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CONSIDER CERTIFICATION OF A FINAL ENVIRONMENTAL IMPACT REPORT AND ISSUANCE OF A PERMIT TO PACIFIC GAS AND ELECTRIC COMPANY FOR PURPOSE OF CONDUCTING A 3D GEOPHYSICAL SURVEY EMPLOYING THE USE OF AIR GUNS AND HYDROPHONES OFF THE COAST OF SAN LUIS OBISPO COUNTY

APPLICANT:

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SUMMARY:

Pacific Gas and Electric Company (PG&E or Applicant) is requesting a permit to perform a high-energy three-dimensional (3D) geophysical survey employing acoustic pulse-generating air guns to study active faults offshore and adjacent to the Diablo Canyon Power Plant (Diablo Canyon or DCPP), a nuclear power plant located in Avila Beach, San Luis Obispo County ("Project" or "survey"). As required by the California Environmental Quality Act (CEQA), an Environmental Impact Report (EIR) has been prepared and is here presented to the Commission for certification, a necessary step before the Commission may take action on the requested permit.

The purpose for the survey would be to obtain data concerning the location, configuration and dynamics of faults that could affect Diablo Canyon's integrity. The Shoreline Fault, which was discovered offshore Diablo Canyon in 2008, other recent geological information, and concerns about seismic safety at nuclear power plants generally following earthquake and tsunami events in Japan have all highlighted questions about the Applicant's facility, questions that could be answered in part by new data from the proposed surveys.

The Project as proposed by PG&E would occur in state waters as well as in federal waters and onshore areas that are outside of the Commission's jurisdiction. Pursuant to CEQA, the EIR analyzes the impacts of the Project as a whole, including onshore, nearshore and offshore components. In addition to the Commission, other agencies, including the California Coastal Commission (CCC) and California Department of Fish and Game (CDFG), would need to approve parts of the Project over which they have approval authority before the survey could lawfully proceed.

The Commission has been given authority to issue geophysical survey permits pursuant to Public Resources Code section 6826. The last time the Commission approved a geophysical survey employing air guns in offshore marine waters within its jurisdiction, however, was more than 25 years ago. Subsequently, at its October 7, 1987, meeting, the Commission determined that permits for geophysical surveys employing air guns could not be issued unless and until an EIR was first certified. The Commission's decision was upheld by the California Court of Appeal. (*Meridian Ocean Systems, Inc., et al. v. California State Lands Commission* [1990] 222 Cal. App. 3d 153.) The Commission had not received a subsequent application for a geophysical permit entailing the use of air guns until PG&E submitted the subject application in 2011.

BACKGROUND:

This Project can be traced back to Assembly Bill (AB) 1632 (Blakeslee, Chapter 722, Statutes of 2006; codified as Pub. Resources Code, § 25303), which required that the California Energy Commission (CEC), as part of its energy forecasting and assessment activities, compile and assess existing scientific studies to determine the potential vulnerability to a major disruption, due to aging or from a major seismic event, of the State's two nuclear facilities, including an analysis of the impact of a major disruption on system reliability, public safety and the economy. AB 1632 did not mandate geophysical surveys; only that the effects upon the State's electric supplies of a seismic event at the power plants be evaluated. A timeline related to PG&E's proposed Project is provided below.

- **2006** AB 1632 signed by Governor Schwarzenegger.
- **2007** Japan's Kashiwazaki-Kariwa nuclear power plant is shut down for 21 months following the Chūetsu offshore earthquake.
- **2008** The U.S. Geological Survey (USGS), working with PG&E, discovers a zone of seismicity indicating the presence of a previously undiscovered fault zone (since named "Shoreline") approximately 9 miles (15 kilometers [km]) in length, located approximately 0.6 mile (1 km) offshore of the DCPP.

Also in 2008, the CEC issues *An Assessment of California's Nuclear Power Plants: AB 1632 Report* (2008 CEC Report), which describes the severe consequences to the State's electrical capacity if DCPP were lost due to a natural disaster and the uncertainties regarding the seismic hazards in the vicinity of the plant. The Report concludes (page 6):

> *"PG&E should use three-dimensional geophysical seismic reflection mapping and other advanced techniques to explore fault zones near Diablo Canyon; PG&E should report on their progress and their most recent seismic vulnerability assessment for Diablo Canyon in the 2009 [Integrated Energy Policy Report]. This action will supplement PG&E's Long Term Seismic Safety Program and help resolve uncertainties surrounding the seismic hazards at Diablo Canyon. Given the potential for an extended plant shutdown following a major seismic event, the Energy Commission, in consultation with appropriate state agencies, should evaluate whether these studies should be required as part of the Diablo Canyon license renewal feasibility study for the CPUC."*

2009 The CEC and California Public Utilities Commission (CPUC) direct PG&E to complete the 3D geophysical studies recommended by the CEC.

2010 The CPUC issues Decision 10-08-003, which established an Independent Peer Review Panel (IPRP) to conduct a peer review of the proposed seismic study plans and, if the Project is implemented, to review study findings. The IPRP includes staff from the CPUC, CEC, California Seismic Safety Commission, CCC, and County of San Luis Obispo with contract support from the California Geological Survey.

2011 In March, Japan's Fukushima Dai-ichi nuclear power plant is destroyed following the Tōhoku earthquake and tsunami.

In April, PG&E submits its Geophysical Survey Permit application for the Project to the Commission (received May 2011). PG&E subsequently amends the proposed survey route in January 2012.

From June 29, 2011 to July 27, 2012, Commission staff prepares the Project EIR and provides opportunities for public review and comment. Staff also consults with individual IPRP members and other local, state and federal agency staffs in preparing the EIR.

2012 In March, the Nuclear Regulatory Commission releases a request for information requiring PG&E and other reactor licensees in the nation to expeditiously re-evaluate the seismic, tsunami, flooding, and other external hazards at their facilities and submit a report by 2015.

In July, Commission staff completes the Final EIR and posts it on the Commission's website (www.slc.ca.gov).

PROJECT DESCRIPTION:

The survey proposed by PG&E and recommended by the CEC entails the use of air guns (a pneumatic sound source that releases a specified volume of air into the water) to generate an acoustic pulse that produces a steep-fronted shock wave. The survey proposed would be carried out by a vessel—the National Science Foundation's (NSF) Research Vessel (R/V) *Marcus G. Langseth*— towing a tuned air-gun array — consisting of a series of eighteen 40- to 360-cubic-inch air guns, with a total discharge volume of 3,300 cubic inches — at a depth of approximately 20 feet at a speed of 4 to 5 knots (nautical miles per hour). The air-gun array would generate an acoustic pulse of approximately 230 to 250 decibels at the source (dB re 1 µPa @ 1 meter) every 15 to 20 seconds at intervals of approximately every 100 to 170 feet.

The R/V *Langseth* would also tow four streamers approximately 3.7 miles long. Attached to each streamer would be seven hydrophones (devices that detect the reflected acoustic pulses and transmit them back to the towing vessel for analysis); five additional lines of geophones would be placed on the seafloor at pre-selected locations, and nodal geophones staked onshore in three areas, for the same purpose. Each acoustic pulse would travel beneath the ocean and reflect off subsurface geological formations. Onshore, vehicle-mounted survey equipment deployed along roads and trails on DCPP property would create vibrations to complement the acoustic pulses produced by the air guns offshore.

The hydrophones and geophones would pick up the reflected vibrations from both offshore and onshore sources. PG&E would then derive conclusions about the geology within the area of the survey through analyses of the data from that reflected and refracted sound. The IPRP would peer review the study findings.

The proposed geophysical survey would be conducted in four sections, called "zones." Within each zone, the R/V *Langseth* would begin moving in a straight line while starting up the mitigation air gun. At a given point, the survey air guns would begin emitting acoustic pulses and would then "ramp-up", starting out at a low level and rising to full volume to warn away marine wildlife in the area. The acoustic pulses would continue as the vessel proceeds along a pre-established straight course. Near the end of the zone, the air guns would be turned off, and the vessel would make a turn in order to continue the next track parallel to the previous track. The R/V *Langseth* would fire a smaller, 90-cubic-inch mitigation air gun, generating pulses of 212 decibels, during turns to keep marine mammals away from the survey area before the full sized air guns start up again.[1] PG&E

[1] "Ramp-up" is a standard mitigation measure identified in the Joint Nature Conservation Commission (JNCC) Guidelines for seismic surveys in international waters (2010; http://jncc.defra.gov.uk/page-1534)

proposes to conduct the survey — including mobilization, vessel refueling, and demobilization — over an 82-day period between September 15, 2012, and December 31, 2012.

Task (Proposed Project)	Duration (Proposed Project)	
Mobilization from San Diego to Project Site	6 days	
Equipment Deployment Offshore Geophone Deployment Pre-Activity Marine Mammal Surveys	5 days	(These three tasks occur concurrently)
Onshore Geophone Deployment	< 7 days >	(Task concurrent with offshore deployment)
Sound Check/Verification	5 days	**= 65 days**
Seismic Survey	**41 days** (operations assumed as 24 hours a day, 7 days a week)	
Streamer and Air Gun Preventative Maintenance	4 days	
Additional shutdowns (marine mammal presence, crew changes, unanticipated weather delays)	8 days	
Marine Vessel Refueling	7 days	
Onshore Source Line Sound Generation	< 7 days >	(Task concurrent with offshore surveys)
Demobilization	6 days	
Total	**82 days**	

Source: PG&E 2011b.

Exhibit A illustrates the overall Project area and targeted fault locations. **Exhibit B** indicates the four specific zones within which the survey air guns would operate. **Exhibit C** shows the tracks the vessel would follow both while the air guns are operating and when the mitigation guns are operating as the vessel is making turns. Target areas for seismic survey data acquisition are shown below.

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and High Energy Seismic Survey (HESS) Guidelines for marine surveys offshore Southern California (1999; see www.boemre.gov/omm/pacific/lease/fullhessrept.pdf). This has occurred in recognition of the potential risk that immediate hearing damage could occur to a nearby marine mammal if a high-energy sound source, such as an air gun array, were turned on suddenly. The ramp-up procedure generally involves the gradual increase in intensity of a sound source to full operating intensity over a period of time. It is assumed that marine mammals will hear the sound and move away before hearing damage or physiological effects occur. Similarly, the firing of a mitigation air gun during turns, also recommended mitigation, would cause marine mammals to stay away from areas where hearing damage or physiological effects could occur.

Zone	Approximate Area	Location	Approximate Trend of Survey Lines	Survey Goal
1	81 nm^2 (277 km^2)	Immediately offshore the DCPP and extending the width of Point Buchon peninsula	Parallel to Shoreline fault zone	Improve seismic imaging of the Shoreline and Hosgri fault zones at depths greater than 0.6 mile (1 km) below seafloor
2	118 nm^2 (406 km^2)	From Estero Bay to mouth of the Santa Maria River	Parallel to Hosgri fault zone	Improve seismic imaging at depths greater than 0.6 mile (1 km) below seafloor of (1) the Hosgri fault zone and (2) the Shoreline, Hosgri, and Los Osos fault intersections
3	64 nm^2 (219 km^2)	From south of Cambria to Estero Bay	Parallel to Hosgri fault zone and San Simeon fault zone to the north	Improve seismic imaging of the Hosgri fault zone at depths greater than 0.6 mile (1 km) below seafloor
4	97 nm^2 (334 km^2)	Offshore Estero Bay	Perpendicular to Hosgri and Los Osos fault zones	Improve seismic imaging at depths greater than 0.6 mile (1 km) below seafloor of the Hosgri and Los Osos fault zones

nm = nautical miles; km = kilometers.
Source: PG&E (2011).

The majority of the offshore survey would take place in federal waters, not within waters under the jurisdiction of the Commission. However, many of the target geological formations and structures are located within state sovereign lands, including some within one or more state-designated Marine Protected Areas (MPAs) under the jurisdiction of the CDFG.

The geologic targets identified by the IPRP for the subject offshore geophysical survey include:

- The nature of the Hosgri and San Simeon fault step-over and the Hosgri and Shoreline fault intersection;
- The dip of Hosgri and Los Osos faults;

- Shoreline fault segmentation and southern terminus; and
- The Los Osos fault slip direction.

Information about these targets would help geologists improve their understanding of the following with regard to potential seismic events at the DCPP:

- The maximum size of a potential quake affecting the facility;
- The return interval for such a maximum sized quake;
- The frequency of any ground motion expected at the quake (i.e., the rate of vibration);
- The direction of any potential ground motion (i.e., vertical or horizontal or a combination); and
- The contours of any such ground motion.

All of this information would be used to update hazard assessments of how well the facility would withstand potential ground motion from a seismic event.

THE ENVIRONMENTAL IMPACT REPORT (EIR):

PG&E submitted its application for a Geophysical Survey Permit to Commission staff in 2011. Environmental review of the Project included the following activities.

- On June 29, 2011, pursuant to CEQA section 21080.4 and State CEQA Guidelines section 15082, subdivision (a), staff issued a Notice of Preparation (NOP) for the proposed Project to responsible and trustee agencies and to other interested parties. Through the NOP, the staff solicited both written and verbal comments on the EIR's scope during a 30-day comment period and provided information on forthcoming public scoping meetings.
- On July 21, 2011, the Commission held two public and agency scoping meetings in the city of San Luis Obispo to solicit verbal comments on the scope of the EIR.
- On January 13, 2012, as discussed above, PG&E submitted a refined survey design to Commission staff (shown in Exhibit C); this revised design is incorporated into the EIR as the proposed Project.
- On March 16, 2012, a Draft EIR was circulated to local, State and federal agencies and interested individuals and organizations for a 45-day public review period.
- On April 19, 2012, two noticed public hearings were held in the city of San Luis Obispo.

- On July 27, 2012, the Final EIR was posted on the Commission website at www.slc.ca.gov.
- Pursuant to the National Environmental Policy Act (NEPA), the NSF prepared a separate Draft Environmental Assessment (EA) that covers the portion of the Project in federal waters. On June 25, 2012, NSF released the Draft EA for a 45-day public comment period through August 10, with a public hearing on the Draft EA scheduled in San Luis Obispo on August 8, 2012 (see www.nsf.gov/geo/oce/envcomp/ldeo_pge_draft_ea_5.pdf).

The proposed Project has received extensive comments from state, federal and local governmental entities, the commercial fishing industry, recreational fishers, environmental advocacy organizations, PG&E, and the public. Forty-nine speakers provided comments at the Commission's public hearings in July 2012, and staff received 85 written sets of comments. In total, more than 750 individual oral and written comments were received at the hearing and via mail, email, and petition. A large percentage of the commenters raised objections to the survey because of the impacts on commercial and recreational fishing, while other commenters raised issue with regard to effects on marine life and MPAs or questioned the need for the survey. A response was prepared for each comment, and both comments and responses are included in the Final EIR.

As analyzed in the EIR, the Project would result in potentially significant environmental impacts on several resource areas: terrestrial and marine biological resources; air quality; greenhouse gases (GHGs); land use and recreation, including MPAs and recreational fishing; noise; and commercial fishing. With the implementation of mitigation measures specified in the EIR, many of these impacts would be reduced to *Less than Significant*, but several would remain *Significant and Unavoidable* even after all feasible mitigation measures are applied. These impacts are related to:

- Marine Biological Resources;
- Air Quality and GHGs;
- Land Use and Recreation, including Marine Protected Areas and Recreational Fishing; and
- Commercial Fishing.

Marine Biological Resources

The EIR employs a number of techniques to analyze the expected noise levels and exposure resulting from the Project and the effects those conditions may

have on marine mammals. The EIR provides estimates of the numbers of individuals within each species that would be affected. The analysis also uses factors such as population size, density expected during the survey, and sensitivity to the frequencies that would be generated by the air guns and other noise sources to put those estimates into the context of the vulnerability of each species.

For special status marine mammals, a single "take" — from either physical injury or behavioral disturbance — is considered to be significant in this analysis.[2] The EIR concludes *Significant and Unavoidable* impacts to fin, humpback and blue whales would result from noise. Substantial interference in the movement of any native resident, such as the Morro Bay stock of harbor porpoise, is also considered to be significant. Based on this threshold, the Project's impacts on the Morro Bay stock of harbor porpoise are expected to be *Significant and Unavoidable*. Project impacts on sea otters are also considered to be *Significant and Unavoidable* because of the proximity of the survey to sea otter habitat and the species' special status under State and federal laws, although the survey is unlikely to affect pup areas. PG&E's proposal to conduct the survey in a window between September and December, together with the other Applicant Proposed Measures and Mitigation Measures identified in the EIR reduces the impacts to marine mammals to the maximum extent feasible, but not to a less than significant level under CEQA.

Air Quality and GHGs

The EIR concludes that Project activities would result in emissions of criteria pollutants that would exceed daily and quarterly air quality significance thresholds. To reduce or offset these impacts, mitigation identified in the EIR requires PG&E to prepare, for approval by Commission and San Luis Obispo Air Pollution Control District (APCD) staffs, and implement an Emission Reduction Plan (ERP) to reduce Project emissions below significance thresholds using methods such as Project modifications, equipment upgrades, or offsite mitigation.

In April 2012, PG&E met with the APCD to discuss Project air emissions and the need for PG&E to prepare an ERP. The APCD staff has stated that it is confident that implementation of the to-be-developed ERP would successfully reduce Project emissions below daily and quarterly air quality significance thresholds (EIR Comment Set #10 and personal communication with Gary Arcemont, APCD, July 24, 2012); however, the particular measures of the ERP that would

[2] Under the Marine Mammal Protection Act, "take" means to "harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal" (16 USC 1632(3)(13)).

ensure this reduction are still in development, and the EIR determined that, in the absence of an approved ERP, the Project impacts on air quality remain *Significant and Unavoidable*.

It is not the Commission's practice to rely on measures (i.e., the ERP) that have not yet been developed and approved to determine that the legal CEQA standard has been met in regard to the EIR's air quality impacts significance conclusion. It is the Commission's practice, however, to include mitigation measures, such as preparation of the ERP, as enforceable permit conditions if the Commission certifies the EIR, adopts the Mitigation Monitoring Program (MMP), and approves the Project.

