper waters.

38 Areas offshore of Central and Northern California between Point Conception and the
39 Oregon border were eliminated from further consideration because of adverse weather
40 conditions and the presence of military operations, ship traffic, and marine and coastal
41 resources. No population density criteria were applied to the siting of an offshore
42 facility; however, locations within 4 miles (6.4 km) of a permanent population of 1,800

1 persons were eliminated. Thus, offshore areas within 4 miles (6.4 km) of Los Angeles,
2 Long Beach, and San Diego were eliminated.

3 The study evaluated seven zones and then 16 sites between Point Conception and the
4 Mexican border. Eventually, seven sites were selected as potential terminal locations:
5 Ventura Flats, offshore of Deer Canyon, offshore of Camp Pendleton, offshore of
6 Chinese Harbor, offshore of Smuggler's Cove, offshore of San Pedro Point, and
7 Bechers Bay. Ventura Flats was selected as the optimal location.

8 Nine offshore sites were evaluated as potential alternatives to the proposed Project: the
9 seven sites identified in the 1978 CCC Offshore LNG Terminal Study and two sites
10 identified during public scoping—Anacapa and the west side of the Channel Islands.

11 The following analysis uses the 1978 criteria and updates the information as
12 appropriate. All of the sites, except Ventura Flats, were eliminated from further
13 consideration for the reasons detailed below. The Ventura Flats location is part of the
14 Santa Barbara Channel/Mandalay Shore Crossing/Gonzales Road Pipeline Alternative.

15 **Gaviota Pass**

16 Gaviota Pass, near the coastline approximately 15 miles (24 km) east of Point
17 Conception, was considered as an alternative offshore location. Gaviota Pass is very
18 close to two onshore sites, Little Cojo and Las Varas, which were evaluated in the
19 CCC's 1978 Final Report Evaluating and Ranking LNG Terminal Sites. The Las Varas
20 site was rejected because of the presence of a seismic fault, and a similar fault was
21 found at Little Cojo. The CCC did not consider offshore locations in the Santa Barbara
22 County area because "any offshore LNG terminal near the mainland in western Santa
23 Barbara Channel would conflict with the valuable marine and recreational resources
24 present there." Gaviota Pass was not retained for evaluation as an alternative offshore
25 location because of the potential seismic activity in the area and the potential conflicts
26 with marine and recreational resources present in that part of the Santa Barbara
27 Channel.

28 **Offshore of Camp Pendleton**

29 The 1978 CCC offshore report identified a site offshore of Camp Pendleton,
30 approximately 1.5 to 3 miles (2.4 to 4.8 km) offshore of a long stretch of San Diego
31 County coastline. The CCC concluded that either a floating or fixed facility would be
32 feasible because the location met the geotechnical, population density, and marine
33 resources criteria. However, the CCC recognized that there were potential seismic
34 problems, recreational conflicts, safety issues, and aesthetic concerns. Currently, as
35 described below, despite the advances in technology, the potential negative aspects of
36 the site have increased since the 1978 CCC report.

37 For example, the site offshore of Camp Pendleton would be highly visible to a large
38 number of people traveling on Interstate 5. Its presence would also degrade the
39 recreational experience of beach visitors at San Onofre State Park and would restrict
40 access for local boaters and sport fishers because there would be an exclusion zone

1 around the facility and any approaching LNG tanker. Additionally, the population of the
2 areas surrounding Camp Pendleton has increased since the original recommendation in
3 1978: San Clemente has grown by almost 23,000 people since 1980 and Oceanside
4 has grown by almost 33,000 people since 1990. In addition, there is a fault 4 miles (6.4
5 km) offshore.

6 The U.S. Marine Corps also uses the waters off Camp Pendleton for amphibious
7 warfare-training exercise. In June 2004, the Navy's Advanced Amphibious Assault
8 Vessel (AAAV) ocean training area was extended seaward from 3 NM (3.5 miles or 5.6
9 km) up to approximately 25 NM (29 miles or 46 km) from Camp Pendleton beaches to
10 conduct AAAV over-the-horizon training exercises. This use of the ocean offshore of
11 Camp Pendleton by the Department of Defense could be precluded by the safety zone
12 that would surround the LNG terminal and might also be affected when LNG carriers
13 transit to and from the facility. Therefore, an LNG terminal anywhere within the AAAV
14 ocean training area could disrupt naval exercises, training, and traffic.

15 Further, due to the proposed distance offshore, LNG carriers would have to cross the
16 shipping lanes to reach the LNG terminal; therefore, commercial vessel traffic could be
17 disrupted. Recreational vessel traffic would need to avoid the safety zone. Since the
18 location would be relatively close to shore, it is assumed that the volume of the
19 recreational vessel traffic would be significant; therefore, impacts on recreational vessel
20 traffic would be adverse.

21 This alternative was eliminated from further analysis because of its inability to avoid
22 potential significant environmental impacts, specifically because it is close to shore. In
23 addition, this alternative would involve potentially significant impacts on recreation,
24 visual resources, public health and safety, as well as potential land use conflicts. There
25 would be potentially significant impacts on the Navy's ability to train at Camp Pendleton
26 if an LNG terminal were located within its AAAV ocean training area. Finally, the
27 proposed facility would not have been subject to the provisions of the Deepwater Port
28 Act.

29 **Offshore of Deer Canyon**

30 Although a floating terminal approximately 1 mile (1.6 km) offshore of Deer Canyon
31 would be technically feasible, some of the factors that were considered favorable in the
32 1978 CCC offshore study are no longer favorable. For example, the Santa Monica
33 Mountains were not designated as a national recreation area until later in 1978.
34 Moreover, even at the time the study was published, the CCC recognized that there
35 would be significant visual effects on nearby recreation areas, including Leo Carrillo and
36 Point Mugu State Parks and the Santa Monica Mountains.

37 Given that this location would only be 1 mile (1.6 km) offshore, the facility would be
38 visible from State Route 1 and would pose a potential threat to public safety if an
39 accident were to occur. LNG carriers would also have to cross the vessel traffic
40 separation scheme and therefore disrupt coastal recreational and commercial vessel
41 traffic. In addition, the CCC report cited potential conflicts with the Pacific Missile

1 Range Test Center activities and a State oil lease. Currently, there are no known
2 conflicts with the Pacific Missile Range or with a State lease; however, this alternative
3 would have significant aesthetic and recreation impacts.

4 This potential alternative was eliminated from further consideration because it would
5 result in potentially significant effects on aesthetics, public safety, marine traffic, and
6 recreation. Potential sites further than 1 mile (1.6 km) offshore of Deer Canyon but
7 landward of the vessel traffic separation scheme would have similar adverse effects.
8 Moving further from shore would decrease the aesthetic, marine traffic, and recreational
9 impacts but would increase the potential interference with commercial vessel traffic.

10 **Offshore of Chinese Harbor, Smugglers Cove, San Pedro Point, and Bechers Bay**

11 The Chinese Harbor, Smugglers Cove, and San Pedro Point locations are offshore of
12 Santa Cruz Island, and the Bechers Bay location is offshore of Santa Rosa Island. All
13 of these sites are considered unacceptable because of their location within the Channel
14 Islands National Park (CINP) and National Marine Sanctuary, established in 1980, and
15 the biological significance of the surrounding resources. NPS provisions for CINP are
16 intended to conserve the sensitive marine organisms and other resources that occur in
17 nearshore waters of the CINP. Enforced restrictions include limits on marine vessel
18 traffic and public use, special area closures, and designations for specific uses or
19 activities. Approval of an LNG facility in these locations is highly unlikely because it
20 would conflict with the national park's or sanctuary's intended land use. Therefore,
21 these potential alternatives were eliminated from further consideration.

22 **Anacapa**

23 The Anacapa alternative location was proposed by the Applicant and is approximately
24 14 NM (16 miles or 26 km) offshore of Point Mugu and approximately 9.5 NM (11 miles
25 or 17.6 km) from Anacapa Island, which is part of the CINMS. Like the other locations
26 located within the CINMS, approval of an LNG facility is unlikely because it would
27 conflict with the sanctuary's intended land use. Therefore, this potential alternative was
28 eliminated from further consideration because it is not feasible.

29 **West Side of the Channel Islands**

30 During the public scoping period, a commenter suggested the west side of the Channel
31 Islands as an alternative location for the DWP. This alternative was considered but not
32 retained for full analysis because it is infeasible primarily because it would be located
33 within the CINMS. In addition, water depths on the west side of the Channel Islands are
34 greater than those of the proposed Project mooring location, slopes are steep (which
35 would make it difficult to delineate a submarine pipeline route from this location to the
36 shore), and wind/wave conditions can be severe. Also, depending on the location,
37 operations of an FSRU on the west of the Channel Islands, where the Navy conducts
38 exercises, could interfere with Naval activities. This area is also along whale migration
39 routes. Therefore, this potential alternative was eliminated from further consideration
40 because it is not feasible.

1 FINDINGS FOR ALTERNATIVE DEEPWATER PORT CONCEPTS

2 Description: Alternative deepwater port concepts include different types of fixed
3 and floating LNG regasification facilities that have either been
4 proposed in concept or evaluated in other locations. There were
5 considered as alternatives to the proposed concept.

6 Finding(s): Alternative deepwater concepts were determined either not to be
7 feasible at the location proposed for the deepwater port, would
8 have potentially greater environmental impacts, or would not fulfill
9 the project's objectives.

10 Deepwater port concept alternatives fall into two categories: fixed or floating facilities.
11 The following sections evaluate different deepwater concepts for fixed and floating
12 facilities. Two possible platform-based LNG terminal alternatives are the use of an
13 existing oil platform or construction of a new platform. Another fixed alternative is a
14 gravity-based structure. Alternatives for floating facilities are single and multi-point
15 mooring systems. Descriptions of these alternatives and the reasons for their
16 elimination from further analysis of potential environmental impacts are provided below.

17 Fixed Offshore Liquefied Natural Gas Terminal

18 Existing Platform-Based Terminal Alternative

19 Currently, there are 27 oil and gas production platforms operating in Federal or State
20 waters in the Santa Barbara Channel, Santa Maria Basin, and offshore of Los
21 Angeles/Long Beach. Most are more than 20 years old. Offshore oil platforms can be
22 used only for the intended use for which they were permitted. Altering or converting the
23 function of an offshore oil platform for either exclusive use as an offshore LNG terminal
24 or dual use as an offshore LNG terminal and oil and gas production facility requires a
25 new Development and Production Plan for that platform, approved by the U.S.
26 Department of the Interior, Minerals Management Service.

27 These platforms were not built either to berth LNG carriers or to support ancillary
28 equipment. A comprehensive structural analysis would be needed to determine if a
29 platform is sufficiently structurally sound to extend its lifespan and to support a DWP for
30 LNG. Adding berthing capability to an existing platform would create a larger object in
31 the viewshed and would extend the life of an existing offshore visual effect that is
32 currently scheduled for removal at the conclusion of all oil and gas operations.

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

1 terminal. In addition, sufficient information is not available to analyze the potential
2 environmental impacts to a level sufficient to determine whether a platform-based LNG
3 terminal alternative "...would avoid or substantially lessen any of the significant effects"
4 of the proposed Project (State CEQA Guidelines § 15126.6).

5 **New Fixed Platform-Based Terminal Alternative**

6 A platform-based terminal could be designed to receive and regasify LNG and send the
7 natural gas to shore via a pipeline; however, it would be technically infeasible to
8 consider placing a platform at the same location as that of the proposed Project
9 because, to date, fixed platforms have not been installed at the ocean depth of the
10 proposed DWP location (approximately 2,900 feet [884 m]). To date, fixed platforms
11 have been installed to water depths of 1,353 feet (412 m). Compliant (flexible) pile and
12 compliant or guyed platforms have been installed in water depths to 1,753 feet (534 m).
13 Only floating facilities have been installed to greater depths.

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

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

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

34 **Gravity-Based Structure**

35 A gravity-based structure is one that remains secured to the seafloor, primarily by
36 gravity. A gravity-based structure can be constructed onshore (usually from concrete),
37 floated to a site, and installed to provide an offshore enclosure and foundation for LNG
38 tanks and a stable deck for regasification equipment. Factors influencing this concept
39 include constructability, weather, safety, shipping, environmental setting, geology of the
40 seabed (including water depth), and regulatory permitting.

1 Gravity-based structures are not suited to the water depth at the proposed DWP
2 (approximately 2,900 feet [884 m]), and therefore would have to be located closer to
3 shore. The deepest concrete deep water structure is the Troll A platform in the North
4 Sea, which is installed in 1,148 feet (350 m) of water. It is not an LNG facility. In
5 general, gravity-based structures are more economical in waters deeper than 100 feet
6 (30.5 m).

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

12 **Floating Offshore Liquefied Natural Gas Terminal**

13 **Single-Point Mooring Direct Regasification**

14 The single-point mooring direct regasification concept was considered, but eliminated
15 as an alternative because it does not serve the purpose and need of the proposed
16 Project.

17 The basis of this system is a single submerged turret loading buoy moored to the
18 seabed that remains submerged 82 to 131 feet (25 to 40 m) below the water surface.
19 When an LNG carrier with the proper fittings approaches the buoy location, the LNG
20 carrier retrieves the buoy into a mating cone in the bottom of the vessel. Currently,
21 these systems operate in 279 to 1,148 feet (85 to 350 m) water depth with significant
22 wave heights of 53.8 feet (16.4 m), but ocean basin tests have verified these systems
23 could operate in water depths ranging from 131 to 2,958 feet (40 to 900 m).
24 Operational oil submerged turret systems have eight to 12 mooring legs and are
25 anchored by piles, suction, or drag anchors. Cabrillo Port would be moored with nine
26 drag anchors; therefore, the seabed footprint of a single-point mooring system could be
27 slightly smaller or larger than that of Cabrillo Port.

28 With a submerged turret loading technology, specially designed LNG carriers with
29 onboard regasification equipment are required. After mooring, the LNG carrier would
30 regasify the LNG onboard and send the natural gas through the mooring point via a
31 flexible riser to a subsea pipeline. Regasification of the entire LNG cargo of
32 approximately 3 billion cubic feet (85 million m³) of natural gas would take six to seven
33 days.

34 One example of this DWP concept would use a flow-through, single-point mooring such
35 as that installed for the Excelerate's Gulf Gateway Energy Bridge™ DWP (formerly El
36 Paso Energy Bridge Gulf of Mexico), a system specifically designed for intermittent
37 service. For this DWP, a "shell and tube" regasification technology was used, in which
38 multiple smaller-diameter tubes are housed in a larger tube that acts as a shell. LNG is
39 transported through the smaller tubes and water flows through the larger tube, allowing
40 heat transfer between the two fluids separated by the tube wall.