Marine Protected Areas (MPAs)

A network of MPAs was created in response to California Marine Life Protection Act (MLPA) (Fish & G. Code, §§ 2850–2863) requirements and is intended primarily to protect or conserve marine life and habitat. Three MPAs are present in the Project area: the Point Buchon State Marine Reserve (SMR) and State Marine Conservation Area (SMCA), the Cambria SMCA, and the White Rock SMCA; Zone 3 surveys would also occur near the Monterey Bay National Marine Sanctuary (NMS). Because of the locations of the fault zones, locating the seismic survey within the MPAs is necessary to collect data on specific seismic "targets," and the inclusion of these areas is integral to the proposed survey area.

However, the offshore survey may result in "take" of living marine organisms, which is prohibited in the MPAs without a permit. Because of this conflict, the EIR's analysis found the Project's impact on MPAs to be *Significant and Unavoidable*. The CDFG has authority over the MPAs and would, at its discretion, need to issue a Scientific Collecting Permit (SCP) in order for the proposed Project to proceed with any part of the Project that would result in "take" in the MPAs. Even if the Commission approves a Geophysical Survey Permit for the Project, the CDFG would still need to act on issuance of an SCP for parts of the survey over which it has approval authority before the survey could lawfully proceed. A condition of the Commission permit is compliance with all applicable state and federal laws.

Commercial and Recreational Fishing

Although the EIR found that Project-related impacts to fish, fish larvae and eggs, and fisheries would be *Less than Significant*, the impacts on Commercial and Recreational Fishing would be *Significant and Unavoidable* due to preclusion/disruption of fishing activity. The presence of survey vessels and

equipment would preclude fishing in certain areas at certain times, and the air guns would likely startle fish, temporarily decreasing fishermen's catch rate, measured in catch per unit effort (CPUE), during the survey. A Communication Plan is identified in the EIR as mitigation to keep fishermen, recreationists, and other interested parties informed of area restrictions and the survey's movement, but the impact would remain significant.

The EIR also describes the survey's potential socioeconomic effects, including adverse economic effects on fishing and fishing-related industry in the Project area. However, because the State CEQA Guidelines stipulate that "economic or social effects of a project will not be treated as significant effects on the environment," the EIR does not quantify or assess these effects for significance, nor identify mitigation or compensation for the effects.

Alternatives

Along with the proposed Project, the EIR analyzes four potentially feasible alternatives that would reduce one or more of the significant effects while achieving most of the Project objectives:

	Alternative #
The No Project alternative.	**I**
A phased alternative, under which part of the survey would be done first, followed by a delay of some months to a year before the second part of the survey was conducted.	**IIb**
A three-zone alternative that would eliminate the northern zone of the survey (Zone 3).	**IIIb**
PG&E's original generalized two-loop "racetrack" survey proposal (which was amended in January 2012), entailing two larger survey zones, instead of four smaller ones.[3]	**IIIc**

IPRP members have stated that enough geological data already exist to render the northern part of the survey unnecessary (see "IPRP Comments on Draft EIR for DCPP Seismic Studies," May 2, 2012). Eliminating this northern zone would shorten the size and impacts of the Project considerably (including by eliminating surveys in or adjacent to the Cambria and White Rock SMCAs and Monterey Bay NMS), as well as shorten the Project duration from 61 to 41 days. The three-zone alternative, Alternative IIIb, was therefore identified as the environmentally superior alternative.

[3] Based on input from the R/V *Langseth* operator and IPRP members, PG&E determined that the refined survey design (the proposed Project analyzed in the EIR) would better address survey objectives.

USE OF THE DATA OBTAINED FROM THE SURVEY:

Survey data would be useful in evaluating the integrity of the DCPP. Faults, including the recently discovered Shoreline Fault, have been identified near the plant, both onshore and offshore; however, according to PG&E and experts from the IPRP, additional information is needed to understand those faults more fully. Exhibit A illustrates the approximate fault locations known to date. PG&E has collected extensive data using low-energy two-dimensional (2D) and 3D surveys; however, the IPRP and PG&E agree that offshore high-energy surveys are needed to collect data from many kilometers below the seafloor. Also clear is that obtaining the data through the proposed high-energy survey would entail considerable environmental and socioeconomic impacts. The Commission must determine whether the public's need for the survey data is sufficient to outweigh those environmental and socioeconomic concerns.

PG&E would submit data from the survey for analysis by the U.S. Nuclear Regulatory Commission (NRC) pursuant to its regulatory authority over the safety aspects of nuclear power, which includes plant licensing and license extensions. The state may set electricity generation priorities, but cannot shut down the plant or order safety-related modifications; those are within the jurisdiction of the NRC. The NRC may take into consideration results from the seismic surveys in evaluating relicensing of the plant prior to expiration of PG&E's current license in 2024, but, more immediately, it may at any time order enhancements to the safety of the plant or a complete shut-down. Neither the Commission nor the CPUC nor the CEC has such authority. In November 2009, PG&E applied for relicensing of the facility to the NRC, but, in April 2011, requested that its application be suspended until after 3D surveys were completed.

On March 12, 2012, a year after the Fukushima Dai-ichi event, the NRC released its *Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(F) regarding Recommendations 2.1, 2.3 and 9.3, of the Near Term Force Review of Insights from the Fukushima Dai-ichi Accident.* All reactor licensees in the nation are required to re-evaluate the seismic, tsunami, flooding, and other external hazards at their facilities as expeditiously as possible; each nuclear power plant operator must submit a report containing available data by 2015. This request notes that Section 402 of the Consolidated Appropriations Act, Public Law 112-074, requires a reevaluation of licensees' design basis for external hazards:

> *"The Nuclear Regulatory Commission shall require reactor licensees to re-evaluate the seismic, tsunami, flooding, and other external hazards at their licensees as expeditiously as possible, and thereafter when appropriate, as determined by the Commission, and require each licensee to respond to the*

Commission that the design basis for each reactor meets the requirements of its license. Based upon the evaluations conducted pursuant to this section and other information it deems relevant, the Commission shall require licensees to update the design basis for each reactor, if necessary."

How the NRC would use data from the survey would be governed by a very complex set of guidelines governing the probabilistic seismic hazard analysis (PSHA) used by the NRC to determine whether a facility can withstand seismic hazards, including:

- NRC Regulatory Guide 1.208, entitled *A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion*;
- *Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts* (NRC 1997); and
- *Practical Implementation Guidelines for SSHAC Level 3 and 4 Hazard Studies* (NRC 2012).

If data from the survey, coupled with other data, indicate that enhancements to DCPP are warranted, the NRC has the legal authority to order those enhancements. The CPUC could then authorize PG&E to pass on the costs of those enhancements to its ratepayers.

It has been suggested that the survey is unnecessary because it may not result in any enhancements to facility safety; however, staff believes that this argument misstates and oversimplifies the results sought by the survey and the manner in which they would be used. This argument against the survey rests on the fact that among the most significant information sought through the survey would be data as to whether the major faults in the area are connected. If they are, the potential magnitude of a large quake would be much greater than if the major faults are not connected; but the probability of occurrence in any given year would also be much lower. Further, according to IPRP members, a large quake anywhere on a string of connected faults would likely dissipate energy along the entire string, thereby making even moderate quakes less frequent. Some commenters therefore draw the conclusion that, if the survey data were to show that the major faults in the area are connected, then the NRC may not require that Diablo Canyon be made stronger, even though the maximum size of a quake in the area could be greater. The reasoning would be that, while the maximum quake size is greater, the probability is lower; so information about connections between the various faults would not in any case be used to require any enhancements to the facility.

In its May 8, 2012 report, the Diablo Canyon Independent Safety Committee (DCISC) of the NRC stated the following:

> 21. "*DCPP is in a unique seismic area with the potential for large earthquakes, and its design basis takes this into account. … The preliminary results of the PG&E analysis of the Shoreline Fault rupture showed that the DCPP seismic design basis remained valid for any of three possible scenarios: either (1) as a single segment, or (2) as all three segments together, or (3) as all three segments together combined with a Hosgri rupture. (4.20.3)"* ("Diablo Canyon Independent Safety Committee Twenty-first Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2010 – June 30, 2011," Page 10)

The NRC's models, however, should not be simplistically mischaracterized; the survey could produce information that could significantly alter conclusions about plant safety. Facilities under the NRC's jurisdiction are expected to withstand a 10,000-year return event; i.e., a seismic event for which there is only a 1 in 10,000 chance of occurring in a given year. If survey data indicates that ground motion during such a 10,000-year-return event at the facility could be much greater than the plant is now built to withstand, even though less probable than currently anticipated events, then the NRC could determine that modifications to the facility are warranted. Furthermore, concerns considered would not only be the size and probability of an event, but also its nature; i.e., the frequency (vibration rate) of expected ground movement, uplift, direction of thrust, and overall event dynamics. Suggesting that any analysis would look only at the probability of an event is an oversimplification.

In balancing the possibility that the survey may produce data that the NRC might consider sufficient to justify requiring enhancements to the safety of the Diablo Canyon facility against the likely significant environmental and socioeconomic impacts from the Project, the benefits may not at first appear sufficient. The consequences, however, of a major failure at the facility would be incalculable. Using the partial melt-down at the Fukushima Dai-ichi facility as an example, both the economy and the environment of virtually the entire San Luis Obispo County coast could be devastated. Furthermore, even if the NRC does not require modifications to the DCPP, other organizations and entities could use the data to support actions in response to the information.

ALTERNATIVES:

The Final EIR submitted for certification considers an alternative (Alternative IIIb) that would substantially reduce the environmental impacts from the survey. Alternative IIIb was therefore identified as the environmentally superior

alternative. Every potentially significant environmental impact would be reduced or mitigated to the extent feasible. While the considerable socioeconomic impacts are of substantial concern, the potential devastation from a structural failure at the Diablo Canyon facility, while improbable, would be so extensive that approval of the requested permit should be considered justifiable. Staff therefore believes the benefits of a survey limited to that described under Alternative IIIb outweigh the environmental and socioeconomic impacts and that a permit for such survey should be approved.

Since the submission of PG&E's application in 2011, the public and of the IPRP have raised questions as to whether the survey, as proposed, would produce the best and most usable data for evaluating the seismic risks to the DCPP. On January, 2012, PG&E amended its application to the Commission to incorporate modifications in response to IPRP recommendations. The modified proposal was the Project analyzed in the EIR now proposed for certification. In its May 2, 2012, comments on the Draft EIR, the IPRP stated that the modified proposal appears to cover the target geological features for which data are needed.

The public has also raised concerns about the "moderate chance" that the high-energy 3D survey, if conducted, would provide useful data on targeted faults within the Franciscan bedrock in the fault area. This is because the Franciscan formation often has a geologically "chaotic" structure without good seismic markers. However, according to PG&E, onshore low-energy seismic reflection surveys it conducted in 2011 observed prominent seismic markers at depths similar to those proposed for study in the proposed Project, and yielded results that increased confidence that survey objectives could be met in the offshore area. Therefore, there is substantial evidence that the proposed seismic survey would obtain meaningful data on faults in the Project area.

The Ocean Conservancy, Natural Resources Defense Council, and The Otter Project also suggest several potential advantages for marine wildlife of combining a phased survey conducted over two consecutive years (the phased survey was evaluated in the EIR as Alternative IIb) with Alternative IIIb (three-loop configuration) (see Comment Set #22 in the Final EIR). A reduced schedule of mid-November through December, when viewed in terms of the current Project schedule, could reduce impacts to marine wildlife by affecting lower densities of migrating whales, and avoidance of (1) all but the tail end of the sea otter breeding season, (2) harbor porpoise nursing and breeding seasons and (3) the majority of larval peak months for commercial fish species. The groups also note that phasing the survey would provide time after the first-year's phase for data-processing and reconsideration of the survey: if the first year's survey fails to produce promising data results, the second phase could be cancelled. However,

staff analyzed the group's assertion that this "combined" alternative would reduce significant effects and determined, as explained in the Responses to Comments in the Final EIR, that some significant impacts would increase, rather than decrease, if seismic survey disturbances occurred in two consecutive years as compared to Alternative IIIb. These impacts include conflicts with MPAs, impacts to air quality from repeated mobilization and demobilization, increased disruption to commercial and recreational fishing, and a potential increase in impacts on the Morro Bay stock of harbor porpoise, a resident (non-migratory) population that would be exposed to survey sound resulting in disturbance and recovery over two years instead of one year.

Questions about whether the survey could be improved continue to arise. On June 20, 2012, the Commission staff received a letter from Dr. Bruce Gibson, a member of both the San Luis Obispo County Board of Supervisors and the IPRP and a former petroleum industry geophysicist. Dr. Gibson offered a list of changes to the survey's seismic acquisition and processing techniques that he contends would provide substantially better data than that which could be obtained using the proposed techniques. Specifically, among the primary changes would be an increase in the size of the array of hydrophone streamers from four to at least 10, with a consequent change in the positioning of the survey track lines. Members of the IPRP also apparently asked PG&E if Zone 4 could be repositioned to include areas not covered under the proposed survey, including areas closer to shore, and to produce better data from the targets identified in PG&E's proposal.

Staff acknowledges that these and possibly other proposals may or may not have merit, but has no ability to evaluate their feasibility independently within the time frames established under the Project application. With respect to Dr. Gibson's proposal, PG&E contends that a larger array of hydrophone streamers would not in fact produce better data; that, while wide arrays would provide better data in deep ocean water, data from near shore areas under shallow water would be more accurately obtained from a narrower array. As for bringing the survey into yet shallower water, PG&E questions whether the vessel and equipment could be effectively used in such areas. Furthermore, each such proposal may have other consequences. For example, the IPRP suggestion to move the survey track lines closer to shore could increase the intensity of already significant impacts of the survey to sea otters and harbor porpoises. If survey objectives can be met under the original proposal or Alternative IIIb, then exacerbated impacts from a modified survey would not be justified.

The EIR analyzed the proposed survey and four feasible alternatives. Other alternatives were considered, but were ultimately determined by staff to be

infeasible for reasons including, but not limited to, not being within PG&E's time frame for the Project. PG&E has established a deadline of December 31, 2012, to complete the survey. This deadline is driven by: (1) the availability of the R/V *Langseth* currently under contract; (2) annual marine mammal migration periods; and (3) the time needed to conduct the surveys, process and analyze the data obtained, and convey that analysis to the NRC by the NRC's 2015 deadline. If safety upgrades are warranted at Diablo Canyon, a year's delay in the survey would also consequently delay those safety upgrades. If a modification to the survey is analyzed as another alternative or as a change in the Project, it would be impossible to complete the survey by December 31, 2012.

The EIR discloses and analyzes the potentially significant environmental effects of the proposed Project as well as a range of reasonable alternatives, as required by CEQA. Staff, at this time, has no basis for determining if another alternative method for carrying out the Project, whether that proposed by Dr. Gibson, the IPRP or some other party, would or would not likely produce more useful data. The IPRP has stated that Alternative IIIb would be adequate in addressing the targeted geology, and the time constraints dictated by the deadline stated within the application make further inquiry impossible. Staff accordingly recommends approval of Alternative IIIb.

OPTIONS:

Under CEQA, the Commission may approve the Geophysical Survey Permit only if it makes written findings for each of the identified significant effects (Exhibit E), and, for those effects that are not mitigated to a less than significant level, adopts a Statement of Overriding Considerations (Exhibit F). If the Commission decides that a finding of overriding consideration is not justified, under the provisions of CEQA, the application should be denied. However, if the Commission finds that the survey within state waters may generate data that would be of sufficient benefit to outweigh the unavoidable significant impacts, then a permit may be approved. Alternative IIIb would achieve the goals of the survey while reducing environmental and socio-economic impacts and therefore could be the basis for the approved permit.

As noted above, the Commission has jurisdiction over only part of the offshore activities; the majority of the survey area would be in federal waters. The Commission may approve a permit for activity in state waters conditioned upon certain limitations to activities in federal waters as well. Specifically, many, if not most, of the mitigation measures identified in the MMP, attached as Exhibit D, would apply to all offshore activities, and not just to those undertaken in state waters. If the permit is approved, then compliance with the provisions of the MMP

with respect to all aspects of the Project, in both federal and state waters and onshore, should be a condition for issuance of the permit.

The Commission may decline to take action at this time and may direct staff to analyze other alternatives. If so, staff would evaluate what other alternatives may be feasible and complete analyses of the impacts from one or more alternatives considered feasible. If that direction were given, PG&E would not be able to complete the survey by December 31, 2012, as proposed under its application.

OTHER PERTINENT INFORMATION:

1. Pursuant to the Commission's delegation of authority and the State CEQA Guidelines (Cal. Code Regs., tit. 14, § 15025), the staff has prepared an Environmental Impact Report (EIR) identified as CSLC EIR No. 758, State Clearinghouse No. 2011061085. Such EIR was prepared and circulated for public review pursuant to the provisions of CEQA. A Mitigation Monitoring Program has been prepared in conformance with the provisions of CEQA (Pub. Resources Code, § 21081.6), and is contained in Exhibit D, attached hereto.

2. Findings made in conformance with the State CEQA Guidelines (Cal. Code Regs., tit. 14, § 15091) are contained in Exhibit E, attached hereto.

3. A Statement of Overriding Considerations made in conformance with the State CEQA Guidelines (Cal. Code Regs., tit. 14, § 15093) is contained in Exhibit F, attached hereto.

4. This activity involves lands identified as possessing significant environmental values pursuant to Public Resources Code section 6370 et seq., but such activity will not affect those significant lands. Based upon the staff's consultation with the persons nominating such lands and through the CEQA review process, it is the staff's opinion that the Project, as proposed, is consistent with its use classification.

TERMS OF PROPOSED PERMIT:

The period beginning September 15, 2012, through December 31, 2012.

PREREQUISITE CONDITIONS, FEES AND EXPENSES:

Required fees, expense deposit, and other security have been received.

STATUTORY AND OTHER REFERENCES:

A. Public Resources Code section 6826.
B. Public Resources Code section 21080, subdivision (c).

C. California Code of Regulations, Title 2, Article 2.9, section 2100.
D. California Code of Regulations, Title 14, section 15074.