1 For the shell and tube technology, either a once-through heating water (open loop)
2 vaporization technology or a steam-heated (closed loop) system is used. Excelerate's
3 Gulf Gateway Energy Bridge™ can operate using either technology. The negative
4 environmental consequences of the open loop system include substantial seawater
5 intake and discharge. An open loop system would require a daily intake of 76.1 million
6 gallons (288,000 m³) per day of seawater to provide a supply of 500 MMcf (14.2 million
7 m³) per day. Seawater that has passed through the open loop shell-and- tube system
8 would be discharged at a temperature 13.5°F (10.3°C) lower than the temperature at
9 which it entered the system. The intake of seawater could cause the impingement and
10 entrainment of fish eggs or larvae. The discharge of relatively cooler water could have
11 an adverse effect on marine biota in the immediate vicinity of the discharge.

12 In contrast, in the closed loop system the propulsion boilers would heat water that would
13 circulate through the shell-and-tube vaporizer to heat the LNG. After heating the LNG in
14 the shell-and-tube vaporizer, the water would circulate through the steam heater to
15 rewarm the water and then recirculate through the shell-and-tube vaporizer. The closed
16 loop system does not use seawater and therefore does not have the impacts on water
17 quality or marine biological resources that an open loop system has. However, because
18 the closed loop system on Excelerate's Gulf Gateway Energy Bridge™ project has to
19 use two boilers and a diesel generator for the regasification of LNG, in contrast to the
20 one boiler needed to operate during the open loop system, additional air emissions are
21 generated. Air emissions at Gulf Gateway Energy Bridge™ would be higher than at
22 Cabrillo Port. Excelerate's Northeast Gateway Energy Bridge™ proposed project in
23 Boston (a dual-point mooring system discussed below under "Multiple-Point Mooring
24 Direct Regasification") would have lower emissions because the U.S. Environmental
25 Protection Agency (USEPA) required different emissions controls. Each would operate
26 in different USEPA regions and under facility-specific operating permits.

27 An objective of the proposed Project is to develop a DWP that would provide sufficient
28 natural gas storage capacity to enable a continuous, reliable supply to local energy
29 markets. The single-point mooring system alternative cannot fulfill this objective. In
30 general, a single-point mooring concept is designed only to meet intermittent market
31 demand; it only can provide natural gas when an LNG carrier with regasification
32 technology is berthed. According to the environmental assessment of the license
33 application for Excelerate's Gulf Gateway Energy Bridge™ DWP, a single LNG carrier
34 can transport a maximum of 36.4 million gallons (138,000 m³) of LNG and has a goal of
35 six to seven days to unload and regasify. If weather prevents an LNG regasification
36 carrier from berthing, no natural gas could be supplied. The Excelerate system is
37 designed and tested to withstand weather events in the North Sea; however, its
38 operations are governed by a USCG approved operations manual. This type of system
39 also does not provide storage for LNG or natural gas. The proposed Cabrillo Port
40 FSRU has a storage capacity of 72 million gallons (273,500 m³) and can discharge
41 under anticipated weather events.

42 The relatively large number of traditional LNG carriers that could call at the FSRU (220
43 with an additional 137 on order) would add to the Project's reliability, in contrast to the

1 few specifically designed LNG carriers (three are currently operational, two are on
2 order) equipped to regasify on board.

3 The single-point mooring DWP concept cannot meet the objective of a continuous
4 supply of natural gas; therefore, this type of project would not be a feasible alternative to
5 the proposed Project.

6 **Multiple-Point Mooring Direct Regasification**

7 The multiple-point mooring system would be the same as the single-point mooring
8 system except that a multiple-point mooring system would have multiple separate
9 buoys. The purpose of this system would be to provide continuous service at the same
10 capacity as the FSRU. In order to have comparable capacity as the FSRU, a two-buoy
11 system would be needed, based on the current size of LNG regasification carriers of
12 36.4 million gallons (138,000 m³). The next generation of LNG regasification carriers is
13 projected to carry 39.9 million gallons (151,000 m³).

14 An example of a multiple-point mooring DWP design is the Northeast Gateway Energy
15 Bridge™ Port, for which the USCG, MARAD and the Massachusetts Executive Office of
16 Environmental Affairs (MEOEA) have published a Final EIS/EIR in 2006. This design
17 consists of two sets of natural gas receiving and regasifying facilities. Each facility
18 consists of the following fixed components: a subsea Submerged Turret Loading™
19 buoy, a flexible riser, eight suction pile anchors, a pipeline end manifold (PLEM), and a
20 subsea flowline that would facilitate the mooring and connection of a fleet of purpose-
21 built Energy Bridge™ Regasification Vessels (EBRVs) that call at the Northeast
22 Gateway Port. EBRVs are standard LNG tankers that have been specially built to
23 contain equipment for LNG regasification and delivery of natural gas. This subsea
24 system would be similar to the system proposed for Cabrillo Port; however, the subsea
25 footprint would be two times the size and therefore potentially greater impacts on the
26 subsea environment.

27 The Northeast Gateway Energy Bridge™ Port design allows for current and future
28 capacity EBRVs, from 36.5 to 66.0 million gallons (138,000 to 250,000 m³). An EBRV
29 would dock at the Northeast Gateway Energy Bridge™ Port at one of the two
30 Submerged Turret Loading™ buoys which that serve as the anchor system for the
31 EBRV, allowing it to weathervane (swivel or rotate) about the axis of the buoy while
32 moored in response to wind, waves, and currents. Regasification would occur via
33 closed-loop shell and tube recirculating heat exchangers heated by steam from boil-off
34 gas/vaporized LNG-fired boilers. The Northeast Gateway Energy Bridge™ Port, if
35 licensed, would use only a freshwater-based closed-loop mode. Regasification of LNG
36 from an EBRV is expected to take eight days. To reach the 800 MMcf (22.7 million m³)
37 per day baseload proposed, the Northeast Gateway Energy Bridge™ Port would need
38 to continuously operate at least one EBRV, thus necessitating the arrival of an EBRV
39 approximately every seven to eight days. There would be an estimated 10 percent
40 overlap in EBRVs at the Northeast Gateway Energy Bridge™ Port; as one EBRV is
41 completing regasification, another would be mooring at the second buoy and starting
42 regasification.

1 For Cabrillo Port, the FSRU would always be present and one to two LNG carriers
2 would dock weekly. LNG unloading would require 16 to 21 hours, depending on the
3 size of the carrier, and then the LNG carrier would leave. Regasification would use
4 submerged combustion vaporizers and engine cooling would be accomplished through
5 a closed loop tempered water system. Docking of an LNG carrier at the FSRU would
6 require the assistance of tugboats. A vessel would patrol the area around the FSRU at
7 all times.

8 A 0.27 NM (0.3 mile or 0.5 km) radius safety zone would likely be required for each
9 mooring turret in a multiple-point mooring system and the Cabrillo Port FSRU. Once
10 established, safety zones are enforceable, such that unauthorized vessels would not be
11 allowed to enter. A mandatory no anchoring area would be established around each
12 buoy to protect the port's mooring components and any vessel engaged in underwater
13 activities (trawling, research) that could become entangled in the mooring gear. An
14 ATBA would probably be established around each turret of a multiple-point mooring
15 system or around the entire mooring system.

16 The Applicant has requested an ATBA be established around Cabrillo Port. Vessels
17 could enter the ATBA, but the recommended maximum speed would be 10 knots (11.5
18 mph or 18.5 kph). The size of the ATBA would be determined at the time of licensing,
19 but an ATBA for a DWP could range from a radius of 0.54 to 1.6 NM (0.6 to 1.8 miles or
20 1 to 3 km). Excelerate's Gulf Gateway Energy Bridge™ project has a 0.27 NM (0.3 mile
21 or 0.5 km) safety zone, a 0.8 NM (0.9 mile or 1.5 km) no-anchoring zone, and a 1.1 NM
22 (1.3 miles or 2 km) ATBA. Excelerate's Northeast Gateway Energy Bridge™ would
23 have a 0.27 NM (0.3 mile or 0.5 km) safety zone around each buoy regardless of
24 whether an LNG carrier were docked. The ATBA would have a radius of 1.4 NM (1.6
25 miles or 2.6 km). The no anchoring area would have a radius of 0.6 NM (0.7 miles or
26 1.0 km) around each buoy. Cabrillo Port would have only one safety zone/ATBA;
27 therefore, it would likely have a smaller total area set aside for safety zones than a dual-
28 point mooring system. Therefore, the dual-point mooring system could have greater
29 impacts on recreational and commercial vessels in the area and potentially greater
30 impacts on marine traffic.

31 Although the dual-point mooring system would have the capability of providing a
32 continuous supply of natural gas, it could have the same type of environmental issues
33 as the single-point mooring regasification system. That is, if the open loop system were
34 used, it could adversely impact fish eggs, larvae, and other marine biota due to the
35 discharge of relatively cooler water. If the closed loop system were used, impacts on
36 marine biota would be minimized. For an eight-day period each year, some seawater
37 intake would be required for main condenser cooling and other cooling systems, ballast
38 water, and maintenance of emergency water deluge and fire-main system. An average
39 of 4.97 million gallons per day of seawater would be required at the Northeast Gateway
40 Energy Bridge™ Port during this eight-day-per-year period, for a total intake of 39.78
41 million gallons per year.

42 The total discharge during each eight-day period would be 3.08 million gallons per day.
43 Of this, approximately 2.0 million gallons per day would be used in the heat recovery

1 and exchange mode. The remaining seawater intake volume would be used for
 2 ballasting and all other ship operations. Marine fishery loss due to entrainment was
 3 estimated at approximately 48,774 age-1 equivalents (equivalent to approximately
 4 2,330 pounds). Based on equivalent yield (in pounds), lobster, pollock, and yellowtail
 5 flounder make up the majority of the predicted annual loss. This is slightly more than
 6 the 4.17 million gallons per day (based upon a weighted average of normal and peak
 7 seawater intake) proposed by Cabrillo Port. Although the marine life impact from the
 8 Northeast Gateway Energy Bridge™ Port and Cabrillo Port project cannot be directly
 9 compared, it can be assumed that the impacts would be generally equivalent.

10 Depending on whether an open loop or closed loop regasification system were used,
 11 either impacts on marine biota or air emissions could be greater than Cabrillo Port's
 12 impacts; the seabed footprint would be approximately two times that of Cabrillo Port;
 13 and the area with access restrictions and/or recommended speed limits would be twice
 14 Cabrillo Port's area. In addition, since the existing projects using this type of technology
 15 have very different impacts, it would be speculative to evaluate the exact configuration
 16 of this type of LNG facility offshore of California. Therefore, a dual-point mooring was
 17 eliminated from further consideration because it would be speculative to estimate the
 18 full spectrum of environmental impacts of such a project offshore of California.

19 Woodside Natural Gas, Inc. submitted an application for a floating LNG terminal (The
 20 OceanWay project) that proposes to install a two-buoy delivery system 22 miles (35 km)
 21 off the coast of Los Angeles. However, the nature and extent of impacts associated with
 22 the Woodside Natural Gas Project cannot be predicted with any certainty at this time
 23 because the necessary environmental analyses have not yet begun. Further, due to the
 24 uncertainty of the length of time required to complete the environmental analyses for
 25 projects for which the application process has either just begun or for which no
 26 application yet exists, and the limited information available, the CSLC does not regard
 27 such project as a reasonable alternative to the proposed Project.

28 **1.5.2 FINDINGS ON POTENTIAL ALTERNATIVES ANALYZED IN THE FINALEIR**

29
 30 The following findings describe the potential alternatives that were determined to be
 31 reasonable alternatives meriting detailed study in the EIS/EIR, and the basis for the
 32 CSLC rejecting these alternatives.

33 **FINDING FOR SANTA BARBARA CHANNEL/MANDALAY/GONZALES ROAD** 34 **DEEPWATER PORT ALTERNATIVE**

35 Description: The proposed mooring point location is approximately 7.4 NM (8.5
 36 miles or 13.7 km) offshore of Rincon Beach and approximately
 37 midway between two existing oil production platforms in the Santa
 38 Barbara Channel, Platforms Grace and Habitat. The alternative
 39 mooring location would be approximately at latitude 34°14.410'N,
 40 longitude 119°30.916'W and would meet safety criteria because it
 41 would be more than 2.6 NM (3 miles or 4.8 km) from shipping lanes
 42 and existing facilities. It would be approximately 5.8 NM (6.7 miles

1 or 10.7 km) landward from the coastal shipping lanes and more
2 than 4.32 NM (5 miles or 8 km) from the nearest offshore
3 production platform.

4 Pipeline routes connecting an FSRU at this location to the existing
5 SoCalGas facilities at Ormond Beach would be difficult to locate
6 since they would have to either cross or go around Hueneme
7 Canyon. Given the depth and geologic instability in the vicinity of
8 this canyon, the only viable route is south of the canyon. This route
9 would require the pipeline to be located in or near coastal shipping
10 lanes. Therefore, these routes connecting to Ormond Beach were
11 not considered.

12 The most viable pipeline alternative for the Santa Barbara Channel
13 mooring location would be to route the pipeline from the mooring
14 location to the Reliant Energy Mandalay Generating Station shore
15 crossing, north of Port Hueneme, where natural gas facilities
16 already exist. These facilities would require upgrades to
17 accommodate the transfer of the volume of gas being transported
18 onshore. The Mandalay Generating Station is located near Oxnard
19 Shores in Oxnard, and the pipeline would traverse parts of Oxnard.
20 The Reliant Energy Mandalay Generating Station shore crossing is
21 located between McGrath State Beach and Mandalay Beach Park.

22 The offshore pipeline would start at the mooring point in water
23 approximately 265 feet (80.8 m) deep and travel southeast
24 approximately 5.92 NM (6.8 miles or 11 km) southeast to Platform
25 Gilda. The natural gas pipeline would then continue easterly
26 approximately 8.5 NM (9.8 miles or 15.8 km) to the shoreline. This
27 route would generally follow an existing utility ROW before it
28 diverges in State waters and heads to the Mandalay Generating
29 Station.

30 Similar to the proposed Project, it is assumed that the alternative
31 shoreline crossing would be accomplished with HDB. The HDB exit
32 points would be in a water depth of 43 feet (13 m), approximately
33 1.0 NM (1.2 miles or 1.9 km) from the shoreline. The HDB
34 entrance point would be at an unspecified location at the Reliant
35 Energy Mandalay Generating Station shore crossing. The length of
36 the bore would be approximately 1.25 NM (1.4 miles or 2.3 km).

37 From the Reliant Energy Mandalay Generating Station shore
38 crossing, the pipeline would be installed primarily in existing road
39 ROWs. The pipeline would travel north along Harbor Boulevard
40 and turn east at West Gonzales Road. The pipeline would follow
41 West Gonzales Road to East Gonzales Road until Rose Road,
42 where it would meet Center Road Pipeline Alternative 1 at milepost

1 (MP) 8.0 and would follow that route to the Center Road Valve
2 Station.

3 Like the proposed Project, a pipeline would have to be constructed
4 in Santa Clarita along the Line 225 Pipeline Loop. The route
5 through Santa Clarita for this alternative would be the same as the
6 proposed Line 225 Pipeline Loop route.

7 Finding(s): This alternative could meet short- and mid-term natural gas
8 demand. The proposed mooring point location is approximately the
9 same as that of the Ventura Flats alternative site examined in the
10 1978 CCC study of potential offshore LNG terminal sites and
11 technologies. The proposed Project shore crossing at the Reliant
12 Ormond Beach Generating Station is preferable to the Reliant
13 Mandalay Generating Station Shore Crossing because there are
14 many more sensitive species that could be adversely impacted
15 within or adjacent to the latter shore crossing ROW than the former.
16 The Center Road Pipeline is preferable to the Gonzales Road
17 Pipeline because during its construction it would affect fewer
18 people and less traffic would be disrupted on significant
19 thoroughfares.

20 **Facts Supporting the Finding(s)**

21 Located 6.9 NM (7.9 miles or 12.8 km) offshore of Pitas Point in the eastern Santa
22 Barbara Channel, this site was determined by the CCC to be one of the most
23 appropriate sites in California for a floating facility or a gravity-based structure based on
24 the selection criteria described in Section 3.3.7, "Specific California Locations." The
25 CCC determined that this location would be the "most appropriate siting area off the
26 shoreline of California ... [and][o]nly the floating type of offshore LNG terminal could be
27 placed with confidence in this area because it is not dependent on favorable seismic
28 and soil conditions of the sea bottom." The CCC report also notes that "[b]ecause of
29 the site's distance from shore, a floating LNG terminal on the southeast Ventura Flats
30 would have minimal adverse impacts on sensitive marine resources and public
31 recreation along the coast. It would be visible on clear days from about 25 miles (40
32 km) of coastline, but it would look like a large tanker and would be beyond the ten
33 offshore oil production platforms in the area. Another advantage is that there would be
34 a comparatively short underwater gas pipeline to the Oxnard area that would not cross
35 major earthquake faults."

36 While the proposed Project could be built at either location, the proposed Project
37 location is environmentally preferable to the Santa Barbara Channel alternative. For
38 example, the proposed Project FSRU location is farther from land than the Santa
39 Barbara Channel alternative. As a result, this location would have less of a visual
40 impact; fewer potential conflicts with recreational fishers, boaters, marine mammals;
41 and less of an impact on commercial fishing and marine traffic. Although the alternative
42 also poses a greater potential for conflict with the operations of the Navy Sea Range

1 Point Mugu, these impacts can be mitigated by coordination and communication with
2 the Navy.

3 Therefore, the CSLC rejects this alternative because, on balance, it would not avoid or
4 substantially lessen many of the impacts of the proposed Project, and as to onshore
5 related issues such as public safety, it would have greater impacts than the proposed
6 Project.

7 **FINDING FOR CENTER ROAD PIPELINE ALTERNATIVE 1**

8 Description: The Center Road Pipeline Alternative 1 was the proposed route in
9 the original application. This alternative would follow existing utility
10 ROWs and/or public roads as follows:

- 11 • Begin at the new metering station adjacent to the Reliant
12 Energy Ormond Beach Generating Station shore crossing
13 and then run northeast and north along the SoCalGas and
14 Southern California Edison ROW and northeast on Pleasant
15 Valley Road and then north on Rice Avenue;
- 16 • From Rice Avenue, proceed west on Gonzales Road,
17 northeast on Rose Avenue, and under U.S. 101; and
- 18 • From the highway, proceed northeast on Rose Avenue,
19 southeast and northeast on Los Angeles Avenue, north on
20 La Vista Avenue, and west on Center Road to the Center
21 Road Valve Station.

22 Finding(s): The CSLC rejects this alternative because the proposed Project
23 pipeline route is environmentally preferable to Center Road Pipeline
24 Alternative 1 because it would result in fewer impacts to residences
25 and businesses, and the impacts to agriculture and terrestrial
26 biological resources can be mitigated. This alternative was
27 retained for evaluation because it was the route proposed in the
28 original application. The proposed Project pipeline route is
29 preferable because it would result in fewer impacts to residences
30 and businesses, and the impacts to agriculture and terrestrial
31 biological resources can be mitigated.

32 **Facts Supporting the Finding(s)**

33 The Applicant originally proposed Center Road Alternative 1 as the Project. However,
34 during public scoping, many concerns were expressed regarding this route, and the
35 Applicant developed a new Center Road proposed route. In response to comments on
36 the October 2004 Draft EIS/EIR, another proposed Center Road route was developed
37 that avoids passing by Mesa Union School. Center Road Alternative 3 is the former
38 proposed Center Road route described in the October 2004 Draft EIS/EIR. All the other
39 Center Road alternative routes pass adjacent to the Mesa Union School. Although any

1 of the four pipeline alternatives could be built, the proposed Project would avoid many of
2 the construction related disturbances that affect the public because it would be
3 constructed in existing roadways and other ROWs primarily through agricultural areas
4 and it would avoid Mesa Union School.

5 Center Road Alternative 1 is longer and would affect more High Consequence Areas
6 than the proposed route. Since Center Road Alternative traverses more developed and
7 urban areas than the proposed Project, it would have more adverse effects to
8 businesses and residences along the pipeline route during construction due to
9 increased traffic, noise, and vibrations; however there would be fewer impacts to
10 agricultural lands, wetlands, and terrestrial biota. Similar to Center Road Alternative 1,
11 the Gonzales Road Alternative traverses urban and residential areas and has similar
12 effects.

13 **FINDING FOR CENTER ROAD CENTER ROAD PIPELINE ALTERNATIVE 2**
14

15 Description: Alternative 2 would follow existing utility ROWs, public roads,
16 and/or newly acquired easements as described below. This
17 alternative would avoid existing areas of dense residential housing.

- 18 • Begin at the new metering station adjacent to the Reliant
19 Energy Ormond Beach Generating Station shore crossing
20 and then run northeast and north along the SoCalGas and
21 SCE ROW, east on Hueneme Road, north on Naumann
22 Road, west on Etting Road, north on Hailes Road to
23 Pleasant Valley Road, and north along Wolff Road;
- 24 • At the intersection of Wolff and Sturgis Roads, continue
25 north through agricultural fields, cross U.S. 101, and proceed
26 northeast through agricultural fields to Central Avenue;
- 27 • At Central Avenue, head northwest, and in alignment with
28 Beardsley Road, head northeast for approximately 0.25 mile
29 (0.4 km), then northwest along a flood control channel (the
30 Santa Clara Diversion) to Santa Clara Avenue; and
- 31 • Follow Santa Clara Avenue northeast and then continue
32 northeast at Los Angeles Avenue, north at La Vista Avenue,
33 and west at Center Road, to terminate at the Center Road
34 Valve Station.

35 Finding(s): The CSLC rejects this alternative because it would be similar to the
36 pipeline route for the proposed Project, but would not have
37 environmental advantages. This alternative was retained for further
38 evaluation because it avoids most of the population centers in
39 Oxnard and Ventura County and traverses mostly agricultural
40 areas. There are relatively small differences between this pipeline

1 and the proposed route so either pipeline could be environmentally
2 acceptable.

3 **Facts Supporting the Finding(s)**

4 In response to comments on the October 2004 Draft EIS/EIR, a new proposed Center
5 Road route was developed that avoids passing by Mesa Union School. Center Road
6 Alternative 2 passes adjacent to the Mesa Union School.

7 Center Road Alternative 2 poses fewer impacts on businesses; however, this is a minor
8 difference. It crosses several more acres of jurisdictional water bodies. It also follows
9 Pleasant Valley Road for a greater distance, which could have greater traffic impacts.
10 Overall, these are relatively small differences, and either pipeline could be
11 environmentally acceptable.

12 **FINDING FOR CENTER ROAD CENTER ROAD PIPELINE ALTERNATIVE 3**

13

14 Description: Alternative 3 is the former proposed Center Road route described
15 in the October 2004 Draft EIS/EIR. Like the other alternative
16 routes, Alternative 3 would follow existing utility ROWs, public
17 roads, and/or newly acquired easements as described below. This
18 alternative would avoid existing areas of dense residential housing.

- 19 • Begin at the new metering station adjacent to the Reliant
20 Energy Ormond Beach Generating Station shore crossing
21 and then run northeast and north along the SoCalGas and
22 SCE ROW, east on Hueneme Road, north on Naumann
23 Road, west on Etting Road, north on Hailes Road to
24 Pleasant Valley Road;
- 25 • At Pleasant Valley Road, head southwest for approximately
26 1,000 feet (305 m) and then turn north through agricultural
27 fields, cross State Route 34 (5th Street), continue north
28 along Del Norte Boulevard, and cross Sturgis Road to U.S.
29 101;
- 30 • At U.S. 101, travel east along the frontage road, then turn
31 north and cross U.S. 101, then it would proceed northeast to
32 Central Avenue, turn southeast along Central Avenue,
33 northeast along Beardsley Road for approximately 0.25 mile
34 (0.4 km), and northwest along a flood control channel (the
35 Santa Clara Diversion) to Santa Clara Avenue; and
- 36 • Follow Santa Clara Avenue northeast, then continue
37 northeast at Los Angeles Avenue, north at La Vista Avenue,
38 west at Center Road, and terminate at the Center Road
39 Valve Station.

1 Finding(s): The CSLC rejects this alternative because the proposed Project
2 route is preferable in that it avoids passing adjacent to the Mesa
3 Union School; however, Center Road Alternative 3 crosses fewer
4 water features than the proposed Project. This alternative was
5 retained for further evaluation because it avoids most of the
6 population centers in Oxnard and Ventura County; it traverses
7 mostly agricultural areas; and it was one of the formerly proposed
8 routes.

9 **Facts Supporting the Finding(s)**

10 Center Road Alternative 3 is the former proposed Center Road route described in the
11 October 2004 Draft EIS/EIR. Center Road Alternative 3 follows the same route as the
12 proposed Center Road Alternative until the corner of Los Angeles and Santa Clara
13 Avenues where this alternative continues up Santa Clara Avenue and turns on La Vista.

14 **FINDING FOR LINE 225 PIPELINE LOOP ALTERNATIVE**

15 Description: The proposed Line 225 Pipeline Loop Alternative 1 would follow the
16 same route as the proposed route from Quigley Valve Station to
17 MP 4.75, where it would continue northwest on State Route 126
18 (Magic Mountain Parkway). This alternative would veer northwest
19 around MP 5.5, following the SoCalGas ROW and terminating at
20 Honor Rancho Valve Station #9A. It would cross the Santa Clara
21 River at approximately MP 5.7 using an existing pipe bridge.

22 Finding(s): The CSLC rejects this alternative because it would have greater
23 potential impacts to terrestrial biota than the proposed Project. It
24 was retained for further evaluation because the route would be
25 shorter, would traverse open land, and would provide an alternative
26 stream crossing location.

27 **Facts Supporting the Finding(s)**

28 The Line 225 Pipeline Loop Alternative follows the same route as the proposed Line
29 225 Pipeline Loop from MP 0.0 to MP 4.8 and MP 6.8 to MP 7.71 of the proposed route.
30 Line 225 Pipeline Loop is preferred because the alternative would disturb a greater area
31 of jurisdictional water bodies and therefore would have greater potential impacts to
32 terrestrial biota.

33 **FINDING FOR POINT MUGU/CASPER ROAD PIPELINE ALTERNATIVE**

34 Description: The Point Mugu Shore Crossing/Casper Road Pipeline Alternative
35 would cross the Naval Base Ventura County (NBVC) Point Mugu to
36 unincorporated lands in Ventura County. The Navy has not
37 endorsed the Project or guaranteed the final routing of this
38 alternative across Navy property. The HDB exit points would be at
39 latitude 34°6.659'N, longitude 119°9.7612'W. These HDB exit

1 points are in different locations than the ones proposed in the
2 October 2004 EIS/EIR and are closer to the shore crossing.

3 This alternative would also include two 24-inch (0.6 m) pipelines
4 that would extend from the offshore HDB exit points approximately
5 0.8 mile (1.3 km) to the HDB entry points on NBVC Point Mugu.
6 HDB also would be used to install pipelines to a proposed new
7 metering station located approximately 0.8 mile (1.3 km) at the
8 southern end of Casper Road. The two 24-inch (0.6 m) diameter
9 natural gas pipelines would terminate at the metering station.
10 Approximately 1.5 miles (2.4 km) of additional pipeline would be
11 installed from the new metering station to MP 2.4 of the proposed
12 Center Road Pipeline along Hueneme Road. The total pipeline
13 length would be approximately 3.7 miles (6 km). The HDB entry
14 point would be in an area of the NBVC Point Mugu that was
15 previously disturbed. Most construction and maintenance activities
16 would occur on a remote portion of NBVC Point Mugu instead of a
17 public beach.

18 Finding(s): The CSLC rejects this alternative because the proposed Project
19 pipeline route is environmentally preferable. The Point Mugu site
20 offers the benefit of controlled access during the HDB operations
21 and no beach users would be affected. However, construction
22 would need to be scheduled to avoid sensitive species that use the
23 beach, which would be avoided at the Reliant Ormond Beach
24 facility because the land is already disturbed.

25 **FACTS SUPPORTING THE FINDING(S)**
26

27 The Point Mugu Alternatives would be constructed on undeveloped, moderately
28 developed, and agricultural lands. As a result, the Point Mugu shore crossings would
29 have greater potential impacts to sensitive terrestrial biota than at the proposed Project
30 shore crossing location. Construction at the proposed Project or the Point Mugu shore
31 crossing location would not limit access or parking at Ormond Beach.

32 The Point Mugu odorant station and metering station be located outside the Point Mugu
33 facility, which makes it slightly less preferable. The Point Mugu odorant and metering
34 stations would not be guarded. While the risks of an accident involving a release of
35 either the odorant or unodorized natural gas is very small, the secure and secluded
36 nature of the Reliant Ormond Beach station makes it preferable to the Arnold Road or
37 Point Mugu locations. The metering station for the Point Mugu Alternative would be
38 built on agricultural lands and therefore would result in the permanent conversion of
39 agricultural land to non-agricultural uses.