FURTHER LOCAL, STATE, AND FEDERAL APPROVALS REQUIRED:

Port San Luis Harbor District
San Luis Obispo County
California Coastal Commission
California Department of Fish and Game
California Department of Parks and Recreation
California Department of Transportation
California Regional Water Quality Control Board, Central Coast Region
State Historic Preservation Office
National Oceanic and Atmospheric Administration (NOAA) Fisheries Service
National Science Foundation (NEPA lead agency)
United States Army Corps of Engineers
United States Coast Guard
United States Fish and Wildlife Service

EXHIBITS:

A. Project Area and Targeted Fault Locations
B. Zones within Which Survey Air Guns Would Be Employed
C. Locations of Survey Track Lines
D. Mitigation Monitoring Program
E. CEQA Findings
F. Statement of Overriding Considerations
G. Permit

RECOMMENDED ACTION:

It is recommended that the Commission:

CEQA FINDING:

1. Certify that the EIR, CSLC EIR No. 758, State Clearinghouse No. 2011061085, was prepared for this Project in compliance with the provisions of CEQA, that the Commission has reviewed and considered the information contained therein and in the comments received in response thereto and that the EIR reflects the Commission's independent judgment and analysis.

2. Adopt the Mitigation Monitoring Program, as contained in Exhibit D, attached hereto.

3. Adopt the Findings, made in conformance with California Code of Regulations, Title 14, section 15091, as contained in Exhibit E, attached hereto.

4. Adopt the Statement of Overriding Considerations made in conformance with California Code of Regulations, Title 14, section 15093, as contained in Exhibit F, attached hereto.

SIGNIFICANT LANDS INVENTORY FINDING:

Find that this activity is consistent with the use classification designated by the Commission for the land pursuant to Public Resources Code section 6370 et seq.

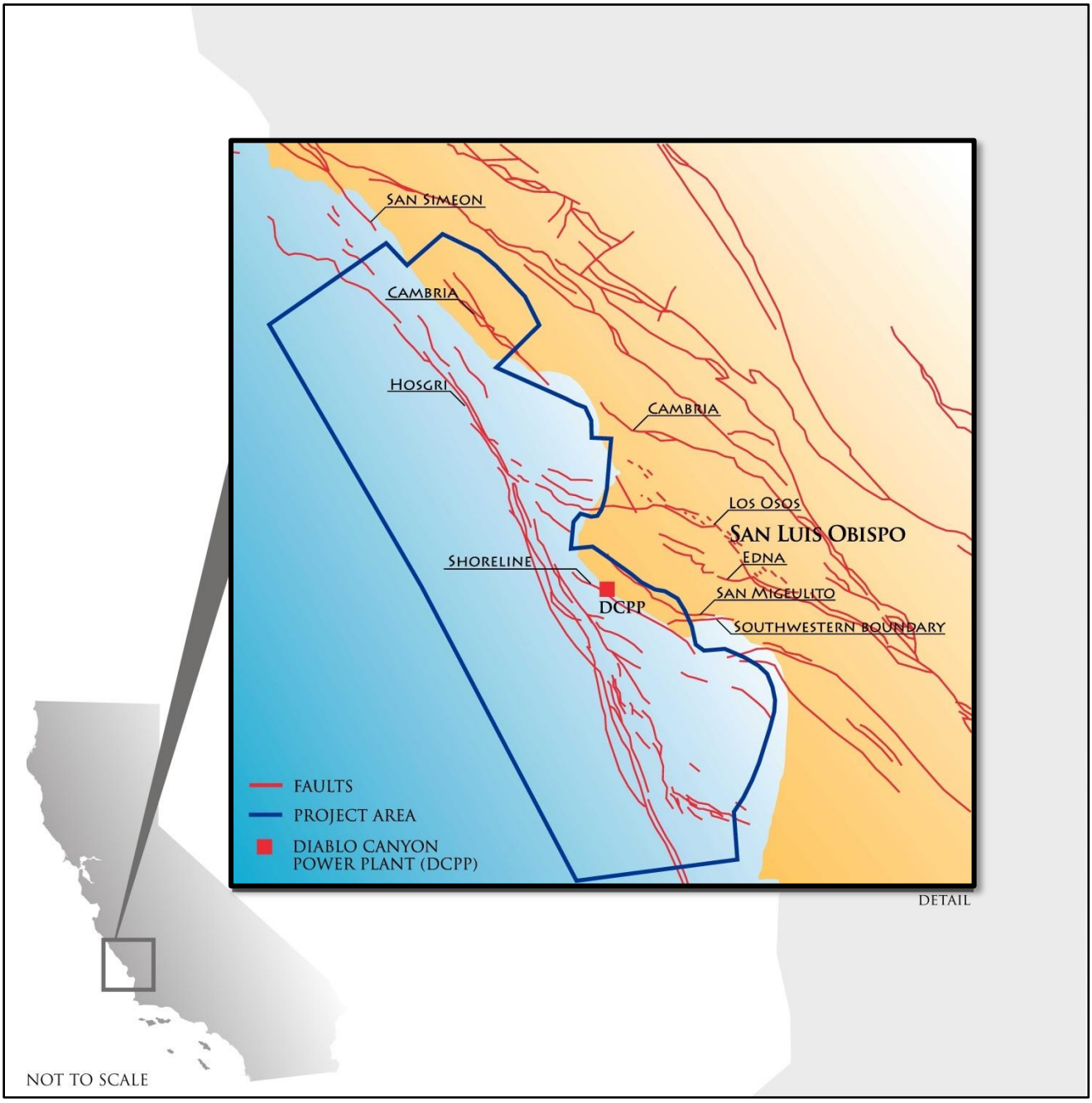
AUTHORIZATION:

Authorize issuance to Pacific Gas and Electric Company of a non-exclusive Geophysical Survey Permit to conduct high-energy geophysical surveys from September 15, 2012, through December 31, 2012, within the area indicated on Exhibit A, with use of survey air guns confined to Zones 1, 2 and 4 as indicated on Exhibit B, following the courses generally indicated for Zones 1, 2 and 4 on Exhibit C, and subject to the provisions of the Mitigation Monitoring Program as set forth in Exhibit D, both within the boundaries of the State of California and, to the extent that any such provision is not in conflict with federal requirements, in waters outside of the State.

EXHIBIT A

W 6005.126

PROJECT AREA AND TARGETED FAULT LOCATIONS

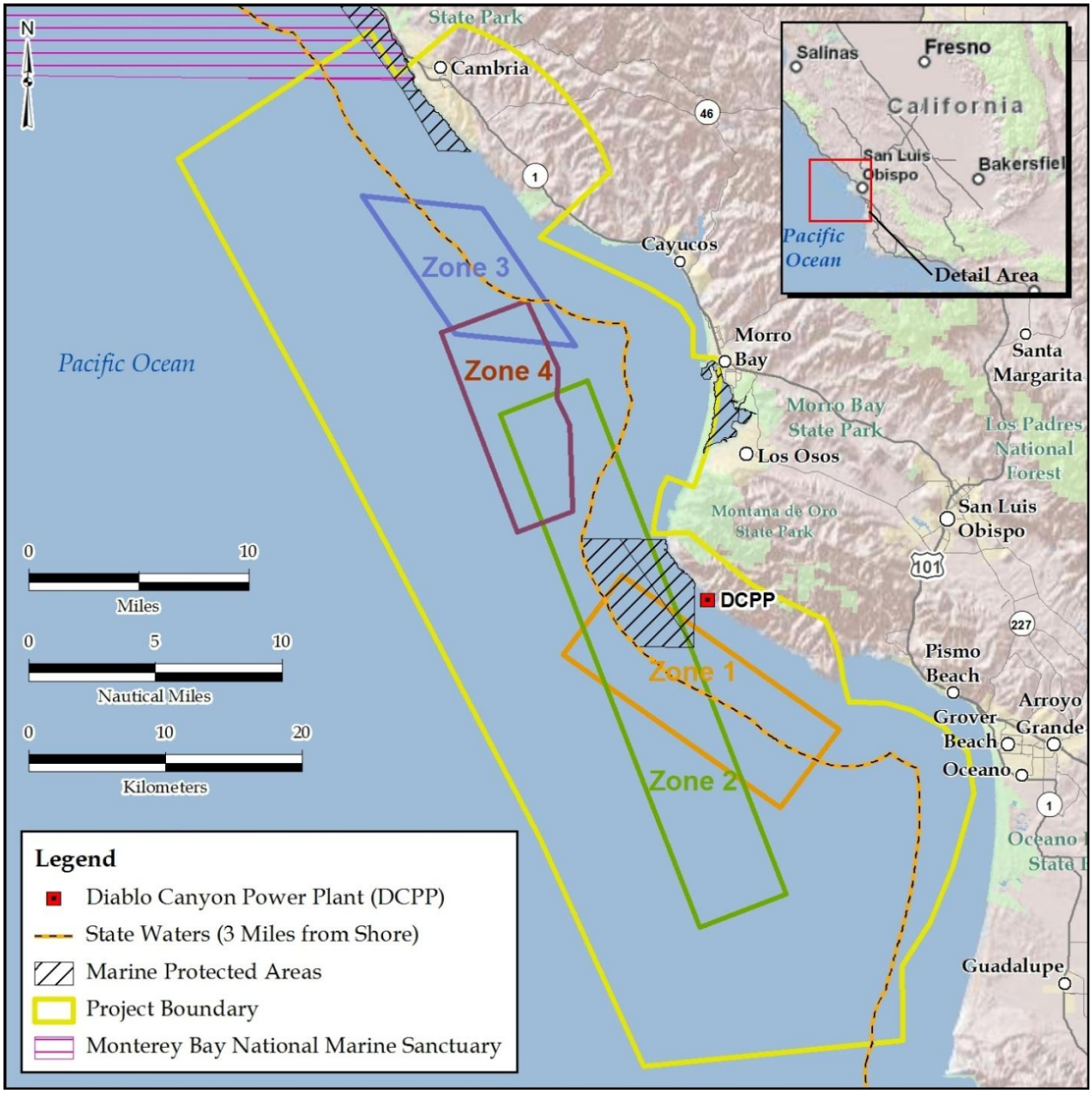


Source: CSLC Final EIR (2012).

EXHIBIT B

W 6005.126

ZONES WITHIN WHICH SURVEY AIR GUNS WOULD BE EMPLOYED

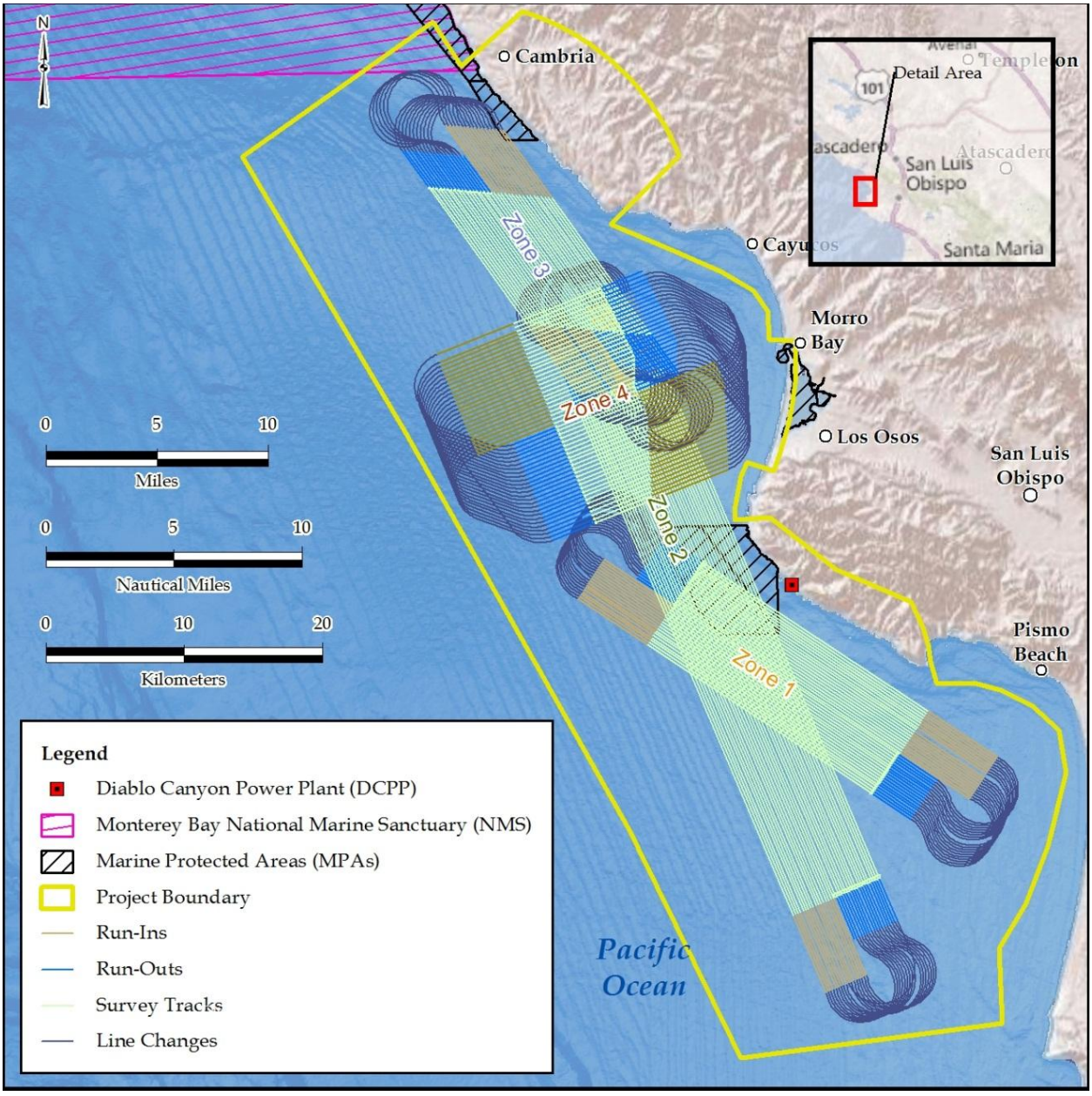


Source: PG&E (2011).

EXHIBIT C

W 6005.126

LOCATIONS OF SURVEY TRACK LINES (PROPOSED PROJECT)



Source: PG&E (2012).

EXHIBIT D – CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

MITIGATION MONITORING PROGRAM

INTRODUCTION TO MITIGATION MONITORING PROGRAM

As part of its Project approval, the California State Lands Commission (CSLC) is required to adopt a program for reporting or monitoring the implementation of mitigation measures for the Central Coastal California Seismic Imaging Project (Project) to ensure the adopted mitigation measures are implemented. This Lead Agency responsibility originates in Public Resources Code section 21081.6, subsection (a) (Findings), and the State CEQA Guidelines sections 15091, subsection (d) (Findings) and 15097 (Mitigation Monitoring or Reporting). The Mitigation Monitoring Program (MMP) discussed here was prepared as part of the Central Coastal California Seismic Imaging Project Final Environmental Impact Report (EIR) (State Clearinghouse No. 2011061085), which was published in July 2012 (the Final EIR is available on the CSLC website at: www.slc.ca.gov [under the "Information" tab and "CEQA Updates" link]).

MONITORING AUTHORITY

The purpose of this MMP is to establish the process for monitoring the Project proponent's performance of Mitigation Measures (MMs) and Applicant Proposed Measures (APMs) that have been designed to reduce or avoid environmental impacts due to the Project. An MMP is intended to be a working guide to facilitate not only the implementation of MMs/APMs by the Project proponent, but also the monitoring, compliance, and reporting activities of the CSLC and any monitors it may designate.

The CSLC may delegate duties and responsibilities for monitoring to independent, qualified environmental monitors (EMs) or consultants, as deemed necessary. The EMs will be acting on behalf of CSLC in the field. Some monitoring responsibilities may be assumed by responsible agencies, such as affected jurisdictions and cities, and the California Department of Fish and Game (CDFG). The CSLC or its designee(s) will:

- Ensure that each person delegated any duties or responsibilities is qualified to monitor compliance;
- Confirm that appropriate agency reviews and approvals have been obtained by the Applicant; and
- Ensure that any deviation from the procedures identified under the monitoring program is approved by the CSLC. Any deviation and its correction shall be reported immediately to the CSLC or its designee by the EM assigned to the Project.

ENFORCEMENT RESPONSIBILITY

The CSLC is responsible for enforcing the procedures adopted for monitoring through the EM assigned to the Project. Any assigned EM shall note problems with monitoring, notify appropriate agencies or individuals about any problems, and report the problems to the CSLC or its designee.

MITIGATION COMPLIANCE RESPONSIBILITY

The Applicant, Pacific Gas & Electric Company (PG&E), is responsible for successfully implementing all the APMs/MMs in the MMP, and is responsible for ensuring that these requirements are met by all of its contractors and field personnel. Standards for successful mitigation also are implicit in many APMs/MMs that include such requirements as obtaining permits or avoiding a specific impact entirely. Other APMs/MMs include detailed success criteria. Additional mitigation success thresholds will be established by applicable agencies with jurisdiction through the permit process and through the review and approval of specific plans for the implementation of APMs/MMs.

GENERAL MONITORING PROCEDURES

Environmental Monitors. The monitoring procedures will be conducted during the mobilization, seismic survey, and demobilization phases of the project. The CSLC is responsible for integrating the mitigation monitoring procedures into the Project implementation in coordination with PG&E. To oversee the monitoring procedures and to ensure success, the CSLC's EM assigned to the Project must be on site during that portion of survey that has the potential to create a significant environmental impact or other impact for which mitigation is required. The EM is responsible for ensuring that all procedures specified in the monitoring program are followed.

General Reporting Procedures. Site visits and specified monitoring procedures performed by other individuals will be reported to the EM. A monitoring record form will be submitted to the EM by the individual conducting the visit or procedure so that details of the visit can be recorded and progress tracked by the EM. A checklist will be developed and maintained by the EM to track all procedures required for each APM/MM and to confirm adherence to the timing specified for the procedures. The EM will note any problems that may occur and take appropriate action to rectify the problems. The field crew will submit daily monitoring logs, including logs by cultural and biological monitors, to the EM. The EM shall provide the daily logs in Weekly Monitoring Reports to the CSLC, documenting their findings and the significant findings of cultural monitors, onshore biological monitors, and marine mammal observers (MMOs).

After demobilization is complete, the EM will submit a Final Monitoring Report to the CSLC. This Final Monitoring Report shall include the cultural monitoring reports, terrestrial biology training sign-in sheets and monitoring reports, and marine biology monitoring reports. However, if significant biological, cultural or other environmental

issues are identified prior to or during Project implementation, such issues shall be reported immediately to PG&E and the CSLC.