40 Due to their distances from residences and other features, the noise and vibration
41 generated by the Arnold Road and Point Mugu alternatives would have fewer adverse
42 effects that the proposed Project.

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FINDING FOR ARNOLD ROAD SHORE CROSSING/ARNOLD ROAD PIPELINE ALTERNATIVE

Description: The Arnold Road Shore Crossing/Arnold Road Pipeline Alternative would also include two 24-inch pipelines and would begin approximately at the HDB exit points and end at a connection at approximately MP 1.9 of the proposed Center Road Pipeline route at Hueneme Road and Arnold Road. The HDB exit points would be at approximately the same location as the HDB exit points from the Point Mugu Shore Crossing, at latitude 34°6.6779'N, longitude 119°9.967'W.

This alternative would extend from the offshore HDB exit points approximately 1.06 miles (1.7 km) to the HDB entry points located approximately 1,000 feet (305 m) inland from the shoreline, near the end of Arnold Road, on lands in unincorporated Ventura County. From the HDB entry points, HDB also would be used to install the pipeline to the surface facility located approximately 0.6 mile (1.0 km) inland along Arnold Road on previously developed lands. The two 24-inch (0.6 m) diameter natural gas pipelines would terminate at the metering station.

Approximately 1.9 miles (3.1 km) of additional pipeline would be installed, using trenching, from the new metering station to MP 1.9 of the proposed Center Road Pipeline along Hueneme Road. Therefore, the total pipeline ROW length would be approximately 3.2 miles (5.1 km).

Finding(s): The CSLC rejects this alternative because the proposed Project pipeline route is environmentally preferable.

Facts Supporting the Finding(s)

The Arnold Road Alternative would be constructed on undeveloped, moderately developed, and agricultural lands. As a result, the Arnold Road crossings would have greater potential impacts to sensitive terrestrial biota than at the proposed Project shore crossing location. Construction at the Arnold Road Alternative would temporarily limit access to Ormond Beach and parking for recreational beach users, while construction at the proposed Project or the Point Mugu shore crossing location would not limit access or parking at Ormond Beach.

Although the Arnold Road metering station and odorant facility would be fenced, it would not be guarded as it would in its proposed location within the Reliant generating plant site. The Arnold Road odorant and metering stations would not be guarded. While the risks of an accident involving a release of either the odorant or unodorized

1 natural gas is very small, the secure and secluded nature of the Reliant station makes it
2 preferable to the Arnold Road or Point Mugu locations. The metering station for the
3 Arnold Road Alternatives would be built on agricultural lands and therefore would result
4 in the permanent conversion of agricultural land to non-agricultural uses.

5 Due to their distances from residences and other features, the noise and vibration
6 generated by the Arnold Road and Point Mugu alternatives would have fewer adverse
7 effects than the proposed Project.

8 Although the Casper Road and Arnold Road Pipelines that would connect the
9 respective shore crossings with the Center Road Pipeline would both be shorter than
10 the proposed Project, the difference in length is insignificant when the fact that the
11 pipelines would be installed in existing road rights-of-way is considered.

12 For these reasons, the proposed Project is environmentally preferable.

13 **1.6 FINDINGS FOR GROWTH-INDUCING IMPACTS OF THE PROPOSED** 14 **PROJECT**

15 Per the CEQA (section 15126.2(d)), the Final EIR discusses ways in which the
16 proposed Project could foster economic or population growth or induce additional
17 housing, either directly or indirectly, in the surrounding area.

18 Most projects could induce growth in areas they are located. The following summarizes
19 the analysis in the Final EIR:

20 **ECONOMIC/POPULATION GROWTH EFFECTS**

21 The Project will not foster economic or population growth. The Project area is currently
22 served by numerous natural gas suppliers and economic activity is already in place.
23 The demand for energy, as projected by the CEC, is due to existing customer demand
24 and projected regional development. The Project, along with other energy projects,
25 would increase the supply of natural gas to the region to meet this projected need for
26 additional natural gas, but the Project in and of itself would not have induced the
27 projected growth in demand for natural gas. Although the availability of a new or
28 alternate source of natural gas could contribute to stimulating economic or population
29 growth in the area, the natural gas supplied by Cabrillo Port would not be the sole
30 supply of natural gas to the area. Therefore, the additional gas supplied by the
31 proposed Project would not have intrinsic growth-inducing impacts.

32 **EMPLOYMENT EFFECTS**

33 The Project will provide new employment; however, the limited increase in employment
34 is not expected to stimulate the construction of new housing that would result in physical
35 impacts. Construction of the proposed Project would provide temporary employment for
36 up to 200 workers for approximately 35 days for the offshore pipelines. Construction of
37 the offshore pipelines would require up to 200 to 240 workers for approximately nine
38 months.

1 The FSRU would have an operations crew of about 30 persons that would be rotated
2 from Port Hueneme every seven days. No new employees would be required to
3 operate the onshore pipelines.

4 **EFFECTS ON ACCESS TO UNDEVELOPED OR UNDERDEVELOPED AREAS**

5 The Project will not provide access to undeveloped or underdeveloped areas. The
6 Project would not involve the construction of new roads. The Project would use existing
7 rights-of-way and roads.

8 **PUBLIC SERVICE EFFECTS**

9 The proposed Project would not supply natural gas to any area that is previously
10 unserved. The primary result of the Project would be to meet increased energy demand
11 from existing customers.

12 **TAX IMPLICATIONS FOR EXISTING COMMUNITIES**

13 The Project will not tax existing community services. The number of non-local workers
14 would be small relative to current population in the Project area. Given that the
15 additional local work force would be at most 60 workers on alternating weekly work
16 schedules, there would not be the need for new housing or services. Local
17 communities have sufficient infrastructure to meet the needs of non-local workers.

18 **DEVELOPMENT EFFECTS**

19 The Project will not cause development elsewhere, however, the purpose of the
20 proposed Project is to meet anticipated baseload energy demand from existing
21 customers as well as new and expanding businesses within the context of the Southern
22 California economy.

23 **1.7 FINDINGS FOR CUMULATIVE IMPACTS**

24 The State CEQA Guidelines at section 15130 require an analysis of a project's
25 contribution to significant cumulative impacts. Cumulative refers to "two or more
26 individual effects which, when considered together, are considerable or which
27 compound or increase other environmental impacts" (State CEQA Guidelines, section
28 15355).

29 Projects identified in the Final EIR that are considered, in conjunction with the
30 incremental impacts of the proposed Project to add to cumulative impacts include:

- 31 • **OTHER OFFSHORE PROJECTS**

- 32 ○ Channel Islands National Marine Sanctuary Boundary Expansion
- 33 ○ Point Mugu Sea Range Operations
- 34 ○ SOCAL Range Complex
- 35 ○ Port of Los Angeles/Long Beach Expansions

1 • **OTHER ONSHORE PROJECTS**

- 2 ○ Ventura County
- 3 ○ City of Oxnard
- 4 ▪ California State Coastal Conservancy Ormond Beach
- 5 Wetland Restoration Project
- 6 ▪ Salination Management Project
- 7 ▪ Ground Water Recharge Enhancement and Treatment
- 8 Program
- 9 ○ Santa Clarita and Santa Clara River
- 10 ▪ Riverpark Development: Construction of Residential Units
- 11 ▪ Natural River Management Plan
- 12 ▪ Other Projects along the Santa Clara River

13 **1.6.1 Resource-Specific Cumulative Impacts and Significance Levels**

14 The following subsections describe the cumulative effects, and their potential
15 significance, that the proposed Project would have, in combination with the other
16 projects (noted above in Sections 1.6.1, “Other Offshore Projects“ and 1.6.2, “Other
17 Onshore Projects” in the Final EIR), on public safety, marine traffic, aesthetics,
18 agriculture, air quality, marine and terrestrial biological resources, cultural resources,
19 energy resources, geologic hazards, hazardous materials use, land use, noise,
20 recreation, transportation, and water quality and sediments. For those areas in which
21 the proposed Project is described to have an incremental effect that is Class 1, the
22 incremental effect is deemed to be cumulatively considerable, even with imposition of
23 described mitigation measures. For those areas in which the proposed Project is
24 described to have an incremental effect that is Class 2, the incremental effect of the
25 proposed Project is rendered less than cumulatively considerable through the imposition
26 of the described mitigation measures.

27 **PUBLIC SAFETY**

28 Several of the potential cumulative impacts that might affect the safety of the public are
29 addressed elsewhere in this section. For example, if Clearwater Port and OceanWay
30 were licensed and constructed concurrently with the proposed Project, marine traffic
31 would increase, which could lead to a temporary increase in marine accidents that could
32 result in public injuries or fatalities. These potential effects on public safety are included
33 in the discussion of potential cumulative impacts for marine traffic. Similarly, the
34 potential for increased numbers of vehicle accidents is addressed in the transportation
35 discussion.

36 If Cabrillo Port and one or both Clearwater Port and OceanWay projects were built,
37 there could be a simultaneous accident or release related to such pipelines. Since the
38 offshore pipelines for the Cabrillo Port Santa Barbara Channel Alternative and the

1 Clearwater Port project would be in the same pipeline right-of-way, accidents
2 associated with one pipeline could potentially affect the other pipeline.

3 The potential magnitude of that increase has not been quantified, but mitigation
4 measures noted in Section 4.2, "Public Safety: Hazards and Risk Analysis," and
5 Section 4.3, "Marine Traffic," would be expected to keep the estimated annual
6 frequency of such an accident occurring to levels similar to those of the projects
7 individually.

8 The likelihood of an accident occurring at a single deepwater port is low. The increase
9 in the probability of such an accident due to the cumulative impacts of the presence of
10 three deepwater ports (Cabrillo Port, Clearwater Port, and OceanWay) would not
11 measurably increase the potential risks to members of the boating public.

12 The potential for cumulative impacts from simultaneous incidents involving more than
13 one deepwater port—at either the Cabrillo Port proposed location or the Santa Barbara
14 Channel Alternative plus either Clearwater Port or the OceanWay project—would be
15 limited to intentional acts. Mitigating actions by port authorities, the U.S. Coast Guard
16 (USCG), local emergency response agencies, and additional forces or actions that
17 might be deployed using military resources would be expected to limit the potential
18 impacts from such an attack. Incident command strategies for handling multiple
19 incidents would be expected to allocate response resources to first address any
20 situation posing an imminent hazard to public safety or the environment.

21 This might result in allocating more resources to handle emergency conditions closer to
22 shore than the Cabrillo Port FSRU. The incident commander would know that the worst
23 credible case impacts from the release and ignition of LNG on board the FSRU would
24 not extend as close to shore as a potential incident at Clearwater Port. However, the
25 operation of a second or third deepwater port does not create cumulatively greater
26 impacts on public safety compared to the operation of just a single deepwater port in
27 this area but does represent an incremental risk. Although the probability of an offshore
28 incident associated with the proposed Project is very low, such an incident could result
29 in serious injury or fatality to members of the general public. The impacts would still be
30 potentially significant, should an incident occur; therefore, this impact remains
31 significant after mitigation.

32 Onshore, the pipelines from the Cabrillo Port and Clearwater Port would be in separate
33 pipeline corridors, except potentially within approximately 2 miles (3.2 km) of the Center
34 Road Valve Station. However, the route of the Clearwater Port project onshore pipeline
35 corridor is preliminary and could change during its environmental review. The onshore
36 pipeline route for the OceanWay project would be more than 43 miles (69.5 km) from
37 the proposed Center Road Pipeline route. If the Clearwater Port project onshore
38 pipelines were routed in the same corridor as the Center Road Pipeline route, the
39 potential cumulative impacts would be limited to the potential consequences from: (1)
40 intentional damage to one or more natural gas pipelines located close to one another,
41 and (2) initiation of more than one event at different locations along the pipelines.
42 These cumulative impacts would be similar for all Center Road pipeline alternatives,

1 except the Gonzales Road Pipeline Alternative. The Gonzales Road Pipeline
2 Alternative and the Clearwater Port onshore pipelines could be within the same corridor
3 for much of their routes.

4 The impacts on public safety from the rupture of a natural gas pipeline depend on the
5 specific characteristics of the pipeline, e.g., pipe diameter and pipeline pressure.
6 Should more than one pipeline in a particular area be affected, the effects would
7 potentially overlap, but would not likely combine to produce a greater effect.
8 Emergency planning and preparedness efforts involving the Applicant, SoCalGas, and
9 local response agencies would reduce the potential consequences from such an event.
10 The probability of an offshore or onshore pipeline incident associated with the proposed
11 Project is very low. Should such an incident occur, however, the impacts would still be
12 significant, i.e., could cause serious injury or fatality to members of the public.
13 Therefore, this impact would remain significant after mitigation (**Class I**).

14 **MARINE TRAFFIC**

15 The Project would increase maritime traffic in the area. Flight and marine operations at
16 the Point Mugu Sea Range are ongoing, but not continuous (see Section 4.3.1.1).
17 However, Project operations could be adjusted to suit naval operations. Construction of
18 the proposed Project would have to be coordinated daily with the Navy (MM MT-5c) and
19 would be further mitigated by avoiding the Point Mugu Sea Range as much as possible
20 (MM MT-5a), monitoring Navy Securite broadcasts (MM MT-5d) and daily safety
21 briefings (MM MT-5b); therefore, these impacts from Navy operations in conjunction
22 with the construction of the proposed Project would increase traffic temporarily but
23 would be mitigated below the level of significance (**CEQA Class II**). These potential
24 cumulative effects would be slightly less during construction if the Cabrillo Port Santa
25 Barbara Channel Alternative were to be implemented because no portion of the offshore
26 pipeline route would cross the Point Mugu Sea Range. Since neither the OceanWay or
27 Clearwater Port projects' potential pipeline routes would cross the Point Mugu Sea
28 Range, they would not contribute to direct impacts on the Sea Range during
29 construction; however, vessel traffic could temporarily increase.

30 During operations of the proposed Project, Navy operations at the SOCAL Range
31 Complex or Point Mugu Sea Range could increase maritime traffic locally or along the
32 LNG carrier routes or it could cause vessel traffic to temporarily cease along the LNG
33 carrier routes. To mitigate the potential cumulative effects of increased vessel traffic,
34 the Applicant would coordinate with the Navy (MM MT-6c), supply the Navy with the
35 LNG carrier schedule (MM MT-6b), and follow Navy Securite broadcasts (MM MT-6a)
36 (**CEQA Class II**). If the Clearwater Port, OceanWay, and SES Port of Long Beach
37 projects were to be licensed and constructed, LNG carrier traffic would increase through
38 the SOCAL Range Complex or the Point Mugu Sea Range. This increase would
39 coincide with an anticipated increase in vessel traffic to the Ports of Long Beach/Los
40 Angeles, described below.