Specific Reporting Requirements. The CSLC will require specific reporting to confirm conditions essential to avoiding impacts to resources, and to assist the CSLC in enforcing the effectiveness of the MMP. These specific reporting requirements are as follows:

- **Final onshore alignments**. PG&E shall submit the final onshore alignments on detailed maps to the CSLC, CDFG, U.S. Fish and Wildlife Service (USFWS), and Department of Parks and Recreation (DPR) no less than four weeks prior to deployment. The CSLC shall use this information to confirm that the alignments conform to the proposed Project Description and are consistent with the EIR analysis.
- **Reporting of unusual or unexpected conditions that have the potential to impact environmental resources and public safety**. The following shall be reported immediately to the CSLC by PG&E, its monitors, or the EM, and the CSLC shall assess whether conditions call for suspension or termination of the survey, or modification to the procedures:
    - Stranding or other harmful behavior or mortality of marine mammals;
    - Observed fish kill;
    - Observed avian mortality events;
    - Discovery of unknown cultural resources; and
    - Public safety concerns.
- **Post-survey confirmation surveys**. Post-survey biological surveys will be required to document the absence of impacts to the following habitats/resources:
    - Black abalone and other hard bottom areas, using remotely operated vehicle (ROV);
    - Morro Bay sandspit.

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

MITIGATION MONITORING TABLE

The following table presents the mitigation monitoring program for each environmental discipline. Each table lists the following information, by column:

- Impact (impact number, title, and impact class);
- APM or MM identification and full text of the measure;
- Location (where the impact occurs and the mitigation should be applied);
- Monitoring/reporting action (the action to be taken by the monitor or Lead Agency);

- Effectiveness criteria (how the agency can know if the measure is effective);
- Responsible agency; and
- Timing (before mobilization, during mobilization, during survey activities, or during demobilization).

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Aesthetics and Visual Resources (Section 4.1)						
Lighting from proposed onshore survey activities could adversely affect nighttime viewshed.	*APM-20 Lighting During Nighttime Survey Activities*. Lighting used for nighttime onshore survey activities, if required, shall be low intensity and shall be directed downward; green lighting shall be used whenever possible.	Onshore Project area	No complaints regarding lighting are files by local residents or businesses	Notify the EM when nighttime activities are to be conducted Discuss lighting measures with EM in advance Document impacts due to lighting in field notes included in weekly monitoring reports to EM	PG&E	Prior to and during survey activities
				Provide advance approval of lighting measures to PG&E crew Field compliance monitoring Notify CSLC of any variances noted in field or of any complaints received regarding lighting Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Air Quality (Section 4.2)						
Impact AQ-1: Mobilization and demobilization activities (including equipment deployment and retrieval) would result in daily emissions of criteria pollutants that would exceed air quality significance thresholds.	*MM AQ-1a Application of the "Standard Mitigation Measures for Construction."* Wherever feasible, PG&E shall apply the "Standard Mitigation Measures for Construction" listed in the current edition of the San Luis Obispo County Air Pollution Control District (APCD) CEQA Handbook. The Standard Mitigation Measures provided in the San Luis Obispo County APCD CEQA Handbook for construction emissions are listed below: • Maintain all construction equipment in proper tune according to manufacturer's specifications. • Fuel all off-road and portable diesel-powered equipment with California Air Resources Board (CARB)-certified motor vehicle diesel fuel (non-taxed version suitable for use off-road). • Use diesel construction equipment meeting CARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines, and comply with the State Off-Road Regulation. • Use on-road heavy-duty trucks that meet the CARB's 2007 or cleaner certification standard for on-road heavy-duty diesel	Onshore and offshore Project area	Daily emissions of criteria pollutants during mobilization and demobilization activities are minimized.	Document emission/dust reduction measures in daily field notes and submit to EM Discuss deviations from SLO measures with EM in advance Perform emission/dust monitoring and report results to EM	PG&E field crew	While mobilizing and de-mobilizing Monitoring data submittal after Project mobilized De-mobilization data submittal after Project complete
				Provide advance approval of measure deviations to PG&E crew Field compliance monitoring; Notify CSLC of any variances noted in field Review daily field notes and mobilization emission/dust data to identify potential air quality issues and follow up with PG&E crew regarding appropriate changes in procedures Submit mobilization emission/dust data to APCD and CSLC Submit weekly reports to CSLC Submit Final Monitoring Report to APCD and CSLC	EM	Prior to and during survey activities Initial data submittal after Project mobilized De-mobilization data submittal after Project complete
				Review mobilization data to	APCD/ CSLC	After Project

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	engines, and comply with the State On-Road Regulation. • Construction or trucking companies with fleets that do not have engines in their fleet that meet the engine standards identified in the above two measures, for example, captive or NO_x exempt area fleets, may be eligible by proving alternative compliance. • All on- and off-road diesel equipment shall not idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the 5-minute idling limit. • Diesel idling within 1,000 feet of sensitive receptors is not permitted. • Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors. • Electrify equipment when feasible. • Substitute gasoline-powered in place of diesel-powered equipment, where feasible. • Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas, liquefied natural gas, propane,			assess compliance with this MM and determine if changes in procedures are warranted Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed		mobilized During and after completing survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	or biodiesel. & *MM AQ-1b Implementation of Best Available Control Technology (BACT) Measures.* Wherever feasible, PG&E shall implement the BACT Measures in the current San Luis Obispo County Air Pollution Control District CEQA Handbook. BACT measures can include: • Further reducing emissions by expanding use of Tier 3 and Tier 4 off-road- and 2010 on-road-compliant engines; • Repowering equipment with the cleanest engines available; • Installing California Verified Diesel Emission Control Strategies; • Using alternative fuels or fuel additives to reduce emissions; and • If feasible, and in compliance with all other APMS and MMs, modifying the Project schedule to conduct the Project when emissions impacts will be minimized.					

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impact AQ-2: Survey activities would result in daily emissions of criteria pollutants that would exceed air quality significance thresholds.	*MM AQ-1a Application of the "Standard Mitigation Measures for Construction"* & *MM AQ-1b Implementation of Best Available Control Technology (BACT) Measures* (From San Luis Obispo Co. APCD CEQA Handbook; see above)	Onshore and offshore Project area	Daily emissions of criteria pollutants during survey activities are minimized.	As above	As above	As above
Impact AQ-3: Total Project activities would result in quarterly emissions of criteria pollutants that would exceed air quality significance thresholds.	*MM AQ-1a Application of the "Standard Mitigation Measures for Construction"* & *MM AQ-1b Implementation of Best Available Control Technology (BACT) Measures* (From San Luis Obispo Co. APCD CEQA Handbook; see above) & *MM AQ-3a Implementation of Fugitive Dust Controls.* PG&E shall reduce fugitive dust emissions by implementing fugitive dust control measures. These measures shall include the following actions: • Reduce the size of the disturbed area where possible; • Use of water trucks in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed	Onshore Project area	Quarterly emissions of criteria pollutants are minimized and meet any goals established by APCD.	Document emission/dust reduction measures in field notes and weekly construction monitoring reports to EM Discuss deviations from SLO measures with EM in advance Perform emission/dust monitoring and report results weekly to EM	PG&E	Prior to and during survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	15 mph. Reclaimed (non-potable) water should be used whenever possible; • Designate a person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures as necessary to minimize dust complaints, reduce visible emissions below 20 percent opacity, and prevent transport of dust off site. The monitors' duties would include holidays and weekend periods when work may not be in progress.			Provide advance approval of measure deviations to PG&E crew Field compliance monitoring Notify CSLC of any variances noted in field Review weekly emission/dust reports to identify potential air quality issues and follow up with PG&E crew regarding appropriate changes in procedures Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this M, and provide EM/PG&E with suggested procedure modifications as needed	APCD/ CSLC	During and after completion of survey activities
Impact AQ-3: Total Project activities would result in quarterly emissions of criteria pollutants.	*MM AQ-3b Prepare a Project-Specific Emission Reduction Program.* PG&E shall confer with the San Luis Obispo County Air Pollution Control District to review the principal emission sources, and shall prepare an Emission Reduction Program for the Project that shall include: • Final list of Project vessels and proof of Tier 2 or better engines, where feasible.		Quantify emission reductions planned for Project. Avoid air quality violations in County caused by Project.	Documentation that mitigation measures implemented as agreed with APCD	PG&E	After measures implemented
				Review of PG&E documentation to confirm compliance, and provide written approval to PG&E	APCD	After measures implemented
				Review of PG&E and APCD documentation to confirm compliance with MM	CSLC	After measures implemented

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	• Air dispersion modeling results, if applicable, identifying environmental or operational conditions resulting in peak emissions. The modeling shall be conducted with input from the San Luis Obispo County Air Pollution Control District with the intent to avoid the potential for the Project to cause an air quality violation in San Luis Obispo County. PG&E shall demonstrate that Project emissions would not result in an exceedance of California Ambient Air Quality Standards or National Ambient Air Quality Standards for nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter $(PM)_{2.5}$ and PM_{10}. • Engine upgrades or other modifications that can feasibly be implemented prior to mobilization that reduce emissions, with concurrence from the San Luis Obispo County Air Pollution Control District. • Off-site mitigations agreed in advance by the San Luis Obispo County Air Pollution Control District. Emissions that cannot be adequately mitigated with on-site mitigation will require offsite mitigation to reduce air quality					

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	impacts to levels below the significance thresholds. PG&E shall propose measures to reduce current existing San Luis Obispo County emissions to offset Project emissions, which may include use of the offsite mitigation funding mechanism. PG&E shall work with the California State Lands Commission and the San Luis Obispo County Air Pollution Control District to develop and implement the measures and, if applicable, provide mitigation funding in advance of Project implementation. The Emission Reduction Program shall be submitted to the San Luis Obispo County Air Pollution Control District and the California State Lands Commission by September 1, 2012.					

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Terrestrial Biology (Section 4.3)						
Impacts to sensitive terrestrial species and habitat areas.	*APM-11 Worker Environmental Awareness Training Program (WEAP)*. A WEAP shall be prepared and presented to all personnel at the beginning of the Project. The WEAP shall discuss sensitive species and habitat areas with the potential to occur in the seismic survey area, with an emphasis on special-status wildlife and plant species. The program shall also explain the importance of avoiding disturbance and implementing measures to protect sensitive resources during Project activities.	Onshore Project area	Onsite workers are aware of biological resources present, conduct Project activities in a way that minimizes impacts to biological resources, and alert the onsite biological monitor if they identify potentially sensitive biological resources in the Project area.	Preparation of and presentation of WEAP to field crew by qualified biologist Document WEAP participation of all staff with sign-in sheets Retain records of WEAP attendance for all field staff and provide copies to EM Confirm at start of work day that all field staff have received WEAP training Record names of on-site crew in daily field notes, and provide copies of daily field notes to EM	PG&E field crew, including biologist	Prior to mobilizing During survey activities
				Review WEAP, solicit input from CSLC, and provide feedback to PG&E regarding WEAP adequacy Compliance monitoring (compare WEAP attendance sheets to staff names in daily field notes) Document compliance in weekly reports and Final Monitoring Report to CSLC	EM	Prior to mobilizing During survey activities Submit report at conclusion of onshore activities
				Review WEAP and provide feedback regarding WEAP adequacy Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	Prior to mobilizing During and after completion of onshore activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impacts to sensitive terrestrial species and habitat areas.	*APM-12 Pre-Activity Biological Survey*. A qualified biologist(s) shall conduct a pre-activity survey no more than two weeks prior to the start of onshore Project activities, covering: 1. Areas where nodal devices would be placed; 2. The AWD/Vibroseis™ survey routes; and 3. Staging areas/access points. The focus of these pre-activity surveys would be to identify and mark areas with sensitive flora, fauna, and/or habitats. If sensitive species or habitats are identified during these pre-activity surveys, in order to prevent impacts to these biological resources, their location shall be marked in the field, recorded using a global positioning device and in a daily form, and an exclusion zone (buffer) established around them. The pre-activity survey conducted along the Morro Bay sandspit (Central Area) shall be conducted by a biologist experienced with the Morro shoulderband snail. Prior to the start of the pre-activity biological surveys, the names and qualifications of the biologists conducting surveys along the Morro Bay sandspit shall be submitted to the USFWS for approval.	Onshore Project area	Confirmation that buffers established as specified in the APM to avoid impacts to sensitive species	Notify the EM regarding observed sensitive species Discuss buffer procedures with EM in advance Document observations and responses in pre-activity survey report to EM	PG&E biological monitor	Prior to each phase of Project activities (as noted in APM)
				Field compliance monitoring Notify CSLC of any variances noted in field Discuss potential biological resource concerns and avoidance measures with monitor and crew, and provide advance approval Review and provide pre-activity survey reports to CSLC	EM	Prior to each phase of onshore Project activities
				Review pre-activity survey reports to assess compliance with this APM	CSLC	After completion of each onshore activity phase

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impacts to sensitive terrestrial species.	*APM-13 Biological Monitoring During Geophone Placement, Geophone Retrieval, and Survey Activities.* A qualified biologist shall be on site during the wireless nodal geophone placement and retrieval activities and during the onshore seismic AWD/Vibroseis survey activities to ensure the exclusion areas (buffers) are maintained and sensitive biological resources within or near Project work areas are avoided. If special-status species are found within planned work areas, the biological monitor shall ensure appropriate measures are implemented (e.g., adjusting transects, adjusting the survey period, or biological monitoring) to avoid adverse impacts to special-status species. The biological monitor shall confirm that the geophone devices placed on the Morro Bay sandspit avoid all vegetation, in order to avoid impacts to special-status plants that may be present but are unidentifiable during the fall months. PG&E shall maintain a record of daily monitoring forms and shall compile monitoring summaries following the completion of the: (1) pre-activity surveys; (2) biological monitoring during geophone installation, (3) biological monitoring during onshore seismic	Onshore Project area	No adverse effects noted for sensitive terrestrial species.	Notify the EM regarding observed sensitive species Discuss avoidance measures with EM in advance Document observations and actions taken in field notes included in weekly monitoring reports to EM	PG&E crew, including biological monitor	Prior to and during survey activities
				Provide advance approval of avoidance measures to PG&E crew Field compliance monitoring Notify CSLC of any variances noted in field Review weekly monitoring reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	surveys, and (4) biological monitoring during geophone retrieval. These monitoring reports shall be submitted to the CSLC, USFWS, and CDFG.					
Impacts to nesting birds.	*APM-14 Establishment of Buffer Zones Around Active Nests*. Work is not proposed to occur during the nesting season. However, if onshore Project activities extend into the nesting season, then a qualified biologist shall survey for active nests within 500 feet of Project activities. If an active nest is identified, PG&E shall, in consultation with CDFG, determine a suitably sized no-disturbance buffer around the nest, which shall be maintained for the duration of activities. Monitoring procedures shall be consistent with PG&E's 2007 *Avian Protection Plan (*work procedure for implementation of this plan replicated in Appendix F of this EIR).	Onshore Project area	No adverse effects noted for nesting birds.	Notify the EM regarding observed bird nests Discuss avoidance measures with EM in advance Document observations and responses in field notes and weekly monitoring reports to EM	PG&E crew, including biological monitor	Prior to and during survey activities
				Provide advance approval of avoidance measures to PG&E crew Field compliance monitoring Notify CSLC of any variances noted in field Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impacts to burrowing owls.	*APM-15 Establishment of Exclusion Zones Around Active Owl Burrows*. For burrowing owls, no disturbance shall occur within approximately 160 feet of occupied burrows during the non-breeding season of September 1 through January 31, and within approximately 250 feet during the breeding season of February 1 through August 31 (California Burrowing Owl Consortium 1993). The limits of the exclusion zone in the Project survey area shall be clearly marked with signs, flagging, and/or fencing.	Onshore Project area	No adverse effects noted for Western burrowing owls	Notify the EM if presence of burrowing owls observed Discuss avoidance measures with EM in advance Document observations and responses in field notes and weekly monitoring reports to EM.	PG&E crew, including biological monitor	Prior to and during survey activities
				Provide advance approval of avoidance measures to PG&E crew Field compliance monitoring; Notify CSLC of any variances noted in field Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC.	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities
Impacts to Morro Bay kangaroo rats.	*APM-16 Kangaroo Rat Avoidance and Minimization Measures*. During the pre-activity survey, the qualified biologist(s) shall identify kangaroo rat burrows and establish exclusion zones around any burrows as required in APM-	Onshore Project area	No adverse effects noted for Morro Bay kangaroo rats	Notify the EM if presence of kangaroo rats observed Discuss avoidance measures with EM in advance Document observations and responses in field notes and weekly monitoring reports to EM	PG&E crew, including biological monitor	Prior to and during survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	12. The limits of the exclusion zone in the Project survey area shall be clearly marked with signs, flagging, and/or fencing and the burrows shall be documented with photographs. No AWD/Vibroseis™ trucks shall be operated within 100 feet of kangaroo rat burrows. Installation of wireless nodals shall avoid such burrows. In addition, PG&E shall consult informally or formally with the USFWS and CDFG, as determined by these agencies, in order to discuss additional avoidance measures that PG&E should implement to avoid "take" of the Morro Bay kangaroo rat during Project activities that could impact this species (e.g., during mobilization and demobilization of the wireless nodal devices along the Morro Bay sandspit in the Central Area).			Provide advance approval of avoidance measures to PG&E crew Field compliance monitoring Notify CSLC of any variances noted in field Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities
Impacts to Morro shoulderband snails.	*APM-17 Establishment of Exclusion Zones Around Morro Shoulderband Snails (MSS).* A qualified biologist with a current MSS section 10(a)(1)(A) recovery permit shall be retained to conduct pre-activity surveys for MSS in all onshore seismic survey areas in order to avoid potential impacts. If an MSS is detected in the survey area, a 50-foot buffer exclusion zone shall be established and the transect shall be adjusted to avoid any	Onshore Project area	No adverse effects noted for Morro shoulderband snails	Notify the EM if presence of Morro shoulderband snails observed Discuss avoidance measures with EM in advance Document observations and responses in field notes and weekly monitoring reports to EM	PG&E crew, including biological monitor	Prior to and during survey activities
				Provide advance approval of avoidance measures to PG&E crew Field compliance monitoring; Notify CSLC of any variances	EM	Prior to and during survey activities Submit report at

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	disturbance to the snail (at no time prior to or during the Project shall MSS be relocated). The limits of the exclusion zone in the Project survey area shall be clearly marked with signs, flagging, and/or fencing. Further, all survey findings shall be documented for reporting to the U.S. Fish and Wildlife Service and other regulatory agencies.			noted in field Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC		conclusion of onshore activities
				Review weekly and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities
Impacts to streams and wetlands.	*APM-18 Avoidance of Streams and Wetlands*. Seismic surveys shall be designed to avoid direct activities in stream corridors, wetlands, and vernal pools. The on-site biological monitor shall be available to determine if survey locations need to be moved to avoid impacts to sensitive aquatic and/or wetland-associated resources. No activities shall occur where there is presence of standing water that indicates a potential wetland.	Onshore Project area	No adverse effects noted on sensitive streams and wetlands	Notify the EM if streams/wetlands present in work area Discuss avoidance measures with EM in advance Document observations and responses in field notes and weekly monitoring reports to EM	PG&E crew, including biological monitor	Prior to and during survey activities
				Provide advance approval of avoidance measures to PG&E crew Field compliance monitoring; Notify CSLC of any variances noted in field Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final	CSLC	During and after

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
				Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed		completion of onshore activities
Impacts to the western snowy plover, California least tern, California clapper rail, and California black rail.	*APM-19 Avoidance of Western Snowy Plover, California Least Tern, California Clapper Rail, and California Black Rail Nesting Habitats*. Project activities shall avoid snowy plover, California least tern, California clapper rail, and California black rail habitats during the nesting season from March to September. In addition, PG&E shall informally consult with the Department of Parks and Recreation environmental scientists regarding western snowy plover and California least tern nesting activities and conditions along the Morro Bay sandspit, prior to the start of onshore Project activities. Based on information obtained through this consultation, and wherever feasible, Project activities shall be designed to avoid impacting plovers or least terns that may be present near the proposed nodal device deployment and retrieval activities.	Onshore Project area	No adverse effects noted for Western snowy plovers, California least terns, California clapper rails, and California black rails	Notify the EM if presence of Morro shoulderband snails observed Discuss avoidance measures with EM in advance Document observations and responses in field notes and weekly monitoring reports to EM	PG&E crew, including biological monitor	Prior to and during survey activities
				Provide advance approval of avoidance measures to PG&E crew Field compliance monitoring Notify CSLC of any variances noted in field Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impacts to sensitive terrestrial wildlife species.	*APM-20 Lighting Use During Nighttime Survey Activities*. Lighting used for nighttime onshore survey activities, if required, shall be low intensity and shall be directed downward, and green lighting shall be used whenever possible.	Onshore Project area	No adverse effects on wildlife in the work area noted.	Notify the EM when nighttime activities are to be conducted Discuss lighting measures with EM in advance Document impacts due to lighting in field notes included in weekly monitoring reports to EM	PG&E crew	Prior to and during survey activities
				Provide advance approval of lighting measures to PG&E crew Field compliance monitoring Notify CSLC of any variances noted in field Review weekly construction reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities
Impacts to sensitive terrestrial wildlife species.	*APM-21 Ongoing Trash Removal.* All trash shall be removed from the Project area at the end of each working day.	Onshore Project area	No project-related trash observed in the work area	Document trash removal in field notes included in weekly monitoring reports to EM	PG&E crew	Prior to and during survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field Review weekly reports to identify potential issues and follow up with PG&E crew	EM	Prior to and during survey activities Submit report at conclusion of

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
				Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC		onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities
Impacts to sensitive terrestrial species and habitats.	*APM-22 Limited Off-Road Vehicle Travel*. The use of heavy equipment and vehicles shall be limited to the Project limits, existing roadways, and defined staging areas/access points.	Onshore Project area	No adverse effects noted for sensitive biological resources (i.e., special-status habitats, plants, and wildlife) in the work area due to Project-related off-road vehicle travel.	Document compliance in field notes included in weekly monitoring reports to EM	PG&E crew	Prior to and during survey activities
				Field compliance monitoring; Notify CSLC of any variances noted in field Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impact TERBIO-2: Lighting from proposed offshore survey activities could adversely affect migrating birds.	*MM TERBIO-2 Reduce Light Radiating from Survey Vessels*. Wherever possible and when not in conflict with United States Coast Guard lighting requirements, MM MARINEBIO-12d, or other requirements for safety: • Use vessel lighting with shading to direct light inward and downward to living and work areas, and the minimal light output necessary. Examples of light that would be shaded and/or pointed inward and downward include deck lighting and doorway and stairway lighting. Also, use shades on windows to block interior lighting. • Turn off all high-intensity lights in inclement weather, when the vessels are not actively conducting surveys. PG&E shall submit for CSLC review and approval a list of lighting features on the main survey vessel at least 1 month prior to mobilization.	Offshore Project area	No adverse effects noted for special-status wildlife species (e.g., sea turtles, and migrating birds) due to increased night lighting emanating from offshore survey vessels.	Submit to EM a list of lighting features on the main survey vessel, that shall be modified to shade and/or redirect light Document impacts due to lighting in field notes included in weekly monitoring reports to EM	PG&E crew	Prior to and during survey activities
				Provide advance approval of lighting measures to PG&E crew Field compliance monitoring Notify CSLC of any variances noted in field Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Provide input to EM/PG&E regarding adequacy of lighting measures Review weekly and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impact TERBIO-7: Onshore seismic survey activities may require some limited tree trimming, which could adversely affect native oak trees by improper thinning, or disease transmittance.	*MM TERBIO-7 Retain Certified Arborist for Assessment and Trimming of Native Trees*. To protect the long-term health of oak trees and other native trees in the Project area, a certified arborist shall be retained by PG&E to assess whether trimming is necessary and to perform trimming of oak tree limbs along the onshore seismic survey routes if it is necessary. This shall be conducted prior to allowing construction equipment to enter the impact area, to avoid and/or reduce the potential for inadvertent damage to native tree limbs by AWD or Vibroseis equipment. a. At least 1 month prior to mobilization, PG&E shall have a certified arborist assess the need to trim branches along the finalized outing. b. Prior to mobilization, PG&E shall submit to CSLC the written findings of the certified arborist, and a schedule for trimming trees if the findings determine that trees require trimming to allow clearance for the survey vehicles.	Onshore Project area	No adverse effects noted for trees trimmed to provide access to survey vehicles	Evaluate survey routes to determine whether native trees are on survey routes If so, employ arborist to assess need for tree trimming Submit arborist's report and proposed schedule for trimming to EM Proceed with trimming upon receiving approval from EM Document completion of tree trimming in report submitted to EM	PG&E	1 month prior to onshore surveys
				Review arborist's report and provide advance approval of proposed measures, with modification as needed to reflect CSLC input Field compliance monitoring; Notify CSLC of any variances noted in field Review tree trimming report and include in Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review arborist's report of proposed trimming actions and provide input to EM Review Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	Prior to and during survey activities At conclusion of onshore activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impact TERBIO-8: Onshore trucks and equipment required for the Project could result in the spread of invasive species and the pathogen responsible for Sudden Oak Death.	*MM TERBIO-8 Sanitize Vehicles to Avoid Spread of Sudden Oak Death and Invasive Weeds.* To reduce the possibility of spreading Sudden Oak Death and invasive weeds to sensitive natural communities, PG&E shall: a. Require that all equipment—including shoes, pruning gear (if necessary to trim trees for accessibility), trucks, and Vibroseis and AWD equipment—be sanitized prior to work on site. b. Submit procedures for sanitizing project vehicles and equipment to the CSLC for review and approval, prior to the start of any onshore Project activities on the ground.	Onshore Project area	No increases in Sudden Oak Death or invasive weeds noted due to project activities.	Submit Sanitizing Plan to EM Implement sanitization upon receiving approval from EM Document completion of sanitizing procedures in weekly reports submitted to EM	PG&E	At least 2 weeks prior to survey During onshore survey activities
				Review Sanitizing Plan and provide advance approval of proposed measures, with modification as needed to reflect CSLC input Field compliance monitoring, including inspection for evidence of Sudden Oak Death and invasive weeds Notify CSLC of any deviations or evidence of Sudden Oak Death and invasive weeds noted in field Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC.	EM	Prior to and during survey activities During onshore survey activities Submit report at conclusion of onshore activities
				Provide input to EM/PG&E regarding adequacy of Sanitizing Plan Review weekly and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	Prior to, during, and after survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Marine Biology (Section 4.4)						
Offshore Project survey activities could result in general impacts to marine wildlife.	*APM-1 Survey Timing*. To be less disruptive to migrating and summer season whales, the survey shall be timed to occur during the months of September through December.	Onshore and Offshore Project area	Project activities do not occur outside September-December timeframe	Provide detailed project schedule to EM and CSLC Submit weekly reports to EM documenting Project progress	PG&E	2 weeks prior to survey activities During survey activities
				Review project schedule to confirm consistency with APM Monitor compliance through field inspections and review of weekly reports Notify CSLC of any deviations Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to, during and after survey activities
				Review proposed schedule and provide input to EM Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	Prior to, during and after survey activities
Offshore Project survey activities could result in noise impacts to sea mammals and other sensitive sea life.	*APM-2 Establishment of Safety Zone and Exclusion Zone*. PG&E used acoustic models to predict sound levels associated with the air gun array, and this information was used to establish both a Safety Zone (the distance from the air gun array at which noise levels are >160 dB re 1 µPa) and an Exclusion Zone (the distance from the air gun array at which noise levels are >180 dB re 1 µPa) in	Offshore Project area	No adverse effects to marine wildlife due to Project are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust Exclusion Zone if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring	EM	During and at conclusion of

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	marine waters around the air guns. The survey vessel shall avoid the presence of sensitive marine wildlife (marine mammals and turtles) within the Exclusion Zone to the maximum extent feasible.			Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC		survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Offshore Project survey activities could result in noise impacts to sea mammals and other sensitive sea life.	*APM-3 Real-Time Sound Measurements/ Exclusion Zone Adjustments*. An acoustics contractor shall perform real-time, direct underwater sound measurements during air gun deployment; these data shall be used to verify and adjust the Exclusion Zone distances, as needed.	Offshore Project area	No adverse effects to marine wildlife due to Project are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust Exclusion Zone if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess	CSLC	During and at conclusion of

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
				compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed		survey activities
Offshore Project survey activities could result in noise impacts to sea mammals and other sensitive sea life.	*APM-4 Use of Ramp Up Process*. To warn marine wildlife in the vicinity of the air guns and provide time for them to leave the area and avoid potential injury or hearing impairment, at the start of air gun operations (after a period of no operation), the seismic operator shall start off with low sound levels and gradually increase them (ramp up).	Offshore Project area	No adverse impacts to marine wildlife during or immediately after ramp ups are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust ramp up procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew; Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Offshore Project survey activities could result in noise impacts to sea mammals and other sensitive sea life.	*APM-5 Air Gun Operation During Turns and Transects*. During turns or brief transits between seismic transects, the seismic operator shall continue firing a single air gun, to avoid periods of silence when marine wildlife could otherwise attempt to migrate into the Exclusion Zone.	Offshore Project area	No adverse impacts to marine wildlife during turns or transits are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures during turns and transits if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Offshore Project survey activities could result in general impacts to marine mammals (sound impacts, harassment, collision).	*APM-6 Aerial Surveys to Identify Presence of Marine Mammals*. PG&E shall conduct aerial surveys as follows: 1. Approximately 5 days prior to seismic survey to obtain pre-survey information on the numbers and distribution of marine mammals in the seismic	Offshore Project area	Marine wildlife are successfully precluded from Exclusion Zone; no ship strikes or other adverse	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust aerial survey procedures if needed based on EM/CSLC input	PG&E	Prior to and during survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	survey area; 2. During initial stages of seismic survey to document changes in the behavior and distribution of marine mammals in the area during seismic operations. If needed, aerial surveys shall be extended for a longer period of the seismic surveying; and 3. One week prior to completion of seismic survey to document whether detectable changes in numbers and distribution of marine mammals have occurred in response to the seismic operations.		effects to marine wildlife are observed	Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to, during and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Offshore Project survey activities could result in general impacts to marine mammals (sound impacts, harassment, collision).	*APM-7 Use of Marine Mammal Monitors During Surveys*. Qualified Marine Mammal Observers (MMOs) shall be onboard the primary seismic vessel whenever the air guns are firing during daylight, and during the 30-minute periods prior to ramp-ups, as well as during ramp-ups. Their role will be to watch for and identify marine mammals; record their numbers, distances, and reactions to the survey operations; and document observations. A scout vessel with qualified MMOs shall traverse the Exclusion Zone to monitor marine wildlife within the survey area and report to primary vessel operator if any animals are	Offshore Project area	Marine wildlife are successfully precluded from Exclusion Zone; no ship strikes or other adverse effects to marine wildlife are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust monitoring procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring; Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	observed. If marine mammals or other sensitive wildlife are observed within or about to enter the Exclusion Zone around the proposed survey activities, the speed of the vessel shall be adjusted to avoid entry of the marine mammal into the Exclusion Zone. If the mammal still appears likely to enter the Exclusion Zone, further mitigation actions shall be taken, including reducing the number and volume of air guns firing, or complete air gun shutdown.			Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Offshore Project survey activities could result in general impacts to marine mammals (sound impacts, harassment, collision).	*APM-8 Use of Passive Acoustic Monitoring*. Passive Acoustic Monitoring (PAM) shall be available to supplement visual monitoring in conditions of poor visibility or low lighting. When a vocalization is detected while visual observations are in progress, the acoustic Marine Mammal Observer (MMO) shall contact the visual MMO immediately, to alert him/her to the presence of cetaceans (if they have not already been seen), and, if necessary, to allow a power down or shut down to be initiated.	Offshore Project area	Marine wildlife are successfully precluded from Exclusion Zone; no ship strikes or other adverse effects to marine wildlife are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust PAM procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Nearshore geophones could adversely impact black abalone.	*APM-9 Deployment of Nearshore Geophone Lines by Diver-Biologists*. A team of diver-biologists have performed a survey in the proposed geophone line locations for the presence of black abalone. Within 2 days of the actual placement of the geophones, a team of diver-biologists shall survey the alignments to confirm avoidance of impacts to black abalone. Deployment of geophone lines within rocky areas in water depths of 10 feet (3 meters) or less shall be completed by divers who will pull the line from a boat and place each geophone to avoid any previously marked or observed black abalone.	Nearshore Project area	No impacts to black abalone are observed.	Document compliance in field notes and in a survey report to EM and CSLC Notify EM and CSLC if black abalone present along geophone lines, and adjust line locations accordingly Document line relocation in field notes	PG&E	Prior to and while deploying geophone lines
				Field compliance monitoring Notify CSLC of any variances noted in field Review survey report to identify potential issues and follow up with PG&E crew Submit Survey Report to CSLC	EM	Prior to and while deploying geophone lines
				Review Survey Report to assess compliance with this APM, and Provide EM/PG&E with suggested procedure modifications as needed to avoid black abalone	CSLC	Prior to and while deploying geophone lines

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	APM-28 Relocation of Geophones by Divers. In the event a geophone transect is to be relocated, PG&E shall conduct a survey of the proposed new geophone transect; identify locations where geophones can be placed that avoid hard bottom habitat; obtain approval of the new transect from CSLC; place the geophones within the new transect so as to avoid hard bottom habitat; and conduct a post-installation survey to verify avoidance of significant impacts.	Offshore Project area	All geophone placement avoids hard bottom habitat	Document compliance in field notes and in a survey report to EM and CSLC Notify EM and CSLC if hard bottom habitat present along geophone lines, and adjust line locations accordingly Document line relocation in field notes	PG&E	Prior to and while deploying geophone lines
				Field compliance monitoring Notify CSLC of any variances noted in field Review survey report to identify potential issues and follow up with PG&E crew Submit Survey Report to CSLC	EM	Prior to and while deploying geophone lines
				Review Survey Report to assess compliance with this APM Provide EM/PG&E with suggested procedure modifications as needed to avoid hard bottom habitat	CSLC	Prior to and while deploying geophone lines
Impact MARINEBIO-1: Vessel transit during mobilization and demobilization activities could potentially disturb or kill (due to collision) sea turtles, fish, or marine mammals.	*MM MARINEBIO-1 Marine Species Protocols.* PG&E shall prepare protocols to be implemented by all Project-related vessels for non-survey transit for the entirety of the Project. These shall include procedures for maintaining safe distances when mammals are observed, and procedures for reporting all physical contact and near-misses that may occur during mobilization	Offshore Project area	No ship strikes or other adverse effects to marine wildlife are observed during transit to and from the Project area	Prepare and submit protocols to EM/CSLC for review 1 month before mobilization Document compliance Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed based on EM/CSLC input	Survey vessel operator/PG&E	Prior to mobilizing During mobilizing and demobilizing
				Review protocols, solicit input from CSLC, and provide input to	EM	Prior to mobilizing

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	and demobilization. If marine mammals are observed, the vessels shall maintain a distance of at least 1,640 feet (500 meters [m]) from the mammals to reduce the chance of collision.			PG&E regarding adequacy of protocols and suggested revisions Follow up with vessel crew regarding adverse impacts encountered and appropriate procedure modifications Notify CSLC regarding adverse impacts during transit		During mobilizing and demobilizing
				Provide EM/PG&E with suggested procedure modifications as needed	CSLC	Prior to and during mobilizing and demobilizing
Impact MARINEBIO-12: Injury or mortality of marine mammals due to noise during seismic survey acquisition.	*APMs 1 through 8 (see above)* *In addition:* *MM MARINEBIO-12a Expand Pre-Survey to 8.6 Miles (14 Kilometers) and Perform 10 Days in Advance of Survey.* Pacific Gas & Electric Company (PG&E) shall conduct a pre-survey of the Project area and vicinity to 8.6 miles (14 kilometers) (twice the maximum 160-decibel re 1 µPa root mean square isopleth) for mysticetes (baleen whales), approximately 10 days prior to the start of the survey to allow for analysis of data obtained during the pre-survey and to make adjustments to the survey schedule as needed. For this mitigation measure, PG&E shall conduct a sighting survey to specifically assess and record mysticete density and the location of all major marine	Offshore Project Area	Marine wildlife are successfully precluded from Exclusion Zone; no ship strikes or other adverse effects to marine wildlife are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as	CSLC	During survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	mammal concentrations. Based on the results of the pre-survey, PG&E shall develop an approach for the seismic survey to reduce potential impacts to marine mammals, such as proceeding with the survey Zone with the lowest mammal density or delaying the survey until non-critical densities of marine mammals are detected. Survey Approach: • Use protocols established for aerial surveys by the National Atmospheric and Oceanic Administration (NOAA, e.g., Forney et al. 1995), with line spacing of the aerial surveys modified to maximize coverage in the pre-survey area. Surveys shall only be carried out in suitable conditions (e.g., Beaufort 4 and below, good visibility). Analysis of Pre-survey Data: • Assess mysticete densities in the pre-survey area in comparison to Environmental Impact Report assumptions and thresholds. The following densities correspond to high magnitude Level B take estimates for Endangered Species Act (ESA) listed			needed		

<table>
<tr><th>Impact</th><th>Mitigation Measure</th><th>Location</th><th>Effectiveness Criteria</th><th>Monitoring or Reporting Action</th><th>Responsible Party</th><th>Timing</th></tr>
<tr><td></td><td>baleen whales:

<table>
<tr><th>ESA-Listed Mysticete Species</th><th>Density Threshold Predicted to Result in High Magnitude Intensity Rating (per km^2)</th><th>Number of Animals within Estimated Aerial Survey Area of 3,074 km^2</th></tr>
<tr><td>Fin Whale</td><td>0.0073</td><td>23</td></tr>
<tr><td>Blue Whale</td><td>0.0063</td><td>19</td></tr>
<tr><td>Humpback Whale</td><td>0.0053</td><td>16</td></tr>
</table>
Assumptions:
1. Densities correspond to 2.5 percent threshold for probabilistic Level B noise disturbance over duration of Project.
2. Pre-survey aerial survey area based on 14-kilometer buffer proposed in this mitigation.
• Identify locations of sightings of porpoise and large concentrations of mammals.