41 Since no security zones would be required for LNG carriers traveling outside of Federal
42 waters, Navy vessels would not have to take any extraordinary measures when

1 encountering the LNG carriers on the Point Mugu Sea Range. As described in Section
2 4.3.1.1, the Navy conducts over 17,000 activities on the Point Mugu Sea Range
3 annually. LNG carriers bound for each of the proposed LNG facilities would have to
4 transit portions of the Point Mugu Sea Range or the SOCAL complex. To ensure that
5 Navy operations would not be disrupted by the presence of LNG carriers transiting to or
6 from any of the facilities, each Applicant would have to closely coordinate its LNG
7 carrier schedules with the Navy. All of the proposed LNG facilities are proposed to be
8 located outside of the Point Mugu Sea Range and the SOCAL Complex; therefore,
9 operations at the facilities themselves should not interfere with normal Navy operations.

10 The planned expansion of the Port of Long Beach would mean that vessel traffic could
11 increase in the Santa Barbara Channel TSS and along trans-Pacific routes. The
12 cumulative effect of the expansion and the proposed Project on vessel traffic in the area
13 would be a net increase in vessel traffic; however, the Project's contribution would not
14 be significant. LNG carriers bound for the FSRU would not enter the Santa Barbara
15 TSS and Project support vessels would only travel in the Santa Barbara TSS for a short
16 distance while transiting to and from Port Hueneme several times a week. The
17 cumulative impacts of the implementation of the Cabrillo Port Santa Barbara Channel
18 Alternative would be greater and potentially significant because LNG carriers bound for
19 this location would have to cross the Santa Barbara TSS. In addition, these LNG
20 carriers would possibly be surrounded by a security zone within 12 NM (13.8 miles or
21 22.2 km) of shore.

22 All current activities associated with oil and gas leases are included in the marine traffic
23 discussion in Section 4.3, "Marine Traffic." Since most activities associated with oil and
24 gas leases are currently suspended due to pending litigation, it would be speculative to
25 assess their potential cumulative impact on maritime traffic during operations.

26 If the Clearwater Port and OceanWay were licensed, vessel traffic in the area would
27 increase substantially, but temporarily, during the construction phase and would
28 increase on a regular basis during operations involving the transit of LNG carriers and
29 supply vessels, with impacts comparable to the proposed Project. If the proposed
30 Project and either the Clearwater Port or the OceanWay project were to be constructed
31 simultaneously, short-term increases in marine traffic in the region would result. The
32 distance between the proposed Project, OceanWay, and Clearwater Port would be
33 14.66 NM (16.9 mi., 27.2 km) and 28.9 NM (33.3 miles or 53.5 km), respectively. The
34 distance between the shore crossing for the proposed offshore pipeline routes and the
35 Clearwater Port pipelines would be approximately 7 miles (11.3 km) and to OceanWay's
36 shore crossing would be approximately 43 miles (69.5 km); therefore, increased vessel
37 traffic would be in discrete areas.

38 The Port of Hueneme would experience increased vessel traffic since both Clearwater
39 Port and the proposed Project or the Cabrillo Port Santa Barbara Channel Alternative
40 would use it. The OceanWay project is not likely to use Port Hueneme. If the proposed
41 Project were to be constructed at either offshore location, it would have significant
42 adverse long-term impacts that would be mitigated through MT-7a, MT-7b, and MT-7c.

1 The Clearwater Port project is likely to have similar impacts and would have to
2 implement similar mitigation measures to reduce potential cumulative impacts.

3 In contrast to the proposed Project, construction of Clearwater Port would not involve
4 installation of a pipeline across the vessel traffic separation scheme. Since vessel
5 traffic would increase if the two projects were constructed simultaneously, potential
6 cumulative impacts would be significant (**CEQA Class II**); however, implementation of
7 the construction-related mitigation measures (MT-1a through -1g) would reduce the
8 potential cumulative impacts to a level below the impact's significance criteria.

9 If the Cabrillo Port Santa Barbara Channel Alternative and the Clearwater Port project
10 were constructed simultaneously, vessel traffic in the vicinity of Platform Grace would
11 temporarily increase substantially. Since the pipelines from both projects would likely
12 be installed in the same existing pipeline right-of-way, the risk of vessel collisions would
13 increase due to the proximity of the projects. Close coordination would be required if
14 this alternative and the Clearwater Port were to be constructed simultaneously.
15 Implementation of the construction-related mitigation measures (MT-1a through -1g)
16 would reduce the potential cumulative impacts, but the impacts would be moderate
17 adverse and temporary (**CEQA Class II**).

18 If the three offshore LNG projects (Cabrillo Port, Clearwater Port, and OceanWay) were
19 to operate simultaneously, LNG carrier traffic in the area would increase. The LNG
20 carrier routes for the OceanWay and Clearwater Port projects are preliminary and could
21 change during the environmental review process. The OceanWay project would receive
22 LNG from Australia; therefore, the routes would likely be trans-Pacific and would not
23 approach closer to shore than the facility (22 miles offshore Los Angeles). Since
24 Clearwater Port could be receiving LNG from Alaska, Southeast Asia, or the Middle
25 East, the exact route that the LNG carriers would take to approach the Port is unknown.
26 Any LNG carrier approaching it would either have to travel in the Santa Barbara TSS or
27 cross it. Given the location of Clearwater Port (10.9 NM [12.6 miles or 20.3 km]
28 offshore), a security zone could possibly surround any LNG carrier approaching this
29 facility once it were within 12 NM (13.8 miles or 22.2 km) of shore; this could cause a
30 temporary disruption in vessel traffic in the TSS. LNG carriers destined for Cabrillo Port
31 or OceanWay would not enter the TSS or have security zones surrounding them
32 because these carriers would not enter Federal waters.

33 If an LNG terminal were built at the Port of Long Beach, LNG carriers could use vessel
34 approach routes similar to those for the proposed Project to enter the vessel traffic
35 separation scheme. Assuming that the LNG carriers to the Port of Long Beach would
36 either have a trans-Pacific or south to north route, Project LNG carriers may have
37 overlapping routes in the southern Channel Islands. LNG carriers destined to
38 Clearwater Port also could use this route. Due to the possibility that security zones
39 could surround each LNG carrier in Federal waters, vessel traffic could be disrupted
40 regularly with the approach of multiple LNG carriers to the vessel traffic separation
41 scheme. Cumulative impacts would be significant but mitigable (**CEQA Class II**) with
42 coordination of LNG carrier approaches with the Captain of the Port of Los
43 Angeles/Long Beach.

1 AESTHETICS

2 Offshore

3 The presence of vessels and platforms in the Pacific Ocean off the coast of California is
4 not new; the presence of LNG carriers, however, would be new but would be similar to
5 other large ships that currently traverse the area (see Section 4.4, "Aesthetics"). Large
6 numbers of ocean vessels, naval ships, and recreational ships traveling to and from the
7 ports of Long Beach, Los Angeles, San Diego, Hueneme, and San Francisco travel
8 along the coast during the day and night. From the nearest point on the coast, Platform
9 Grace is about 10.9 NM [12.6 miles or 20.3 km] offshore and 28.9 NM (33.3 miles or
10 53.5 km) from the proposed FSRU and would not contribute to cumulative aesthetic
11 impacts. However, if Clearwater Port were approved, Platform Grace would continue to
12 be used, and auxiliary docking structures would be added to the platform. In addition,
13 one or more LNG carriers would regularly be docked at the facility. Therefore, the
14 presence of Platform Grace would continue to have a long-term aesthetic impact in the
15 region as a whole. The OceanWay project would be approximately 22 miles offshore
16 and 14.66 NM (16.9 miles or 27.2 km) from the FSRU; therefore, it would also have a
17 long-term aesthetic impact on the region because a vessel would be present the
18 majority of the time.

19 No known offshore projects would be constructed simultaneously with the installation of
20 the Cabrillo Port FSRU and the offshore pipelines. AM BioMar-3a would reduce the
21 potential effects of lighting associated with construction and installation of the FSRU to
22 a level that is less than the significance criteria. Therefore, the cumulative effect of
23 temporary lighting associated with offshore construction would be a **CEQA Class II**
24 impact. Once installed, the FSRU would be lit at night, as would large vessels transiting
25 the Santa Barbara TSS. Onshore residents are accustomed to the presence of vessels
26 at night in the TSS. The cumulative impact of the presence of the FSRU and vessels
27 transiting the TSS would be mitigated by AM BioMar-3a and the transitory nature of the
28 transiting vessels (**CEQA Class II**).

29 The long-term presence of the Cabrillo Port FSRU is identified as a CEQA Class I
30 impact for aesthetics associated with the visual expectations of some recreational
31 boaters such as whale watchers who travel near it (see Section 4.4, "Aesthetics"). No
32 mitigation measures would reduce this impact to a level that is less than the significance
33 criteria. The presence of the FSRU in conjunction with permanent changes to Platform
34 Grace from Clearwater Port project (28.9 NM [33.3 miles or 53.5 km] from the Cabrillo
35 Port Project) and the OceanWay project (14.66 NM [16.9 miles or 27.2 km] from the
36 Cabrillo Port Project) is considered a significant regional cumulative aesthetic impact for
37 which no mitigation exists (**CEQA Class I**). Implementation of the Cabrillo Port Santa
38 Barbara Channel Alternative would have similar cumulative aesthetics impacts, but it
39 could be considered incrementally greater than the proposed Project because it would
40 be located only 5.01 NM (5.77 miles or 9.28 km) from the proposed Clearwater Port
41 project.

1 **Agriculture and Soil**

2 According to the California Department of Conservation, the results of farmland
3 mapping in Ventura County from 2000 to 2002 resulted in the reclassification of 2,011
4 acres (814 ha) of agricultural land, mostly for urban uses. Urban acreage increased by
5 2,557 acres (1,035 ha). Data from 1990 to 2002 indicate a net increase of more than
6 11,800 urban acres (4,775 ha) and a decline of almost 8,700 farmland acres (3,521 ha).
7 City reports show that an additional 7,500 acres (3,035 ha) is committed to future non-
8 agricultural use (California Department of Conservation 2004).

9 The Clearwater Port would have effects similar to those of the proposed Cabrillo Port
10 Project. Assuming that similar construction techniques are used as are proposed for
11 the Cabrillo Port Project, the Clearwater Port onshore pipeline would likely be installed
12 in some agricultural lands, but these areas would only be disturbed temporarily. It is
13 uncertain whether there would be any permanent conversion of agricultural lands for
14 permanent facilities; however, any conversion of agricultural land for the Clearwater
15 Port project is likely to be similar to the proposed Project. The proposed Project in
16 Ventura County would permanently convert less than 1 acre of Prime Farmland soils
17 from agricultural to non-agricultural uses. Many of the proposed and pending
18 development projects in Oxnard and Ventura County, such as the Ormond Beach
19 Specific Plan, also could convert agricultural land to non-agricultural uses. Conversion
20 of soils classified as either Prime Farmland or Soils of Statewide Importance is
21 considered a significant impact; therefore, the combined impacts of the Project with the
22 potential of conversion of these types of soils with the Clearwater Port project and other
23 development projects in Oxnard and Ventura County would have a significant
24 cumulative impact on agricultural soils (**CEQA Class I**).

25 The cumulative impacts of the Center Road Pipeline Alternatives 1, 2, and 3 and the
26 Santa Barbara Channel/Mandalay Shore Crossing/Gonzales Road Pipeline Alternative
27 would have similar impacts as those of the proposed Project; however, the cumulative
28 impacts of the implementation of either the Point Mugu Shore Crossing/Casper Road
29 Pipeline and the Arnold Road Shore Crossing/Arnold Road Pipeline would have slightly
30 greater impacts on agriculture because a larger acreage of agricultural land would be
31 converted to non-agricultural use. All of these alternatives would have **CEQA Class I**
32 impacts due to the conversion of the agricultural land to non-agricultural use. Similar to
33 the proposed Line 225 Pipeline Loop, the Line 225 Pipeline Loop Alternative would not
34 have adverse impacts on agricultural lands and would not contribute to cumulative
35 effects.

36 **AIR QUALITY**

37 **Clearwater Port LNG Importation Facility and OceanWay LNG Importation Facility**

38 If either the Clearwater Port project or the OceanWay project were approved, the
39 facilities would emit air pollutants during construction and normal operation. Since the
40 quantity and locations of these emissions have not been quantified, it is not possible to
41 fully characterize associated air quality impacts. Potentially significant cumulative

1 regional air quality impacts due to the Clearwater Port and the Cabrillo Port Project at
2 either the proposed location or the Santa Barbara Channel/Mandalay Shore
3 Crossing/Gonzales Road Pipeline Alternative could be expected. Cumulative impacts
4 from the proposed Project and the Clearwater Port or the OceanWay project could have
5 significant adverse effects on air quality in Ventura and Los Angeles counties unless
6 sufficient emission reductions were identified. However, the exact nature of these
7 cumulative impacts is difficult to determine because an air quality analysis comparable
8 to that done for the proposed Project has not yet been performed for the Clearwater
9 Port project or the OceanWay project.

10 The proposed Project, if constructed at either the proposed or alternative offshore
11 location, would cause significant adverse effects during construction in Ventura County
12 (**CEQA Class I**). If the Clearwater Port project were constructed simultaneously, it is
13 likely to contribute further to the degradation of air quality in Ventura County.
14 Simultaneous construction during the OceanWay project is not likely to contribute
15 adversely to air quality in Ventura County because it would cross Los Angeles County
16 waters at a sufficient distance that the contribution is likely to be negligible.

17 **Onshore Residential and Commercial Development**

18 Residential and commercial development is planned for Oxnard and Santa Clarita. If
19 these developments were to occur concurrently with the proposed Project, local air
20 quality could be temporarily diminished. However, the air quality analyses conducted
21 for the Project indicate that significant air quality impacts would occur only in close
22 proximity to construction activities. Therefore, the cumulative impacts of the Cabrillo
23 Port Project or any of the onshore alternatives with concurrent residential and
24 commercial development immediately adjacent to pipeline construction potentially would
25 have significant adverse air quality impacts (**CEQA Class I**).

26 **Greenhouse Gas Emissions**

27 The Cabrillo Port Project or any of the onshore or offshore alternatives would generate
28 emissions of greenhouse gases that contribute to global warming. The majority of
29 emissions of greenhouse gases would be carbon dioxide (CO₂). Project operations
30 would cause annual CO₂ emissions of 0.33 million tons per year (MMtons/yr). Start-up
31 and construction activities would result in one-time CO₂ emissions of 0.010 MMtons and
32 0.017 MMtons, respectively. These emissions represent less than 0.08 percent of the
33 431 MMtons of CO₂-equivalent greenhouse gas emissions produced in California in
34 2004 (CEC 2006). The greenhouse gas emissions from the Project would be
35 insignificant alone, but could exacerbate, in combination with existing or other proposed
36 projects, global warming effects.