Actions:
• Report pre-survey findings to the California State Lands Commission and the National Marine Fisheries Service as soon as feasible, but at least two days prior to beginning the survey.</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	• If the density of animals in the aerial survey area exceed the values noted above PG&E shall consult with the California State Lands Commission and the National Marine Fisheries Service about potential strategies to avoid conducting the survey in areas with higher concentrations of these mysticete species. • Prioritize survey areas to avoid large concentrations of mysticetes and harbor porpoise.					
Impact MARINEBIO-12: Injury or mortality of marine mammals due to noise during seismic survey acquisition.	*MM MARINEBIO-12b Extend Aerial Surveys Throughout Survey Period.* Pacific Gas & Electric Company shall conduct aerial surveys of the Project area and vicinity one week prior to initiating survey activities in each survey zone. The aerial surveys shall cover the area out to approximately 8.6 miles (14 kilometers), twice the maximum 160-decibel re 1 µPa root mean square isopleth for mysticetes, to determine whether large concentrations of mysticetes were occurring within the larger ensonified area or other zones to be surveyed. High concentrations would lead to survey operation modifications as per MM MARINEBIO-12a.	Offshore Project Area	Marine wildlife are successfully precluded from Exclusion Zone; no ship strikes or other adverse effects to marine wildlife are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
				provide EM/PG&E with suggested procedure modifications as needed		
Impact MARINEBIO-12: Injury or mortality of marine mammals due to noise during seismic survey acquisition.	*MM MARINEBIO-12c Avoidance of Pinniped Haul-Outs.* Pacific Gas & Electric Company shall establish a flight plan for the aerial surveys that includes plans to avoid local pinniped haul-outs or to maintain sufficient altitude (greater than 500 feet [152 meters] above sea level) when passing local pinniped haul-outs.	Offshore Project Area	No disturbance to pinniped haul-outs is observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Impact MARINEBIO-12: Injury or mortality of marine mammals due to noise during seismic survey acquisition.	*MM MARINEBIO-12d Required Marine Mammal Observer Qualifications, Use of Equipment and Procedures to Enhance Detection Rates, and Performance of Nighttime Monitoring.* This mitigation measure expands upon the	Offshore Project Area	MMOs capable of monitoring throughout the survey duration	Provide Qualifications to EM/CSLC for review Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed	PG&E	Prior to mobilization During survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	monitoring activities identified under APM-7. The Marine Mammal Observers (MMOs) used for the Project shall be independent and demonstrated to have had considerable experience sighting local species and using Passive Acoustic Monitoring. Appropriate equipment/procedures shall be used to improve daytime detection rates (including big-eye binoculars, sufficient numbers of MMOs, and required rest periods). Monitoring shall be performed during the nighttime using Passive Acoustic Monitoring that may be supplemented by equipment to enhance night detection rates (including advanced infrared equipment, sodium lighting, and/or millimeter waves radar). There shall be a minimum of three MMOs assigned to each vessel (survey vessel and two scout boats), with two MMOs on watch at a time. The third would rest and then rotate with other MMOs to enhance vigilance during watch times.			based on EM/CSLC input		
				Review MMO qualifications, solicit input from CSLC and provide feedback to PG&E regarding their adequacy Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC; Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review MMO qualifications and provide feedback to PG&E regarding their adequacy Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impact MARINEBIO-12: Injury or mortality of marine mammals due to noise during seismic survey acquisition.	*MM MARINEBIO-12e Increase Size of Exclusion Zone During Surveys*. Pacific Gas & Electric Company shall increase the size of the Exclusion Zone for the full air gun array to 1.1 miles (2 kilometers) for baleen whales (mysticetes), whose hearing sensitivity overlaps the greatest with seismic air gun signals; sperm whales; and large groups of marine mammals (i.e., porpoises). Responses to such observations shall be as described under APM-7 (reduce speed to avoid). Exclusion Zones for array power-down and the single mitigation air gun shall be estimated from sound measurements conducted during air gun deployment (APM-3), and shall include real-time measurements over at least one area of rocky seabed. PG&E shall submit results of the real-time measurements and recommended power-down and mitigation gun Exclusion Zones based on the real-time measurements. This information shall be submitted to the California State Lands Commission and National Marine Fisheries Service for review and approval prior to the survey.	Offshore Project Area	Marine wildlife are successfully precluded from Exclusion Zone; no ship strikes or other adverse effects to marine wildlife are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC; Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impact MARINEBIO-12: Injury or mortality of marine mammals due to noise during seismic survey acquisition.	*MM MARINEBIO-12f Monitoring Using Two Scout Boats with Marine Mammal Observers During Surveys*. A total of two scout boats with MMOs shall be used to increase detection rates within the Exclusion Zone. These boats shall maintain a distance of half the Exclusion Zone on either side of the survey vessel. While surveying near shore, these scout boats shall remain outside of surface kelp area to avoid additional otter disturbance.	Offshore Project Area	Marine wildlife are successfully precluded from Exclusion Zone; no ship strikes or other adverse effects to marine wildlife are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC; Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Impact MARINEBIO-12: Injury or mortality of marine mammals due to noise during seismic survey acquisition.	*MM MARINEBIO-12g Perform Track Lines with Highest Mammal Densities During Daylight Hours.* To the extent feasible, Pacific Gas & Electric Company shall perform the inshore tracks of the seismic survey to coincide with daylight hours. In addition, Pacific Gas & Electric Company shall conduct surveys near Church Rock (North	Offshore Project Area	Marine wildlife are successfully precluded from Exclusion Zone; no ship strikes or other adverse effects to marine wildlife	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts	EM	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	35º 20.675 West 120º 59.049) during daylight hours to the extent possible.		are observed	to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC		
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Impact MARINEBIO-12: Injury or mortality of marine mammals due to noise during seismic survey acquisition.	*MM MARINEBIO-12h Increase Pre-Ramp-Up Scan Period.* As a modification to APM-4, Pacific Gas & Electric Company shall increase the pre-ramp-up scan period to 45 minutes, especially in poor sighting conditions. Some species have long dive times and only spend short periods of time at the surface between dives. Other species are hard to spot at long range or in poor conditions. Increasing the pre-ramp-up scan period will increase the chance of sighting these individuals. Also, Pacific Gas & Electric Company shall increase the time for observation in the Exclusion Zone following power-down or shutdown.	Offshore Project Area	Marine wildlife are successfully precluded from Exclusion Zone; no ship strikes or other adverse effects to marine wildlife are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
				procedure modifications as needed		
Impact MARINEBIO-12: Injury or mortality of marine mammals due to noise during seismic survey acquisition.	*MM MARINEBIO-12i Adaptive Management in Case of Multiple Shutdowns.* If more than three shutdowns occur for mysticete whales observed in the Exclusion Zone, PG&E shall initiate an immediate project review in consultation with the California State Lands Commission and the National Marine Fisheries Service to assess the safety of Project area conditions. The two agencies shall be notified within 24 hours of the fourth consecutive shutdown. Aerial survey data and observations noted by the Marine Mammal Observers shall be provided to the noted agencies for review and consideration of potential refinements required in mitigation strategy. The survey activity may proceed while the agencies assess the situation, unless otherwise directed by the California State Lands Commission.	Offshore Project Area	No adverse effects to marine wildlife are observed during or immediately after ramp up	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring; Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Impact MARINEBIO-12: Injury or mortality of marine mammals due to noise during seismic survey acquisition.	*MM MARINEBIO-12j Contingency for Sighting of North Pacific Right Whale.* PG&E shall shut down air guns if a North Pacific right whale is sighted at any distance from the survey vessel.	Offshore Project Area	No ship strikes or other adverse effects to North Pacific right whale are observed	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if adverse effects to marine wildlife observed and adjust procedures if needed based on EM/CSLC input	PG&E	During survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
				Field compliance monitoring; Notify CSLC of any variances noted in field or observed impacts to marine wildlife Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC; Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Impact MARINEBIO-13: Injury or mortality to Southern Sea Otters would occur due to noise during seismic survey acquisition.	APMs 1 through 8 (see above) MMs MARINEBIO-12a through 12i (see above)	See above	No adverse effects to local sea otter population are observed	See above	See above	See above

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Cultural Resources (Section 4.5)						
Project activities could impact cultural resources.	*APM-23 Cultural Resource Monitoring during Survey Activities*. Cultural resource specialists shall survey the proposed receiver alignments and seismic transects before any Project-related activities begin. Cultural resource monitors shall also accompany each field team during pre-activity surveys and during seismic survey operations in areas with potential for cultural resources. Cultural monitors working within the Montaña de Oro State Park shall have prior experience working on the California central coast, they shall be approved by Department of Parks and Recreation prior to any survey activities, and they shall report any significant findings to the Department of Parks and Recreation archaeologists. If cultural resources are discovered during onshore Project activities, the work activities shall be redesigned to avoid impacts to these resources. If damage to cultural resources as a result of Project activities is observed, work activities shall halt until appropriate measures agreed upon by CSLC are implemented to avoid further impacts.	Onshore Project area	No adverse effects to cultural resources are observed.	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if cultural resources observed in geophone or survey line locations Record resource locations Submit cultural resources survey report to EM and CSLC	PG&E	Prior to and during survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to cultural resources Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit cultural survey report to CSLC	EM	Prior to, during, and at conclusion of survey activities
				Review weekly reports and cultural survey report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impact CUL-1: Offshore mobilization/demobilization activities could directly or indirectly impact cultural resources.	*MM CUL-1 Use of Divers to Identify and Avoid Potential Cultural Resources During Anchor and Geophone Placement*. Diver-biologists surveying the nearshore area prior to geophone deployment as specified in APM-9 (*Deployment of Nearshore Geophone Lines by Diver-Biologists*) shall document the presence of any potentially significant cultural resources, such as shipwrecks, and direct the vessels to avoid these cultural resources when deploying an anchor, if needed, or geophones.	Offshore Project Area	No adverse effects to nearshore cultural resources (e.g., shipwrecks) are observed.	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if cultural resources observed in nearshore geophone line locations Record resource locations Submit cultural resources survey report to EM and CSLC	PG&E, including cultural resources monitor	During geophone placement and at conclusion of survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed impacts to marine wildlife; Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit cultural resources report to CSLC	EM	During geophone placement and at conclusion of survey activities
				Review weekly reports and cultural resources report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During geophone placement and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Geology and Soils (Section 4.6)						
No potential impacts were identified that warrant mitigation measures (neither APMs nor MMs were developed).						
Greenhouse Gases (Section 4.7)						
Impact GHG-1: The Project would result in emissions of GHGs.	*MM AQ-1a Application of the "Standard MMs for Construction"* & *MM AQ-1b Implementation of Best Available Control Technology (BACT) Measures*	See MM AQ-1a and MM AQ-1b	See MM AQ-1a and MM AQ-1b	See MM AQ-1a and MM AQ-1b	See MM AQ-1a and MM AQ-1b	See MM AQ-1a and MM AQ-1b
Public Safety (Section 4.8)						
Project activities could result in unsafe conditions, if boats become entangled with or crash into Project survey equipment.	*APM-26 Issuance of Notices.* Advance notice shall be provided to local recreational and commercial boaters and fishermen through the U.S. Coast Guard (USCG) Notice to Mariners regarding the restrictions in use of the Project area, with sufficient lead-time for affected persons to plan for alternate times and places to perform offshore activities. In addition, PG&E shall post notices in the harbor master's offices of Morro Bay and Port San Luis at least 15 days in advance of in-water operations.	Offshore Project area	No collisions or entanglement occur between survey vessels and non-Project related vessels.	Document compliance in field notes included in weekly monitoring reports to EM Provide copies of dated notices to EM and CSLC	PG&E	Initial notice 15 days prior to in water activities Updates during survey activities
				Field compliance monitoring; Notify CSLC of any variances noted in field or of complaints from boaters and fishermen Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC; Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Project survey vessels could have an oil spill.	*APM-27 Oil Spill Contingency Plan.* The survey vessel is required to have a vessel-specific oil spill contingency plan, per United States Geological Survey (USGS) regulations. This Plan shall include the following response and protective actions and measures that shall be implemented in the event of a spill: • Deployment of a containment boom (to be available on the vessel), and additional support that could be obtained from local harbors; • Protective measures developed to protect sensitive resources and habitats in the Project area, as described in the Area Contingency Plan prepared by the U.S. Coast Guard, California Department of Fish and Game (CDFG), and other resource agencies (CDFG 2009); and • Local response capabilities available from PG&E.	Offshore Project area	Impacts from any oil spill that occurs as a result of Project activities are minimized.	Confirm that oil spill contingency plan and protective equipment required by the plan are available on board the project vessels Compliance in field notes included in weekly monitoring reports to EM Notify USCG immediately in the event of an oil spill and respond to release using local capabilities; Notify EM and CSLC if an oil spill occurs and describe actions taken to remedy Submit incident report to EM, CSLC and USCG immediately after event Adjust operating procedures to avoid future releases if needed based on EM/CSLC/USCG input	PG&E	Prior to mobilizing During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed risk of future releases Review weekly reports and incident reports, if any, to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Incident Reports to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
A fire could result from Project activities.	*APM-24 Brush Fire Prevention Procedures.* Field vehicles shall be equipped with functioning fire extinguishers appropriate for use in extinguishing minor brush fires. Routes overgrown with tall vegetation shall be cleared prior to driving across them if permission is obtained from the landowner.	Onshore Project area	No brush fires occur due to Project activities	Confirm that fire extinguishers and clearing tools are available in the project vehicles Compliance in field notes included in weekly monitoring reports to EM Notify fire department immediately in the event of a brush fire and respond to it using local capabilities Notify EM and CSLC if a brush fire occurs and describe actions taken to remedy Submit incident report to EM, CSLC and USCG immediately after event Adjust operating procedures to avoid future brush fires if needed based on EM/CSLC/Fire Department input	PG&E	Prior to mobilizing During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed risk of future fires Review weekly reports and incident reports, if any, to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Incident Reports to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
				needed		
	APM-25 Emergency Response Procedures. Field vehicles shall be equipped with a functioning radio. Upon hearing San Luis Obispo County's Early Warning System Sirens, the field crew shall tune to a local radio station for information and react as directed. If an emergency situation occurs during the onshore seismic surveys, the workers and work trucks shall be required to comply with the most current version of the San Luis Obispo County Emergency Operations Plan, and evacuate the area immediately. The field crews/vehicles shall not block evacuation routes or routes needed for emergency response vehicles, or otherwise impede ingress/egress required for public safety.	Onshore Project area	Evacuations occur without incident, and Project vehicles do not impede emergency response vehicle passage	Confirm that functioning radio is present in the project vehicles and that field staff are familiar with County's Emergency Operations Plan Compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC in the event of a local emergency and describe actions undertaken Submit incident report to EM and CSLC immediately after event Adjust operating procedures to improve response if needed based on EM/CSLC input	PG&E	Prior to mobilizing During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed issues associated with emergency response Review weekly reports and incident reports, if any, to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and incident reports, if any, to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Sediments and Water Quality (Section 4.9)						
Impacts to streams and wetlands.	*APM-18 Avoidance of Streams and Wetlands*. Seismic surveys shall be designed to avoid direct activities in stream corridors, wetlands, and vernal pools. The on-site biological monitor shall be available to determine if survey locations need to be moved to avoid impacts to sensitive aquatic and/or wetland-associated resources. No activities shall occur where there is presence of standing water that indicates a potential wetland.	Onshore Project area	No adverse effects noted on sensitive streams and wetlands	Notify the EM if streams/wetlands present in work area Discuss avoidance measures with EM in advance Document observations and responses in field notes and weekly monitoring reports to EM	PG&E crew, including biological monitor	Prior to and during survey activities
				Provide advance approval of avoidance measures to PG&E crew Field compliance monitoring Notify CSLC of any variances noted in field Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior to and during survey activities Submit report at conclusion of onshore activities
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and after completion of onshore activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Land Use and Recreation (Section 4.10)						
Impacts to fishing and other recreational users of the ocean.	*APM-10 Survey Timing to Reduce Impacts to Fishing and Recreational Uses*. To be less disruptive to commercial and recreational fishing operations and other recreational uses, the survey shall be timed to occur during the months of September through December. To reduce the overall Project duration, survey operations shall be conducted 24 hours per day, 7 days per week (24/7).	Offshore Project area	Project activities do not occur outside September-December timeframe	Provide detailed project schedule to EM and CSLC Submit weekly reports to EM documenting Project progress	PG&E	2 weeks prior to survey activities During survey activities
				Review project schedule to confirm consistency with APM; Monitor compliance through field inspections and review of weekly reports; Notify CSLC of any deviations; Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior, during and after survey activities
				Review proposed schedule and provide input to EM Review weekly reports and Final Monitoring Report to assess compliance with this APM	CSLC	Prior to, during and after survey activities
Impacts to boaters and fishermen.	*APM-26 Issuance of Notices.* Advance notice shall be provided to local recreational and commercial boaters and fishermen through the U.S. Coast Guard (USCG) Notice to Mariners regarding the restrictions in use of the Project area, with sufficient lead-time for affected persons to plan for alternate times and places to perform offshore activities. In addition, PG&E shall post notices in the harbor master's offices of Morro Bay and Port San Luis at least 15 days in advance of	Offshore Project area	Interferences between Project and recreational vessels are minimized.	Document compliance in field notes included in weekly monitoring reports to EM Provide copies of dated notices to EM and CSLC	PG&E	Initial notice 15 days prior to in water activities Updates during survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or of complaints from boaters and fishermen Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC	EM	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	in-water operations.			Submit Final Monitoring Report to CSLC		
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Impact LU-1: Offshore Project activities would adversely impact offshore recreational activities during a peak season.	*MM LU-1 Develop and Implement Communication Plan with Local Fishing, Boating, and Other Recreational Interests.* PG&E shall prepare a Communication Plan addressing preclusion in the offshore Project area to be communicated to local fishing (commercial and recreational), boating, and other recreational interests. The Communication Plan shall be submitted to CSLC for review and approval at least 1 month prior to mobilization, and shall include: • Local PG&E Liaison and contact details of person or persons who will provide up-to-date information about the survey. • Local repositories and contacts, to include the local harbor districts and fishing associations. • Notification of the participants listed in the NMFS Southwest Region Marine Mammal Stranding	Offshore Project area	Impacts to offshore recreational activities are minimized	Submit Communication Plan to EM and CSLC; and Prepare flyers delineating survey preclusion areas and estimated timing of preclusion	PG&E	One month prior to mobilizing 2 weeks before and during survey activities
				Review Plan for adequacy, solicit input from CSLC and provide feedback to PG&E	EM	Prior to mobilizing
				Review Plan for adequacy, provide EM/PG&E with suggested Plan modifications as needed	CSLC	Prior to mobilizing