37 **BIOLOGICAL RESOURCES – MARINE**

38 **Marine Mammals**

39 Potential cumulative impacts from the proposed Cabrillo Port Project in conjunction with
40 other offshore projects include the effects of additional vessel or aircraft noise on marine

1 mammals. Ships traveling throughout the area may produce sufficient underwater noise
2 to cause changes in certain whale behavior. According to Carretta et al. (2002),
3 increasing levels of man-made noise in the world's oceans has been suggested to be a
4 habitat concern for whales and particularly for baleen whales, which may communicate
5 using low-frequency sound. Such sounds may not only affect communications but also
6 may cause whales to divert from normal migration paths or to stop feeding or
7 reproductive activities. The sounds may also reduce the abilities of marine mammals
8 and sea turtles to detect prey or predators and, in the case of odontocetes, the ability to
9 navigate.

10 Cabrillo Port would be 3.54 NM (4.1 miles or 6.6 km) from the southern boundary of the
11 Point Mugu Sea Range and therefore activities that occur at the Port could contribute to
12 cumulative effects within the Sea Range because the FSRU's zone of noise influence
13 (the distance from the FSRU that noise generated at FSRU would attenuate to
14 background) would extend more than 3.54 NM (4.1 miles or 6.6 km) under some
15 operation conditions (see Section 4.14, "Noise and Vibration"). Naval vessels at the
16 Point Mugu Sea Range or commercial vessels transiting the area may temporarily
17 disrupt whale migrations or feeding. Other activities at the Point Mugu Sea Range are
18 described above and were considered in the U.S. Navy's EIS for the Point Mugu Sea
19 Range (U.S. Navy 2002). Studies associated with these projects indicate that these
20 activities would not have noise impacts on marine mammals. The proposed Project
21 would increase noise temporarily in the immediate Project site during construction
22 activities. The incremental contribution of the proposed Project would not increase the
23 cumulative effects of noise on marine mammals. Implementation of AM BioMar-9a and
24 AM BioMar-9b, which would ensure that offshore construction activities would occur
25 outside the gray whale migration season and that all construction and operational
26 vessels would carry two qualified marine mammal monitors, would further ensure that
27 the Project's contribution to the cumulative effects would be reduced below the
28 significance criteria for marine mammal impacts (**CEQA Class II**).

29 If the proposed Clearwater Port were licensed and constructed, vessel traffic and noise
30 associated with vessel traffic and operations of the facility would increase; however, the
31 potential contribution of the proposed Cabrillo Port Project would be reduced to below
32 its significance criteria through the use of marine mammal monitors (**CEQA Class II**).
33 Since Clearwater Port would be constructed at Platform Grace, the area already has
34 vessel traffic servicing the platform and noise from operations on the platform. The
35 exact change in vessel traffic and noise is not known at this time. However, the
36 greatest effects of increased noise would be during marine mammal migration.
37 Construction activities would represent a significant increase in noise over a short
38 period of time. To avoid the potential adverse effects on marine mammals, the
39 proposed Cabrillo Port Project would not be constructed during the gray whale migration
40 season. Any increase in vessel traffic increases the potential risk of vessel/marine
41 mammal collision. Through implementation of marine mammal monitoring during
42 construction and operations, the risk of potential collisions would be reduced to a level
43 less than its significance criteria. It is also presumed that Clearwater Port would be
44 required to implement similar measures.

1 Because the Santa Barbara Channel/Mandalay Shore Crossing/Gonzales Road
2 Pipeline Alternative would be located in the Santa Barbara Channel, impacts on marine
3 mammals would be greater than with the proposed Cabrillo Port Project. Section
4 4.7.5.1 describes the marine mammals that feed, migrate through, and inhabit this area.
5 Due to the greater concentration of marine mammals in this area, the potential for
6 impacts on marine mammals during construction and operation activities would be
7 greater than the proposed Project location and would be adverse. The impacts could
8 be reduced through the implementation of MM BioMar-3b, MM BioMar-3c, MM NOI-1a,
9 MM BioMar-5a, MM BioMar-5b, and MM BioMar-5c, but the impact would be **CEQA**
10 **Class I**. This alternative would have a greater potential contribution to cumulative
11 impacts on marine resource than the proposed Project location. Since the Clearwater
12 Port project would have the same offshore pipeline corridor as the Cabrillo Port Santa
13 Barbara Channel Alternative, simultaneous construction of these two projects could
14 result in temporary adverse cumulative effects on marine resources in this area.

15 The impacts from offshore pipeline components of the Point Mugu and Arnold Road
16 shore crossing alternative would be similar to the proposed offshore pipeline route;
17 therefore, the contribution to cumulative impacts on marine mammals would be the
18 same as for the proposed offshore pipeline route.

19 **Benthic Habitats and Communities**

20 The impacts from offshore pipeline components of the Point Mugu and Arnold Road
21 shore crossing alternative would be similar to the proposed route of the offshore
22 pipelines; therefore, the contribution to cumulative impacts on benthic habitats would be
23 the same as for the proposed offshore pipeline route. If the Cabrillo Port Santa Barbara
24 Channel Alternative and the Clearwater Port project were to be constructed
25 simultaneously, then the impacts to the benthic habitat would be greater and
26 concentrated along the same pipeline corridor. This impact would be potentially
27 adverse but temporary (**CEQA Class II**)

28 **Marine Birds**

29 A number of seabird species are known to be attracted to bright lights at night. Such
30 animals sometimes collide with lighted objects, causing them to become stunned,
31 injured, or killed. When they are stunned or injured, they generally fall back into the
32 water, where they fall prey to other seabirds such as gulls and other predators.
33 Xantus's murrelet (*Synthiloboramphus hypoleucus*), a threatened species under the
34 California ESA and a Federal candidate, may be subject to offshore lighting impacts.
35 However, studies indicate very low mean densities of Xantus's murrelet (between 0.04
36 and 0.1 birds/km²) offshore in the California Cooperative Oceanic Fisheries
37 Investigations sampling around the Channel Islands. Night-foraging storm petrels and
38 alcids may also be subject to offshore lighting impacts, including the ashy storm petrel
39 (*Oceanodroma melania*) and the rhinoceros auklet (*Cerorhinca monocerata*), which are
40 California species of special concern. Studies show that rhinoceros auklets are found
41 offshore between 0.02 and 0.14 bird/km².

1 Seabirds are highly mobile and would be expected to temporarily leave any area where
2 construction activities are occurring. Generally, they are expected to return to the area
3 immediately after construction activities have ceased. Because of its remote location,
4 the lighting from the FSRU may be seen from shore or from the Channel Islands only on
5 clear nights. The required beacon light would be less visible than the lighting on
6 offshore platforms, including Platform Grace (Clearwater Port), in the Cabrillo Port
7 Santa Barbara Channel. In addition, commercial vessels transiting the Project area at
8 night are also lit. The cumulative impact on marine birds is expected from the proposed
9 Project would be minimal when considered together with the known effects of other
10 projects in the area (**CEQA Class II**).

11 **BIOLOGICAL RESOURCES – TERRESTRIAL**

12 **Coastal Zone and Oxnard Plain**

13 The location of the Clearwater Port pipeline shore crossing is preliminary and may
14 change during environmental review; however, the onshore component (staging and
15 drilling equipment) is anticipated to be at the Reliant Energy Mandalay Generating
16 Station. Either horizontal directional drilling (HDD) or HDB would be used to minimize
17 potential adverse effects. Drilling equipment would likely be staged at the Reliant
18 Energy Mandalay Beach Generating Station to avoid disturbance to dunes along the
19 shoreline on Mandalay Beach. The onshore pipeline of the Clearwater Port project
20 would cross the Coastal Zone and Oxnard Plain. From Mandalay Beach, the pipeline to
21 the Center Road Valve Station is anticipated to follow existing ROWs. Potential impacts
22 during pipeline installation or HDD/HDB activities could be an increase in sedimentation
23 and erosion, disturbance of special status bird nesting or other sensitive habitat, direct
24 impact on a special status species potentially occurring within the Clearwater Port
25 project footprint, and temporary or permanent changes to wetlands.

26 For the Cabrillo Port Project, the Applicant would implement a Drilling Fluid Release
27 Monitoring Plan to reduce impacts on biological resources. Impacts on wildlife would be
28 temporary and mitigated to levels below the impact's significant criteria (**CEQA Class II**)
29 through surveys and monitoring measures. Since the shore crossing for the Clearwater
30 Port project is about 7 miles (11.3 km) from the Project's Ormond Beach shore crossing
31 and the effects of the HDD/HDB activities would be temporary, and because both
32 projects would need to adhere to permitting requirements, there would be no anticipated
33 geographically overlapping effects on biological resources on the respective beaches or
34 species that frequent both beaches. It is assumed that Clearwater Port's impacts and
35 mitigation measures would be similar to those for the Cabrillo Port Project. Cabrillo
36 Port's incremental contribution to cumulative impacts on beach habitat and species that
37 use that habitat would be considered negligible. Both shore crossings for the
38 Clearwater Port project and the Cabrillo Port Santa Barbara Alternative would be at the
39 Reliant Energy Mandalay Beach Generating Station; therefore, simultaneous
40 construction of these projects would result in greater potential cumulative impacts.

41 In general, pipeline installation on the Oxnard Plain for both projects would be through
42 developed or agricultural areas. However, the route of the proposed Clearwater Port

1 onshore pipeline is preliminary and could change during the environmental review
2 process. The pipelines could converge near or at the Central Valve Station. The
3 onshore pipeline associated with Clearwater Port could transit tree rows, wetlands, or
4 near special status species. Both the Cabrillo Port and Clearwater Port onshore
5 pipelines would require permits to cross any stream or wetlands; such permits would
6 stipulate necessary mitigation. Any cumulative effects on terrestrial biological resources
7 in the Oxnard Plain would be reduced below the level of the significance criteria through
8 implementation of mitigation measures such as tree avoidance and replacement (MM
9 TerrBio-2g); riparian avoidance and restoration (MM TerrBio-2f); avoidance and
10 reduction of impacts on wetlands (MM TerrBio-3a); and pre-construction surveys of
11 special status plants (AM TerrBio-2a).

12 Most of the proposed residential, commercial, and industrial projects in Oxnard are in
13 previously developed areas or agricultural land and are therefore not anticipated to
14 adversely affect terrestrial biological resources as long as best management practices
15 (BMPs) are employed. No potential cumulative effects on terrestrial biological
16 resources would result from these known developments in conjunction with the
17 proposed Project. The one exception is the Ormond Beach Specific Plan, which
18 involves the development of a 920-acre community that extends from Edison Drive on
19 the west to Olds and Arnold Road on the east, West Pleasant Valley Drive on the north
20 and the Pacific Ocean to the south. A plan and an EIR are being developed for this
21 project; therefore, it is not possible to speculate about its potential impacts at this time.

22 Parts of Ormond Beach are designated critical habitat for western snowy plover, but
23 potential impacts on plover critical habitat would be avoided by the use of HDB. At
24 Ormond Beach, the Coastal Conservancy has acquired land and plans to acquire
25 additional property for a wetland restoration project. The feasibility study for this project
26 is under way. The Coastal Conservancy Wetland Restoration Project, if implemented,
27 would have a net positive effect on the biological resources at Ormond Beach in that
28 wetlands and habitat would be restored, so that area would be more attractive to wildlife
29 resources. To ensure that the proposed Project does not adversely affect the Coastal
30 Conservancy Project, HDB would be used to install pipelines underneath Ormond
31 Beach without disturbing the beach surface. In addition, all construction activities would
32 occur on the Reliant Energy Ormond Beach Generating Station property. Since the
33 proposed Project would not have adverse effects on the Ormond Beach wetlands and
34 the Coastal Conservancy's Wetland Restoration Project would be beneficial to Ormond
35 Beach wetlands, the cumulative effects of both projects would be a net benefit to
36 wetlands on Ormond Beach, if all Project mitigation measures were implemented.

37 In general, the Gonzales Road Pipeline Alternative has impacts similar to the proposed
38 Center Road Pipeline, with the following exceptions. This alternative would be likely to
39 adversely affect Ventura marsh milk-vetch, a Federal and State endangered species.
40 Therefore, this alternative's cumulative impact on Ventura marsh milk-vetch would be
41 potentially major and would be considered larger than the proposed action's contribution
42 to cumulative impacts. This alternative would cross fewer wetland features than the
43 proposed Project pipeline route, suggesting that the use of this alternative would
44 contribute fewer cumulative impacts on wetlands. The impacts from the Clearwater Port

1 project onshore pipeline routes could be similar to the Gonzales Road Pipeline
2 Alternative because the shore crossings would likely be in similar locations and would
3 both be on the west side of Oxnard; however, the exact location of the Clearwater Port
4 onshore pipeline route is not known.

5 Center Road Pipeline Alternatives 1, 2, and 3 have impacts similar to the proposed
6 Center Road Pipeline, with the following exception. Center Road Pipeline Alternatives 1
7 and 2 cross slightly fewer wetland features; therefore, they would have a smaller
8 contribution than the proposed route to cumulative impacts on wetlands.

9 The Point Mugu Shore Crossing/Casper Road Pipeline route and the Arnold Road
10 Shore Crossing/Arnold Road Pipeline alternative have impacts similar to the proposed
11 Center Road Pipeline, with the following exception. In contrast to the proposed shore
12 crossing in which all the HDB drilling equipment would be staged at the Ormond Beach
13 Reliant Energy Generating Station, the HDB drilling equipment would be staged in
14 areas immediately adjacent to suitable habitat for the saltmarsh bird's beak, a Federal
15 and State endangered plant. These alternatives would likely to adversely affect
16 saltmarsh bird's beak; therefore, these alternative's contribution to cumulative impacts
17 on saltmarsh bird's beak would be greater than that of the proposed Center Road
18 Pipeline.

19 **Santa Clara Valley**

20 Potentially significant cumulative impacts associated with residential and commercial
21 development in the City of Santa Clarita would include a loss of riparian habitat;
22 disturbance to species using the area; disturbance of approximately 1.3 miles (2.1 km)
23 of designated and proposed critical habitat for the California Coastal Gnatcatcher; and
24 effects on habitat for the unarmored three-spine stickleback, least Bell's vireo, arroyo
25 toad, and western spadefoot toad. Known future development projects along the Santa
26 Clara River and San Francisquito Creek would include mitigation measures to avoid or
27 reduce impacts, but the residential and commercial projects would still result in a net
28 loss of biological resources and habitat that could support sensitive species. The
29 construction and installation of the proposed Project pipeline could add to the loss of
30 habitat along the Santa Clara River and San Francisquito Creek.

31 Mitigation measures have been developed to reduce or minimize the loss of riparian
32 habitat, including tree avoidance and replacement (MM TerrBio-2g), and riparian
33 avoidance and restoration (MM TerrBio-2f). Other measures would ensure that
34 construction avoids, minimizes, or reduces wetland impacts (MM TerrBio-3a) and
35 avoids impacts on special status plants through pre-construction surveys (AM TerrBio-
36 2a), a biological resources mitigation and monitoring plan (AM TerrBio-2b), an
37 employee environmental education (AM TerrBio-2c), biological monitoring (AM TerrBio-
38 2d), and confining activities to identified ROWs (AM TerrBio-2e). Lastly, construction
39 activities could impact sensitive animal species. The previously cited employee
40 environmental awareness and biological monitoring programs, along with pre-
41 construction surveys (MM TerrBio-5a), would protect wildlife during construction.

1 Construction activities would contribute a relatively small and temporary cumulative
2 impact.

3 If the Line 225 Loop Pipeline Alternative were implemented, impacts on special status
4 species and wetlands would be similar to the proposed Line 225 Loop Pipeline route,
5 suggesting that the use of this alternative would have a contribution to cumulative
6 impacts on terrestrial biological resources similar to the proposed route.

7 It is not known what the contribution of the Clearwater Port project would be in Santa
8 Clarita, but based on the Bisi testimony it is assumed that similar construction may be
9 required in this system. (See Section 3.3.12.2 for a discussion of necessary expansions
10 to the SoCalGas receiving facilities in Santa Clarita Valley.) The application for the
11 Clearwater Port project that has been filed under the DWPA is currently under review by
12 the agencies and has not been deemed complete, has not been confirmed by the
13 agencies, and does not provide sufficient detail to allow evaluation of terrestrial
14 biological resources in Santa Clarita. Therefore the lead agencies have determined that
15 information from the application should not be relied upon or cited in the cumulative
16 analysis of the Cabrillo Port Final EIS/EIR. However, to provide information for
17 disclosure and comparison of this project under the CEQA, the cumulative analysis
18 uses information on the Clearwater Port project that is available on the Clearwater Port
19 public website, the California Energy Commission website, and other sources available
20 to the general public.

21 **GEOLOGIC RESOURCES**

22 The Project is expected to temporarily increase sedimentation and erosion. After being
23 disturbed, sediments would be deposited at or near their original location. Since these
24 effects would be highly localized and limited primarily to the construction period,
25 cumulative impacts on geologic resources would only occur if other projects were
26 constructed at the same time and in the same location as the proposed Project facilities.
27 If other terrestrial development/construction projects occur at the same time or near the
28 same area, increased sedimentation could result. This cumulative impact would be
29 minimized, however, by ensuring that the pipeline location and burial depth minimizes
30 areas of sediment transport (AM GEO-6a). Consequently, potential cumulative impacts
31 on geologic resources would be reduced to a level below the significance criteria
32 (**CEQA Class II**).

33 No known project would occur simultaneously at the proposed Project or alternative
34 shore crossing locations. However, the shore crossings for the Clearwater Port project
35 and the Cabrillo Port Santa Barbara Channel Alternative would both occur at the
36 Mandalay Beach Generating Station. The potential of worsening existing unfavorable
37 geologic conditions and the potential effects due to the Project or its alternatives would
38 be mitigated through the implementation of AM GEO-1a (drilling location), MM GEO-1b
39 (backfilling, compaction, and grading), MM WAT-3a (drilling fluid release plan) and AM
40 TerrBio-1a (erosion control) (**CEQA Class II**). It is assumed that Clearwater Port would
41 implement similar mitigation measures to minimize any potential effects to geological
42 resources. The cumulative effects of onshore and offshore alternatives would be similar

1 to the proposed Project, and the same mitigation measures would apply. However, the
2 offshore pipeline component of the Cabrillo Port Santa Barbara Channel/Mandalay
3 Shore Crossing/Gonzales Road Pipeline Alternative would be located in the same
4 pipeline corridor as the proposed Clearwater Port project offshore pipelines; therefore,
5 construction of both simultaneously could contribute to adverse cumulative effects due
6 to increased sedimentation in the same area.

7 The cumulative effects of major geologic events would be locational and event-specific.
8 An earthquake, mass movement of soil, tsunami, or other geologic events could
9 damage the FSRU, the offshore pipelines, or the onshore pipelines and facilities. The
10 Applicant has sought to avoid active earthquake faults and other areas where geological
11 events could occur and has incorporated engineering design features to limit the
12 potential damage to the facilities (AM GEO-3b, and AM GEO-6a). Mitigation measures
13 MM GEO-3c and MM GEO-3d would further reduce the potential for adverse effects.

14 Construction of the proposed Cabrillo Port Project or any of its alternatives could add to
15 loss of fossil resources as a result of surface-disturbing activities associated with
16 existing and reasonably foreseeable projects. However, if significant paleontological
17 resources were identified at any time, construction would be diverted to avoid affecting
18 these resources (**CEQA Class II**). Implementation of MM GEO-2a, inspection prior to
19 excavation in areas with potential for paleontological resources, would minimize the
20 potential impact to a level less than the significance criteria and therefore would not
21 contribute to cumulative geological resources impacts. The type of construction
22 necessary to install the Clearwater Port onshore pipeline could also add to loss of fossil
23 resources in the region, as would most residential, commercial, and industrial projects
24 where a foundation is dug or a subterranean parking structure is installed. It is
25 assumed that most permitted construction activities would be required to implement
26 similar mitigation measures as those proposed for the Cabrillo Port Project to ensure
27 that potential impacts to fossil resources are reduced.

28 **HAZARDOUS MATERIALS**

29 During construction, the proposed Project or any of the alternatives could add to
30 cumulative impacts in the region through potential releases of small quantities of fuels
31 or hazardous materials, or through the potential unearthing contaminated sites in the
32 offshore area. The area of the proposed Cabrillo Port or the Santa Barbara
33 Channel/Mandalay Shore Crossing/Gonzales Road Pipeline Alternative is used by
34 military, commercial, fishing, and recreational vessels, all of which can potentially
35 release hazardous materials or small quantities of petroleum products. The proposed
36 expansions at the Port of Los Angeles/Long Beach and the development of the
37 Clearwater Port or the OceanWay project could increase maritime traffic in the region
38 and thereby increase the potential for additional pollution. It is not possible to quantify
39 the amount of increased pollution that would occur, but the contribution of either the
40 proposed Cabrillo Port or the Santa Barbara Channel/Mandalay Shore
41 Crossing/Gonzales Road Pipeline Alternative to the cumulative effect of hazardous
42 materials impacts offshore would be small, given that laws and regulations concerning
43 hazardous materials would be adhered to and that measures MM HAZ-2a, MM HAZ-2b,

1 and MM WAT-3a would minimize the potential of a release during construction and
2 operations.

3 The net increase in vessel traffic would result in a greater potential for a spill, thus
4 increasing potential cumulative hazardous materials impacts of the Project at either the
5 proposed Cabrillo Port location or the Santa Barbara Channel/Mandalay Shore
6 Crossing/Gonzales Road Pipeline Alternative location and other projects. If the Cabrillo
7 Port Santa Barbara Channel/Mandalay Shore Crossing/Gonzales Road Pipeline
8 Alternative and the Clearwater Port project were both licensed and built, the density of
9 vessel traffic in the Santa Barbara Channel and near the platforms would increase and
10 thus would contribute to potentially greater cumulative hazardous materials impacts.
11 The contribution from the proposed Cabrillo Port or the Cabrillo Port Santa Barbara
12 Channel/Mandalay Shore Crossing/Gonzales Road Pipeline Alternative, with the
13 exception of potential spills of diesel fuel, would be mitigated to less than the
14 significance criteria and all other releases would be regulated under international,
15 Federal, and State laws and regulations.

16 Construction activities from any of the proposed onshore projects could unearth
17 contaminated soils; however, it would be speculative to assume that the proposed
18 Project or its onshore alternatives and another onshore project would simultaneously
19 uncover contaminated soils. Because the Clearwater Port onshore pipeline route is
20 very preliminary, it is neither necessary nor possible with any degree of certainty to
21 determine whether it would cross any areas of contaminated soils. The Whittaker-
22 Bermite facility is a contaminated facility immediately adjacent to Line 225 Loop and
23 Line 225 Loop Alternative; however, according to the California Department of Toxic
24 Substances, no contamination is present along that border of the facility.
25 Implementation of MM HAZ-3a and MM HAZ-3b would reduce the contribution of the
26 Project or its alternatives to cumulative effects to less than the significance criteria for
27 hazardous materials.

28 No known offshore projects would be constructed concurrently with the proposed
29 Project; therefore, only the proposed Project would contribute to potential disturbance of
30 any offshore contaminated sediment or exposure of unexploded ordnance on Point
31 Mugu Sea Range. However, no known contaminated sediments occur within 1 NM of
32 the offshore pipeline route for the proposed Cabrillo Port Project or the Santa Barbara
33 Channel Alternative, and the Project would implement MM HAZ-4a and MM HAZ-4b to
34 reduce the potential contribution of the Project to cumulative effects to negligible.

35 **LAND USE**

36 **Onshore**

37 The onshore proposed pipeline route and alternatives would be installed primarily
38 through existing easements or in existing ROWs, and therefore little conversion of
39 existing land uses would be required. The one exception is the expansion of the Center
40 Road Valve Station, where approximately 0.1 acre (0.04 ha) of an existing orchard
41 would be acquired and used in the expansion (**CEQA Class II**) for the proposed Project

1 and all the Center Road Pipeline route alternatives and the Gonzales Road Pipeline
2 Alternative. Although the onshore pipeline for the Clearwater Port project is preliminary,
3 it also would likely be installed in existing easements or ROWs would require the
4 conversion of a similar amount of land. The Arnold Road and Point Mugu Shore
5 Crossings would result in the conversion of 0.9 acres (0.4 ha). While other projects in
6 the proposed Project area may contribute to the loss or conversion of agricultural lands,
7 with mitigation (AM AGR-1a), the incremental, cumulative contribution of the proposed
8 Project to changes in land use or that of its onshore alternatives would reduce this
9 impact to below its significance criteria. No agricultural lands would be converted to
10 non-agricultural uses with the installation of Line 225 Loop or its alternative. Therefore,
11 the resulting cumulative impact on land use for the Cabrillo Port Project and its
12 alternatives is considered negligible.

13 A Notice of Preparation for an EIR for the Ormond Beach Specific Plan was issued in
14 2005. To date, the development of the Plan and EIR are underway, but neither has
15 been published. The installation of the proposed pipeline route, any Center Road
16 Pipeline route alternatives, or the shore crossing alternatives could affect where a
17 school could be sited within the development. However, the specific impact could not
18 be determined until the local school districts conducted a pipeline risk analysis.
19 Construction-related impacts such as noise, dust, and parking and access are
20 addressed under those respective sections.

21 **NOISE**

22 **Offshore**

23 The Project would add to cumulative noise impacts in the area (see Section 4.20.3.7 for
24 a discussion of cumulative impacts from noise on marine mammals). Aerial and marine
25 operations at the Point Mugu Sea Range are ongoing and could intermittently increase
26 noise in the vicinity of the proposed Project. Construction noise from the installation of
27 the FSRU at either the Cabrillo Port proposed location or the Santa Barbara Channel
28 Alternative would be temporary, but the FSRU's operational noise at either the
29 proposed Cabrillo Port location or the Santa Barbara Channel Alternative location would
30 be continuous. Cumulative noises effects could occur when offshore pipeline
31 construction is occurring in and near the vicinity of the Sea Range; however,
32 implementation of MM NOI-1a (efficient equipment usage), AM MT-1a (safety vessel
33 warnings), and MM MT-1c (notices to mariners) would mitigate the noise levels and
34 exposure to boaters to below the impact's level of significance (**CEQA Class II**) for
35 boaters. Operational noise from the FSRU at either the proposed or alternative location
36 would exceed significance levels into the ATBA (**CEQA Class I**), however not beyond
37 this area, and would diminish further with greater distance. Since the Point Mugu Sea
38 Range is 3.54 NM (4.1 miles or 6.6 km) from the FSRU at the proposed location and
39 further from the Cabrillo Port Santa Barbara Channel Alternative location, cumulative
40 effects of operational noise and marine operations on the Sea Range are unlikely.
41 Aerial operations on the Sea Range could have cumulative noise effects for boaters
42 transiting the ATBA (**CEQA Class I**), but the cumulative effect would be less than
43 significant given the transitory nature of aerial operations.

1 The existing operation of the 43 oil and gas platforms is taken into account in the
2 existing noise baseline conditions. No additional oil and gas platforms are planned in
3 the Santa Barbara Channel. Development of the non-producing oil and gas leases is
4 uncertain due to ongoing litigation and there is a moratorium on new offshore leasing.
5 Current and new activities on these leases would increase noise, but the noise
6 generated from Cabrillo Port would be sufficiently distant from these activities such that
7 no cumulative noise effects are anticipated. If the Clearwater Port project is licensed,
8 noise would increase in areas with common vessel traffic, including parts of the vessel
9 traffic lanes and vessels exiting and entering Port Hueneme. No vessel traffic would be
10 anticipated from the OceanWay project to the Port of Hueneme.

11 Noise increase would be substantial, but temporary if the offshore LNG projects were
12 constructed concurrently, but the contribution of the Project would be mitigated through
13 the use of MM NOI-1a, AM MT-1a, and MM MT-1c. If the projects were to operate
14 simultaneously, noise would increase at each respective location and would contribute
15 to cumulative noise impacts at these locations; however, the OceanWay and Clearwater
16 Port would be located 14.66 NM (16.9 mi., 27.2 km) and 28.9 NM (33.3 miles or 53.5
17 km, respectively, from Cabrillo Port. Therefore, assuming that the proposed OceanWay
18 and Clearwater Port would generate a similar amount of noise as Cabrillo Port,
19 operational noises from the projects would not have geographically overlapping effects.
20 LNG carrier traffic would increase, but carriers would have to adhere to USCG and
21 International Maritime regulations and would keep their distance from other large
22 vessels; therefore, there is unlikely to be a cumulative effect on noise.