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	Network. (List to be obtained from: http://www.nmfs.noaa.gov/pr/health/networks.htm#southwest). • Establishment of a registry of interested persons who wish to receive updated information throughout the survey period. This registry shall include but not be limited to: the California Department of Parks and Recreation, fishermen, harbor districts, fishing associations, recreational events, surf and dive shops, dive training facilities, and other interested marine-based groups. All registrants shall be notified of updates in the survey schedule and location by email alerts or other means established in the Communication Plan. Outreach for establishing the registry shall begin no less than 6 weeks prior to mobilization. • A requirement for specific up-to-date survey and preclusion areas to be communicated to entities and individuals included in the registry to improve the potential for substitution of					

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	other areas. The survey and preclusion areas shall be clearly delineated on charts and by coordinates, and shall be posted online on a PG&E-maintained website, in hard copy at harbor offices in Morro Bay and Port San Luis, at local surf and dive shops/dive training facilities, and at beaches. The areas shall be updated on the required Project website daily and hard copies once per week throughout the entire survey period, including mobilization and demobilization. For this purpose, draft flyers and charts delineating survey preclusion areas and estimated timing of preclusion shall be presented in the Communication Plan. (PG&E shall prepare flyers and charts based on these templates.) • Establishment of a mechanism for contacting local fishermen who use set gear in the Project area; if changes in the survey schedule require removal of gear, PG&E shall provide notification to identified fishermen at least					

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	3 days in advance of survey activity to remove gear.					
Impact LU-2: Offshore Project activities would conflict with some applicable land use plans.	*MM LU-2 No Aircraft Less than 1,000 Feet Above Monterey Bay National Marine Sanctuary (MBNMS) Exclusion Zones*. Prior to conducting aerial marine mammal surveys, PG&E shall provide the pilots with a map of the MBNMS and a copy of the relevant MBNMS Management Plan policy regarding aircrafts flying at an elevation less than 1,000 feet (305 meters) (NOAA 2008).	Offshore Project area	No project-related aircraft observed to fly less than 1,000 feet above the MBNMS No disturbance of marine mammals noted due to aerial fly-overs	Document that pilots have been provided with MNNMS map and Management Plan; Document compliance in field notes included in weekly monitoring reports to EM	PG&E	Prior to and during survey activities
				Field compliance monitoring; Notify CSLC of any variances noted in field; Review weekly reports to identify potential issues and follow up with PG&E crew; Submit weekly reports to CSLC; Submit Final Monitoring Report to CSLC.	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Noise (Section 4.11)						
Impact NO-1: The proposed offshore activities would expose persons present in the water to harmful noise levels.	*MM NO-1 Observation and Removal of Divers from Waters in Active Survey Area*. Spotters present on the survey and support vessels as Marine Mammal Observers (MMOs) shall be instructed to also observe for the potential presence of non-project-related divers in or about to enter the waters in the active survey area. If such divers are observed by the MMOs or vessel crews, a support vessel will inform them that their presence is not allowed in the active survey area, and vessel crew will arrange for them to be escorted from the active survey area.	Offshore Project Area	No divers observed in Exclusion Zone or injured by Project activities	Document compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC if divers observed and adjust monitoring procedures if needed based on EM/CSLC input	PG&E	During survey activities
				Field compliance monitoring; Notify CSLC of any variances noted in field or observed issues with divers Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Impact NO-2: The proposed onshore activities would result in a temporary increase in ambient noise levels in the project vicinity.	*MM NO-2 Limit Weekend Hours of Operation*. To reduce noise and vibration impacts, hours or operation during the weekends shall be limited to the hours of 8 a.m. to 5 p.m.	Onshore Project area	Onshore ambient noise activities are limited to the specified hours	Document compliance in field notes included in weekly monitoring reports to EM Immediately notify EM and CSLC of any complaints received from local receptors Follow up on complaints and describe actions undertaken in weekly reports	PG&E	During survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
				Field compliance monitoring Notify CSLC of any variances noted in field or complaints from nearby receptors Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and Final Monitoring Report to assess compliance with this MM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Impact NO-4: The proposed onshore activities would expose persons to increased groundborne vibration or groundborne noise levels.	*MM NO-2 Limit Weekend Hours of Operation*. (see above)	See MM NO-2	See MM NO-2	See MM NO-2	See MM NO-2	See MM NO-2

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Traffic and Transportation (Section 4.12)						
Project contractors may fail to act appropriately, in the event of an emergency situation.	*APM-25 Emergency Response Procedures*. Field vehicles shall be equipped with a functioning radio. Upon hearing San Luis Obispo County's Early Warning System Sirens, the field crew shall tune to a local radio station for information and react as directed. If an emergency situation occurs during the onshore seismic surveys, the workers and work trucks shall be required to comply with the most current version of the San Luis Obispo County Emergency Operations Plan, and evacuate the area immediately. The field crews/vehicles shall not block evacuation routes or routes needed for emergency response vehicles, or otherwise impede ingress/egress required for public safety.	Onshore Project area	Evacuations occur without incident, and Project vehicles do not impede emergency response vehicle passage	Confirm that functioning radio is present in the project vehicles and that field staff are familiar with County's Emergency Operations Plan Compliance in field notes included in weekly monitoring reports to EM Notify EM and CSLC in the event of a local emergency and describe actions undertaken Submit incident report to EM and CSLC immediately after event Adjust operating procedures to improve response if needed based on EM/CSLC input	PG&E	Prior to mobilizing During survey activities
				Field compliance monitoring Notify CSLC of any variances noted in field or observed issues associated with emergency response Review weekly reports and incident reports, if any, to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC	EM	During and at conclusion of survey activities
				Review weekly reports and incident reports, if any, to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Commercial Fishing (Section 4.13)						
Commercial fishing in the offshore Project area would be disrupted by Project activities.	*APM-10 Survey Timing to Reduce Impacts to Fishing and Recreational Uses*. To be less disruptive to commercial and recreational fishing operations and other recreational uses, the survey shall be timed to occur during the months of September through December. To reduce the overall Project duration, survey operations shall be conducted 24 hours per day, 7 days per week (24/7).	Offshore Project area	Project activities do not occur outside September-December timeframe	Provide detailed project schedule to EM and CSLC Submit weekly reports to EM documenting Project progress	PG&E	2 weeks prior to survey activities During survey activities
				Review project schedule to confirm consistency with APM Monitor compliance through field inspections & review of weekly reports Notify CSLC of any deviations Submit weekly reports to CSLC Submit Final Monitoring Report to CSLC	EM	Prior, during and after survey activities
				Review proposed schedule and provide input to EM Review weekly reports and Final Monitoring Report to assess compliance with this APM	CSLC	Prior to, during and after survey activities
Commercial fishing in the offshore Project area would be disrupted by Project activities.	*APM-26 Issuance of Notices.* Advance notice shall be provided to local recreational and commercial boaters and fishermen through the U.S. Coast Guard (USCG) Notice to Mariners regarding the restrictions in use of the Project area, with sufficient lead-time for affected persons to plan for alternate times and places to perform offshore activities. In addition, PG&E shall post notices in the harbor master's offices of Morro Bay and Port San Luis at least 15 days in advance of	Offshore Project area	Interferences between Project and fishing operations are minimized.	Document compliance in field notes included in weekly monitoring reports to EM Provide copies of dated notices to EM and CSLC	PG&E	Initial notice 15 days prior to in water activities Updates during survey activities
				Field compliance monitoring; Notify CSLC of any variances noted in field or of complaints from commercial fishermen Review weekly reports to identify potential issues and follow up with PG&E crew Submit weekly reports to CSLC	EM	During and at conclusion of survey activities

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
	in-water operations.			Submit Final Monitoring Report to CSLC		
				Review weekly reports and Final Monitoring Report to assess compliance with this APM, and provide EM/PG&E with suggested procedure modifications as needed	CSLC	During and at conclusion of survey activities
Fish abundance and catch would be impacted by Project activities.	*APM-29 Fish Abundance and Catch Study*. PG&E will develop and implement, in coordination with the California Department of Fish and Game, a program to collect additional data to increase the body of scientific knowledge related to the effects of air gun testing for seismic surveys on fishes. The program will be initiated prior to the seismic survey and will continue for a period of 1 year not to exceed 2 years.	Offshore Project area	Production of a scientifically sound study, which effectively documents the impacts of the Project's seismic survey activities on fish abundance and fish catch.	Work with California Department of Fish and Game (CDFG) to develop a program on the impacts of seismic survey activities on fish abundance and catch. Submit a scientific report or paper of these results to CDFG and CSLC.	PG&E	During and conclusion of survey activities
Impact FISH-1: Offshore Project activities would adversely impact commercial fishing by precluding fishing for all or most of a season.	*MM LU-1 Develop and Implement Communication Plan with Local Fishing, Boating, and Other Recreational Interests.(see above)*	See MM LU-1	Interferences between Project and fishing operations are minimized.	See MM LU-1	See MM LU-1	See MM LU-1

Impact	Mitigation Measure	Location	Effectiveness Criteria	Monitoring or Reporting Action	Responsible Party	Timing
Impact FISH-2: Project activities would have short-term adverse effects on catch resulting from survey-related noise.	*MM LU-1 Develop and Implement Communication Plan with Local Fishing, Boating and Other Recreational Interests.(see above)*	See MM LU-1	Interferences between Project and fishing operations are minimized.	See MM FISH-1	See MM LU-1	See MM LU-1

MODIFIED EXHIBIT E – CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

STATEMENT OF FINDINGS

Modified Timing Three-Loop Configuration

August 20, 2012

INTRODUCTION TO STATEMENT OF FINDINGS

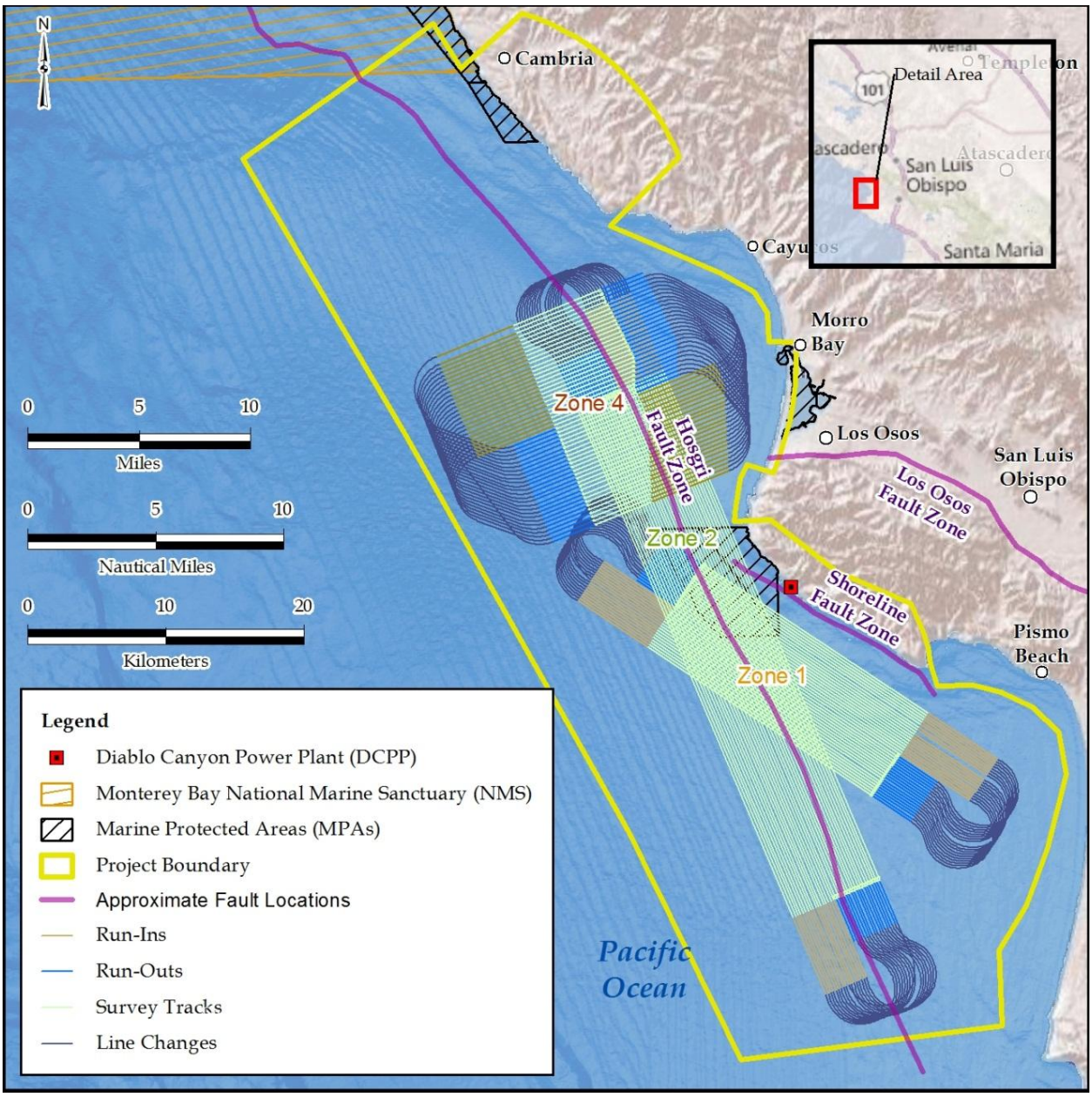
The California State Lands Commission (CSLC) has prepared these Findings to comply with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC, as the lead agency under CEQA, prepared an Environmental Impact Report (EIR) (State Clearinghouse No. 2011061085) that discloses and analyzes the impacts to the environment that could result from implementation of the Central Coastal California Seismic Imaging Project (Project).[1] The CSLC adopts these Findings specifically as set forth below as part of its discretionary decision to issue a Geophysical Survey Permit to Pacific Gas and Electric Company (PG&E or Applicant). In approving the Project and Permit, the CSLC determined that modifications to the project as proposed by the Applicant were necessary and appropriate; the project as approved is hereinafter referred to as the "Modified Timing Three-Loop Configuration" or "Approved Project" (see Figure 1; see Exhibit C for a diagram of the Project as proposed by PG&E), and is described below.

Under the Approved Project, PG&E would perform a deep (6 to 9 miles [10 to 15 kilometers (km)]), three-dimensional (3D) high-energy seismic survey (that is, a survey involving equipment requiring energy input of greater than 2 kilojoules) using the National Science Foundation (NSF) Research Vessel (R/V) *Marcus G. Langseth*. The intention of the survey is to gather additional scientific information that would help PG&E better understand the relationships and/or connections among several fault zones, including the recently discovered Shoreline Fault, located near the Diablo Canyon Power Plant (DCPP), a nuclear power plant located in Avila Beach, San Luis Obispo County.

Pursuant to Public Resources Code section 6826, the CSLC has the authority to issue permits to conduct geophysical surveys on State sovereign lands, including tide and submerged lands, which extend from the shoreline to 3 nautical miles (nm) offshore. The last time the Commission approved a geophysical survey employing air guns in offshore marine waters within its jurisdiction, however, was more than 25 years ago. At its October 7, 1987, meeting, the Commission determined that permits for geophysical surveys employing air guns could not be issued unless and until an EIR was first certified. The Commission's decision was upheld by the California Court of Appeal. (*Meridian Ocean Systems, Inc., et al. v. California State Lands Commission* [1990] 222

[1] The Final EIR was published in July 2012 and is available on the CSLC website at: www.slc.ca.gov (under the "Information" tab and "CEQA Updates" link).

Figure 1 – Modified Timing Three-Loop Configuration



Cal. App. 3d 153.) The Commission had not received a subsequent application for a geophysical permit entailing the use of air guns until PG&E submitted the subject application in 2011.

Modified Timing Three-Loop Configuration (Approved Project)

While Alternative IIIb (Three-Loop Configuration) as described in the EIR reduces the survey footprint (thereby avoiding two MPAs), shortens the expected survey duration, and reduces several significant impacts as compared to the applicant-proposed Project, the CSLC determines that additional modifications to the survey timing would likely further reduce impacts to some marine species and reduce the adverse social and economic consequences on commercial fishermen, fishing-related businesses, ancillary businesses and the regional communities. **Based on all available information presented, the CSLC adopts a modified version of Alternative IIIb, as set forth below, which incorporates additional survey timing restrictions, as well as aspects of Alternative IIb (Phased Survey), which was also analyzed in the EIR.**

The Modified Timing Three-Loop Configuration consists of Alternative IIIb as modified by the following:

- Project Timing: Project-related activities including mobilization to the area, pre-survey aerial surveys, pre-survey terrestrial surveys, onshore and nearshore geophone deployment, and other initial equipment deployment will not commence prior to **October 15**. Project-related activities will not be conducted after December 31;
- Survey Activities: Use of air guns (i.e., commencement of survey) will not commence prior to **November 1**;
- Phasing Contingency: In the event the survey has not been completed by December 31, 2012, survey and related Project activities may occur between October 15, 2013, and December 31, 2013, subject to the above restrictions (e.g., no use of air guns before November 1, 2013).