23 The Cabrillo Port Santa Barbara Channel FSRU Alternative would be 5.01 NM (5.77
24 mi., 9.28 km) away from Platform Grace, the proposed location for the Clearwater Port
25 project. Vessel traffic is greater in this area; therefore, if these projects were
26 constructed simultaneously, more boaters could hear noise generated during
27 construction and operation. Like the proposed Project, construction noise would be
28 temporary and recreational boaters could avoid the construction zone. All mitigation
29 measures applicable to offshore operations (see Section 4.14.5.2) would be applicable
30 to this alternative; however, like the proposed Project, noise generated on the FSRU
31 during operations would have a significant impact on recreational boaters within 0.6 mile
32 (1 km), which could not be mitigated. Therefore, the use of this alternative would result
33 in a similar contribution to cumulative impacts from noise as compared with the
34 proposed action. Assuming that both the Cabrillo Port Santa Barbara Channel FSRU
35 Alternative and the Clearwater Port projects would generate similar levels of operational
36 noise, given the distance between the two locations, it is unlikely that the areas of
37 significant noise impacts generated by would overlap.

38 Expansion of the Port of Los Angeles/Long Beach would likely result in an increase in
39 vessel traffic in the Santa Barbara Channel. With the increase in vessel traffic, there
40 would be a concurrent increase in vessel noise. The cumulative noise effects of this
41 increase in vessel traffic and the presence of the Project at proposed Project location
42 would be in the ATBA, the location where boaters could transit between the FSRU and
43 the Santa Barbara Channel TSS. There would be locations in the ATBA where noise
44 levels exceed significance levels from FSRU operations. If a boater were transiting the

1 ATBA when a vessel was transiting the Santa Barbara Channel TSS in the vicinity of
2 the FSRU, the boater would experience significant cumulative noise effects (**CEQA**
3 **Class I**). These effects would be transitory because both the vessel and the boater
4 would be in transit. Project support vessels would transit a portion of the Santa Barbara
5 Channel TSS traveling to and from Port Hueneme. These vessels would cause
6 temporary but significant noise impacts (**CEQA Class I**). There could be cumulative
7 noise impacts from the increased vessel traffic in the Santa Barbara Channel TSS if
8 vessels travel in close proximity to one another; however, this is unlikely because
9 vessels must maintain a safe distance from one another.

10 Like the proposed Project location, the noise generated by an FSRU located at the
11 Cabrillo Port Santa Barbara Channel Alternative would result in noise above the
12 significance criteria for boaters transiting the ATBA (**CEQA Class I**). Since this area
13 experiences greater boating traffic than the proposed Project location, the cumulative
14 noise impacts at this location would likely be greater than at the proposed Project
15 location.

16 **Onshore**

17 The proposed Project would contribute incrementally to cumulative impacts from noise
18 impacts in the area if road, residential housing, or commercial development construction
19 projects were to occur concurrently in the vicinity of the pipeline construction for the
20 proposed Project or alternative onshore pipeline routes. Despite the implementation of
21 mitigation measures MM NOI-4b, MM NOI-4c, MM NOI-4d, MM NOI-4e, MM NOI-4f,
22 MM NOI-5a, MM NOI-6a and MM NOI-6b, temporary construction noise would result in
23 a **CEQA Class I** impact because noise impacts would remain significant, but temporary.

24 The proposed Project pipeline routes and the alternative pipeline routes would all
25 generate vibration during pipeline installation that would result in **CEQA Class I** impacts
26 because the impacts could not be completely mitigable. Vibration generated at the
27 proposed shore crossing and at the alternative shore crossing would not exceed the
28 significance criteria. Therefore, construction of any other onshore project within the
29 immediate vicinity of any of the pipeline routes would contribute further to a **CEQA**
30 **Class I** vibration impact.

31 Comparable levels of noise and vibration are anticipated from the installation of the
32 onshore Clearwater Port Pipeline route. The proposed Cabrillo Port Pipeline route and
33 its Center Road alternatives would be of sufficient distance from the preliminary
34 Clearwater Port onshore pipeline route that even if both projects were constructed
35 simultaneously, they would not have overlapping noise or vibration impacts, except near
36 the Center Road Valve Station where they might converge. In addition, the Cabrillo Port
37 Gonzales Road onshore pipeline alternative could be sufficiently close to the preliminary
38 Clearwater Port onshore pipeline route that there could be overlapping noise and
39 vibration impacts.

40 The proposed Project shore crossing would result in **CEQA Class I** noise impacts,
41 based on exceedances of local noise ordinances in City of Oxnard. In contrast, the

1 Arnold Road Shore Crossing/Arnold Road Pipeline and Point Mugu Shore
2 Crossing/Casper Road Pipeline Alternatives are located in Ventura County, which has
3 different noise ordinances. Through implementation of AM NOI-4a, and MM NOI-4b
4 through MM NOI-4f, MM NOI-5a, MM NOI-6a, and MM NOI-6b during construction and
5 maintenance operations at these locations, noise levels could be reduced below local
6 noise ordinance levels required at the closest residence (**CEQA Class II**). In addition,
7 noise levels at the closest residence to the Mandalay shore crossing meet the City of
8 Oxnard noise ordinance levels (**CEQA Class II**). Therefore, the shore crossing
9 alternatives would result in a smaller contribution to cumulative noise impacts to
10 sensitive receptors in comparison with the proposed shore crossing and pipeline route.
11 Given that the Cabrillo Port Santa Barbara Channel Alternative and Clearwater Port
12 shore crossing both would occur at the Reliant Energy Mandalay Generating Station, if
13 both were to be installed simultaneously, noise levels could exceed City of Oxnard
14 noise ordinance levels (**CEQA Class I**).

15 RECREATION

16 Offshore

17 Impacts on offshore recreation can result from restricted access or changes to the
18 aesthetic quality of the area.

19 The presence of large permanent structures or LNG carriers may reduce the quality of
20 the recreational experience for some individuals. In addition to the FSRU that would be
21 constructed for the Cabrillo Port Project, existing and future projects with permanent or
22 large offshore facilities include the Clearwater Port, OceanWay, existing future offshore
23 oil platforms, and naval activities at the Point Mugu Sea Range.

24 The presence of the FSRU in conjunction with permanent changes to Platform Grace
25 from the Clearwater Port and the OceanWay project is considered a significant
26 cumulative impact for which no mitigation exists (**CEQA Class I**). If the Cabrillo Port
27 Santa Barbara Channel Alternative were implemented, it would have similar cumulative
28 impacts.

29 TRANSPORTATION

30 The Project is not expected to add significantly to the cumulative impact on
31 transportation. No public roads would be permanently eliminated or created by Project
32 activities. Ventura County has plans to expand roads on portions of Hueneme Road,
33 Pleasant Valley Road, Rice Avenue, and Santa Clara Avenue by 2010. If these
34 activities occurred simultaneously with the installation of the Project pipeline, short-term
35 cumulative impacts on traffic could occur (**CEQA Class II**). These impacts could
36 include traffic slowdowns and/or detours that could last several days. Mitigation
37 measures TRANS-1a and TRANS-1b would reduce this impact to below its significance
38 criteria, and other projects would likely have similar mitigation measures.

39 Road maintenance activities in the Project area could include repaving, clearing road
40 shoulders, and similar activities. If these activities were to occur at the same time and

1 place as the Project, short-term cumulative impacts on traffic could occur (**CEQA Class**
2 **II**). These impacts would be limited to temporary disruptions such as slower traffic or
3 detours lasting several days at a time. MM TRANS-4a, MM TRANS-4b, and MM
4 TRANS-5a, as well as BMPs that would likely be used for the possible maintenance
5 projects occurring concurrently, would reduce or eliminate any significant impacts.

6 If any of the proposed construction projects for Oxnard or Santa Clarita were to occur
7 simultaneously with the proposed Project, a net increase in traffic in each respective
8 area would result from workers and equipment going to and from the construction sites.
9 These are temporary impacts that would cease at the end of construction.

10 The Project would reduce its contribution to local traffic by implementing traffic control
11 plans (MM TRANS-1a) and implementing notifications, schedule shifts and carpooling
12 BMPs (MM TRANS-1b). These mitigation measures would reduce the impacts, but they
13 could not be fully avoided. Therefore, if other local projects with similar impacts were to
14 occur simultaneously, temporary cumulative impacts on the overall traffic conditions
15 could occur (**CEQA Class II**). The cumulative contribution to traffic impacts from the
16 Gonzales Road Pipeline Alternative and Center Road Pipeline Alternative 1 would be
17 greater than the proposed Project in the Oxnard area because both pass through
18 residential areas. Center Road Pipeline Alternatives 2 and 3 would have a similar
19 contribution to cumulative traffic impacts as the proposed Project because these routes
20 largely pass through agricultural areas.

21 Also, the contribution to degradation of roads from the Project would be mitigated
22 through MM TRANS-5a, which requires the Applicant or its designated representative to
23 repair roads to their pre-construction condition (**CEQA Class II**); NEPA minor adverse,
24 short-term). Therefore, the Project would not contribute to cumulative impacts on roads.

25 In Santa Clarita, construction of the Line 225 Pipeline Loop route would require closure
26 or rerouting of the South Fork Trailhead bike path for about 10 to 14 days (**CEQA Class**
27 **II**). If construction of multiple projects were to occur concurrently in Santa Clarita,
28 multiple bike paths could close or be rerouted temporarily. However, these closures
29 would be temporary and rerouting of the paths during the short construction period is
30 often possible. Therefore, this project would not contribute to cumulative impacts on
31 bike trails. Line 225 Loop Alternative would have similar cumulative impacts to the Line
32 225 Pipeline Loop.

33 Potential cumulative impacts from the proposed Clearwater Port project have not been
34 included in this analysis because the application for the Clearwater Port project that has
35 been filed under the DWPA is currently under review by the agencies and has not been
36 deemed complete, has not been confirmed by the agencies, and does not provide
37 sufficient detail to allow evaluation of onshore transportation impacts. Therefore the
38 lead agencies have determined that information from the application should not be
39 relied upon or cited in the cumulative analysis of the Cabrillo Port Final EIS/EIR.
40 However, to provide information for disclosure and comparison of this project under the
41 CEQA, the cumulative analysis uses information on the Clearwater Port project that is

1 available on the Clearwater Port public website, the California Energy Commission
2 website, and other sources available to the general public.

3 **WATER QUALITY AND SEDIMENTS**

4 **Onshore**

5 The shore crossings for the Clearwater Port and the Santa Barbara Channel/Mandalay
6 Shore Crossing/Gonzales Road Pipeline Alternative offshore pipelines are both
7 proposed to be located at the Reliant Energy Mandalay Generating Station. It is
8 assumed that the Clearwater Port shore crossing would be conducted in a similar
9 manner as the one proposed for the Cabrillo Port Project; therefore, potential adverse
10 impacts would be minimized. However, if construction were to occur simultaneously,
11 there could be a cumulative adverse impact.

12 The cumulative effects on onshore water resources as a result of construction at stream
13 crossings for the proposed Center Road Pipeline and its alternatives could be adverse
14 but could be mitigated through the implementation of MM WAT-3a, MM WAT-4a
15 through MM WAT-4c, and MM GEO-1b to reduce the impact to a level that is less than
16 the significance criteria (**CEQA Class II**). Based on permits and existing studies for the
17 identified projects and the locations and types of water resources in the onshore Project
18 area, the proposed Project and the Center Road Pipeline alternatives would not
19 contribute to any further degradation of surface water quality, primarily because
20 activities that would result in temporary or short-term discharges to surface water would
21 require adherence to permit conditions and BMPs that aim to reduce or avoid such
22 impacts. Therefore, this Project and the Center Road Pipeline alternatives would not
23 contribute significantly to changes to local water quality and sediment.

24 If Line 225 Loop alternative were implemented, the Santa Clara River would be crossed
25 using either an existing bridge or HDD. The potential cumulative water quality impacts
26 of construction of any of the projects in the vicinity of the Santa Clara and installation of
27 the Project pipeline in the pipeline bridge would be less than those if HDD were used for
28 this alternative. Impacts from HDD would be similar to those of the proposed Project
29 and are addressed under Impact WAT-4. Implementation of mitigation WAT-3a, WAT-
30 4a, WAT-4c would reduce this alternative's impact to less than significant, so the
31 cumulative contribution of this alternative to water quality would be negligible.

32 The location or method of onshore water crossings for the Clearwater Port are not
33 known; therefore, the potential cumulative effects are uncertain. However, it is
34 assumed that similar mitigation measures and permits would be required to ensure that
35 potential impacts to water resources would be minimized.

36

37

38

1 ACRONYMS

AIS	Automatic Identification System
AM	Applicant-proposed measure
ATBA	area to be avoided
BHPB	BHP Billiton LNG International Inc.
BMPs	best management practices
CARB	California Air Resources Board
CCC	California Coastal Commission
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CINMS	Channel Islands National Marine Sanctuary
CO	carbon monoxide
CPUC	California Public Utilities Commission
CSLC	California State Lands Commission
DMP/DEIS	Draft Management Plan/Draft EIS
DTSC	Department of Toxic Substances Control
DWP	Deepwater Port
DWPA	Deepwater Port Act
EEAP	Employee Environmental Awareness Program
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental impact Statement
EBRV	Energy Bridge™ Regasification Vessel
FERC	Federal Energy Regulatory Commission
FSRU	floating storage and regasification unit
GREAT	Ground Water Recharge Enhancement and Treatment Program
ha	hectares
HAZOP	hazard and operability study
HCA	high consequence area
HDB	horizontal directional boring
HDD	horizontal directional drilling
IOU	investor-owned utilities
IRA	Independent Risk Assessment

JOFLO	Joint Oil/Fisheries Committee of South/Central California
km	kilometers
LNG	liquefied natural gas
m	meters
m ²	square meters
MARAD	U.S. Maritime Administration
MMcf	million cubic feet
MMS	U.S. Department of the Interior, Minerals Management Service
MP	milepost
MW	megawatts
NBVC	Naval Base Ventura County
NEPA	National Environmental Protection Act
NM	nautical miles
NO ₂	nitrogen dioxide
NOP	Notice of Preparation
NO _x	nitrogen oxides
OCS	Outer Continental Shelf
PG&E	Pacific Gas & Electric Company
PLEM	pipeline-ending manifold
ppm	Parts per million
QRA	quantitative risk analysis
ROC	reactive organic compound
ROW	right-of-way
SCE	Southern California Edison
SCV	submerged combustion vaporizer
SES	Sound Energy Solutions
SHOBA	shore bombardment range
SOAR	Southern California Anti-submarine warfare Range
SOCAL	Southern California Operations Area
SoCalGas	Southern California Gas Company
SWTR	shallow water training range
TSS	Traffic Separation Scheme
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency

UXO	unexploded ordnance
VAFB	Vandenberg Air Force Base
VHF	very high frequency
VTS	Vessel Traffic Service