In addition to the Geophysical Survey Permit that is the subject of the CSLC's present action, other public agencies will or may need to issue an approval before the Approved Project can proceed. These agencies include, but are not necessarily limited to the following:

- Port San Luis Harbor District;
- San Luis Obispo County;
- California Coastal Commission (CCC);
- California Department of Fish and Game (CDFG);
- California Department of Parks and Recreation;
- California Department of Transportation;
- California Regional Water Quality Control Board, Central Coast Region;
- State Historic Preservation Office;
- National Oceanic and Atmospheric Administration Fisheries Service;

- National Science Foundation;
- U.S. Army Corps of Engineers;
- U.S. Coast Guard; and
- U.S. Fish and Wildlife Service.

In addition to the project as proposed by PG&E, the EIR identifies and analyzes a range of reasonable alternatives to the proposed project, based on input from CSLC staff, the Applicant, local jurisdictions and the public during the EIR scoping hearings, and members of the Independent Peer Review Panel (IPRP) established by the California Public Utilities Commission *(*CPUC).[2] The EIR identifies the No Project Alternative as the environmentally superior alternative because it is the only alternative that would avoid or substantially lessen all identified potentially significant impacts, such that they would be *Less than Significant*. However, CEQA requires that "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives" (State CEQA Guidelines,[3] § 15126.6, subd. (e)(2)). Therefore, the EIR analyzes the remaining alternatives and identifies the Environmentally Superior Alternative, as discussed below.

Along with the applicant-proposed project, the EIR analyzes four potentially feasible alternatives that would reduce one or more of the significant effects while achieving most of the project objectives (Table 1):

Table 1 – Alternatives Analyzed in the EIR

Description of Alternative	Alternative #
The No Project alternative.	**I**
A phased alternative, under which part of the survey would be done first, followed by a delay of some months to a year before the second part of the survey was conducted.	**IIb**
A three-zone alternative that would eliminate the northern zone of the survey (Zone 3).	**IIIb**
PG&E's original generalized two-loop "racetrack" survey proposal (which was amended in January 2012), entailing two larger survey zones, instead of four smaller ones.[4]	**IIIc**

The EIR analysis concludes that each of the identified alternatives other than the No Project Alternative would reduce one or more of the significant impacts, but not to a less than significant level (see also Table 2).

[2] The IPRP was established to conduct a peer review of the proposed seismic study plans and, if the Project is implemented, to review study findings. The IPRP includes staff from the CPUC, California Energy Commission (CEC), California Seismic Safety Commission, CCC, and County of San Luis Obispo, with contract support from the California Geological Survey.

[3] The State "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

[4] Based on input from the R/V *Langseth* operator and IPRP members, PG&E determined that the refined survey design (the proposed Project analyzed in the EIR) would better address survey objectives.

Table 2 – Relative Impacts Associated with the Applicant-Proposed Project and Alternatives Analyzed in the EIR

Impact	Proposed Project	No Project	Alternative IIb	Alternative IIIb	Alternative IIIc
Noise Effects on Resident Harbor Porpoises*	Highest	Negligible	Highest	High	Moderate
Noise Effects on Migratory Baleen Whales*	Highest	Negligible	Highest	Moderate-High	Moderate
Conflicts with MPAs and MBNMS	High	Negligible	High	Moderate	Highest
Air and GHG Emissions	High	Negligible	High	Moderate	Highest
Conflicts with Fishing	High	Negligible	Highest	Moderate	High

* Indicates the average rating across all density scenarios for both Injury SEL and NMFS Minimum criteria.

- No Project Alternative: Because under Alternative I the high-energy survey would not take place, the associated impacts on air quality, marine biological resources, Marine Protected Areas (MPAs) and the Monterey Bay National Marine Sanctuary (MBNMS), and commercial and recreational fishing would not occur; however, neither would the project objectives be met.

- Phased Survey: Alternative IIb, assuming both phases were to occur, would have the same footprint, survey timing window (September-December), and total number of survey days as the project as proposed by PG&E, and is therefore expected to have comparable impacts on marine biological resources and the MPAs and MBNMS. Because mobilization and demobilization would be conducted each year, Alternative IIb would result in a net increase in criteria and greenhouse gas (GHG) emissions as compared with the project proposed by PG&E, but would also reduce the emissions in a given quarter and avoid emissions involved in refueling. Repeating mobilization and demobilization may also increase disturbance for some commercial and recreational fishing activities, potentially resulting in higher impacts to those resource areas. If the second phase did not take place, impacts associated with that phase would be eliminated. Alternative IIb would also meet all of the project objectives.

- Three-Loop Configuration: By eliminating the northern survey zone, Alternative IIIb would reduce the duration of the total project from 82 days to 68 days as compared to the project proposed by PG&E, and would shrink the footprint of the survey, thus reducing impacts on marine biological resources, air quality and GHGs, and commercial and recreational fishing. Alternative IIIb would also avoid two of the three MPAs in the Project area, and increase the distance between the survey and the MBNMS. Alternative IIIb, however, would not meet the project objective of gathering data on the Hosgri-San Simeon step-over located in the northern zone.

- Two-Loop Configuration: Because Alternative IIIc would not extend as close to shore as the project proposed by PG&E, the Alternative would reduce impacts on marine mammals; however, the estimated duration of the total project time (including mobilization and equipment set-up) would be 93 days, 11 days longer than the project proposed by the PG&E. As a result, impacts on air quality and commercial and recreational fishing would be somewhat higher than the project proposed by PG&E. Also, the northern tracklines for Alternative IIIc extend into the MBNMS, increasing conflict with MBNMS policy. The Alternative would also not address key target areas (such as the Hosgri/Shoreline intersection) as fully as the project proposed by PG&E.

The EIR analysis determined that Alternative IIIb (Three-Loop Configuration) would have the lowest overall impacts when compared to the other alternatives and the proposed project. This Alternative would accomplish the project objectives associated with survey targets in three of the proposed survey zones, but would not accomplish the objectives for data collection in the northernmost survey zone (Zone 3). In Zone 3, a survey target of interest to PG&E is the Hosgri-San Simeon step-over. However, discussions with PG&E and the IPRP revealed technical opinions that conclusions about the Hosgri-San Simeon step-over feature could be drawn from existing information, or obtained with techniques other than 3D high-energy seismic surveys. As a result of these discussions, the CSLC considers conducting seismic surveys in Zone 3 to be of less technical value than the other three proposed survey zones, and believes that Alternative IIIb would accomplish most of the project objectives. Under Alternative IIIb (Three-Loop Configuration), impacts would primarily be reduced through:

1. Reducing the survey footprint, which would:
    - avoid the White Rock-Cambria MPAs;
    - increase the survey's distance from the MBNMS;
    - reduce impacts to marine wildlife due to noise; and
    - reduce impacts to commercial and recreational fishing from preclusion; and
2. Reducing the survey duration, thereby reducing impacts to marine wildlife, air quality, greenhouse gases, and commercial and recreational fishing. Overall, the survey duration would be reduced by approximately 14 days from 82 days to 68 days - within which the period of active full air gun deployment would be reduced by approximately 7 days, from 41 days to 34 days.

During its consideration of the analysis conducted in preparation of the Final EIR, information provided by PG&E, information obtained through the public review and comment process, and other information in the administrative record, the CSLC determined that incorporating components of Alternative IIb along with additional timing restrictions and adaptive management would modify Alternative IIIb such that impacts to some marine species and adverse social and economic consequences on fishermen and the regional communities could be further reduced. This option, the Modified Timing Three-Loop Configuration, is described above and constitutes the Approved Project upon which these Findings are based.

FINDINGS REQUIRED UNDER CEQA

Findings are required by each "public agency" that approves a project for which an EIR has been certified that identifies one or more significant environmental impacts (Pub. Resources Code, § 21081, subd. (a); State CEQA Guidelines, § 15091, subd. (a)). These findings, as a result, are intended to comply with the above-described mandate that for each significant effect identified in the EIR, the CSLC adopt one or more of the following Findings.

(1) Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effect as identified in the EIR.

(2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the CSLC. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

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

These findings are also intended to comply with the requirement that each finding by the CSLC be supported by substantial evidence in the administrative record of proceedings, as well as accompanied by a brief explanation of the rationale for each finding. (State CEQA Guidelines, § 15091, subds. (a), (b).) To that end, these findings provide the written, specific reasons supporting the CSLC's decision under CEQA to issue the Geophysical Survey Permit for the Modified Timing Three-Loop Configuration. Although the EIR does analyze the Approved Project's conflicts with and preclusion of other ocean uses in the Project area, such as commercial and recreational fishing, economic losses that may occur as a result of the Project are not quantified and compensation for such losses is not proposed for the following reasons:

- Economic effects are not considered to be significant effects pursuant to the State CEQA Guidelines (§ 15131, subd. (a)).
- CEQA requires that "an EIR shall describe feasible measures which could minimize *significant* adverse impacts" [emphasis added] (§ 15126.4, subd. (a)(1)).
- Therefore, no mitigation (compensation) was proposed for economic losses.

Socioeconomic effects are described in the EIR, are considered in the CSLC's Statement of Overriding Considerations (Modified Exhibit F), and are considered in the CSLC's decision to approve the Modified Timing Three-Loop Configuration. In so doing, the Findings, where appropriate, explain the specific reasons the CSLC rejects the Environmentally Superior Alternative as infeasible due to social and economic impacts to the regional communities. Furthermore, as explained below, the CSLC finds that while the Approved Project may result in greater impacts than the Environmentally Superior Alternative in some instances, by confining the project survey window to the November 1 to December 31 window (mobilization may begin October 15), the severity

of impacts would be less than what was identified in the EIR's analysis of Alternative IIb (Phased Survey).

Comparison of Alternative IIIb and the Approved Project

In adopting the Modified Timing Three-Loop Configuration, an option to Alternatives IIIb and IIb, the CSLC has balanced the economic, legal, social, technological, and other benefits of the project, including region- or statewide environmental benefits, against the adverse environmental consequences. In this respect, some specific significant impacts would decrease or may increase as compared to Alternative IIIb, depending on when PG&E completes surveying the target faults identified in its Project Objectives.

Implementation of adaptive management, as suggested during public comment (see Comment Letter No. 23 in the Final EIR, Volume 1, from the Natural Resources Defense Council, Ocean Conservancy, and The Otter Project, May 3, 2012) could also decrease impacts. If all, or part, of the year one survey fails to yield useful data, the survey proposed for year two could be reduced or eliminated and related impacts avoided entirely.

For example:

- With the shortened Project duration, total vessel emissions and emissions during the fourth quarter of 2012 under the Modified Timing Three-Loop Configuration (Approved Project) would be less than those resulting from the Environmentally Superior Alternative (Alternative IIIb), if PG&E is able to complete the Project in a single year. This could be accomplished if there were fewer delays caused by equipment malfunctions, weather, presence of marine mammals, or other circumstances than PG&E anticipates may occur in year one.
- Vessel emissions would likely be greater, however, if PG&E needs to complete the Project in year two, since PG&E would need to bring the survey vessel back to the Project area, and would need to repeat mobilization and demobilization activities, in the second year. However, the severity of the quarterly emissions exceedances would be less.
- Similar impacts relating to some marine mammals, MPAs, and Fishing activities may also be reduced or increased under the Modified Timing Three-Loop Configuration option depending on whether PG&E is able to complete the survey in one year or two years.

ADMINISTRATIVE RECORD OF PROCEEDINGS

These Findings are based on the information contained in the EIR for the Project, as well as information provided by the Applicant and gathered through the public involvement process, all of which is contained in the administrative record. References cited in these Findings can be found in the EIR, Section 9.0, References. The administrative record is located in the Sacramento office of the California State Lands Commission, 100 Howe Avenue, Suite 100-South, Sacramento, CA 95825.

SUMMARY OF FINDINGS

All environmental impacts of the Project identified in the EIR are listed below; the significance of each impact is classified as follows.

Table 3 – Summary of Significance Findings

Definition	Class	Findings Required
Significant and Unavoidable. Significant adverse impact that remains significant after mitigation	**SU**	**Yes**
Less than Significant with Mitigation. Significant adverse impact that can be eliminated or reduced below an issue's significance criteria	**LTSM**	**Yes**
Less than Significant. Adverse impact that does not meet or exceed the identified significance criteria	**LTS**	No
No Impact	**N**	No

Based on initial scoping, the Project was not anticipated to impact the following resource areas, which were eliminated from consideration in the EIR:

- Agriculture and Forestry Resources
- Mineral Resources
- Population and Housing
- Public Services
- Utilities and Service Systems

Furthermore, the analysis in the EIR found that the Project would have less than significant impacts on the following resource areas:

- Aesthetics
- Geology and Soils
- Public Safety
- Sediment and Water Quality
- Traffic and Transportation

For the remaining potentially significant effects, the Findings set forth below are:

1. Organized by significant impacts within the following EIR issue areas:
    - Air Quality [**AQ**];
    - Terrestrial Biological Resources [**TERBIO**];
    - Marine Biological Resources [**MARINEBIO**]
    - Cultural Resources [**CUL**];
    - Greenhouse Gases [**GHG**];
    - Land Use and Recreation [**LU**];
    - Noise [**NO**]; and
    - Commercial Fishing [**FISH**].
2. Numbered in accordance with the impact and mitigation numbers identified in the Mitigation Monitoring Program (MMP) in the EIR (see Section 8.0 of the EIR)

(Findings may not be numbered sequentially, since impacts that are less than significant [LTS] or no impact [N] do not require Findings); and

3. Followed by an explanation of the rationale for each Finding.

Wherever Finding (3) is made, the CSLC has determined that, even after implementation of all feasible mitigation measures and consideration of feasible alternatives, the identified impact would exceed the significance criteria set forth in the EIR. Furthermore, to the extent that potentially feasible measures have been alleged or proposed, the Findings explain why certain economic, legal, social, technological or other considerations render such possibilities infeasible. The significant and unavoidable impacts requiring Finding (3) are identified in the EIR, discussed in the Responses to Comments (Section II of the Final EIR), and explained below. Having done everything it can to avoid and substantially lessen these effects consistent with its legal authority and CEQA, the CSLC finds in these instances that overriding economic, legal, social, and other benefits of the proposed project as modified by the Modified Timing Three-Loop Configuration outweigh the resulting significant and unavoidable impacts. The Statement of Overriding Considerations adopted as Modified Exhibit F applies to all such unavoidable impacts, as required by CEQA (Pub. Resources Code, § 21081, subd. (b); State CEQA Guidelines, §§ 15092, 15093).

EIR FINDINGS

These Findings are based on the information contained in the EIR for the project, as well as information provided by the Applicant and gathered through the public involvement process, all of which is contained in the administrative record.

CEQA FINDING NO. AQ-1 Class: **SU**

Impact No.:	**AQ-1:** Mobilization and demobilization activities (including equipment deployment and retrieval) would result in daily emissions of criteria pollutants that would exceed air quality significance thresholds.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR. (3) Specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.

EXPLANATION

During mobilization and demobilization, the survey vessel is expected to emit criteria pollutants[5] while it travels to and from the Project area. Additional emissions are expected from the support boats used to deploy the equipment and to transport the

[5] As discussed in EIR Section 4.2, Air Quality, criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with a diameter of 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), lead (Pb), sulfates (SO_4), and hydrogen sulfide (H_2S).

survey crew, required equipment, and support provisions to the survey vessel. There would also be some contribution from onshore construction vehicles that would be used to deploy the onshore geophones. Estimated criteria pollutant emissions during mobilization and demobilization (including equipment deployment and retrieval) exceed the daily air quality significance thresholds.

As previously discussed, the EIR analysis determined that Alternative IIIb, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets; the EIR identifies this alternative as the Environmentally Superior Alternative. Mobilization and demobilization vessel emissions for Alternative IIIb would be the same as emissions for the proposed project. However, onshore emissions would be reduced because geophones would not need to be deployed in the Northern area, thereby reducing vehicle emissions associated with that activity. However, even under this Alternative, it is likely that mobilization and demobilization for survey operations would affect air quality. Under the Approved Project, daily emissions of criteria pollutants would be the same as for Alternative IIIb, but would occur over 2 years, if the second survey year were necessary. However, the total emissions as a result of the Approved Project would be greater as a result of having to mobilize and demobilize an additional time. As explained below, the CSLC identified or addressed potentially feasible mitigation measures in the EIR (including in the Response to Comments) that could avoid, substantially lessen, or further reduce the significant effect, based on the environmental analysis in the EIR, and public and public agency input. However, the CSLC has not identified any feasible mitigation measures or project design elements that would reduce the effect to a less than significant level based on the identified thresholds of significance.

Furthermore, to the extent Alternative IIIb, the Environmentally Superior Alternative, could reduce this impact by avoiding the daily emissions associated with the second survey year, the CSLC finds this alternative infeasible based on the economic and social impacts that would result to fishermen, fishing-related businesses, ancillary businesses, and the regional communities and the need to reduce the duration that these community members experience economic hardship in any given year. These impacts are described in EIR Sections 4.13 – Commercial Fishing and 7.1 – Socioeconomic Effects, as well as documented in written comments and oral public testimony provided during the environmental documentation process. Additionally, the CSLC, in its approval is imposing further survey duration and timing constraints to avoid or minimize to the extent feasible the impacts associated with the additional survey year. As a result, the CSLC concludes the above-described evidence in the record renders Alternative IIIb infeasible due to social and economic considerations.[6]

[6] As explained in *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1000, "When it comes time to decide on project approval, the public agency's decisionmaking body evaluates whether the alternatives [analyzed in the EIR] are *actually* feasible….At this final stage of project approval, the agency considers whether '[s]pecific economic, legal, social, technological, or other considerations…make infeasible the mitigation measures or alternatives identified in the environmental impact report.' Broader considerations of policy thus come into play when the decisionmaking body is considering actual feasibility than when the EIR preparer is assessing potential feasibility of the alternatives" [citations omitted].

SUMMARY OF MITIGATION AND RATIONALE

MM AQ-1a. The "Standard Mitigation Measures for Construction" listed in the San Luis Obispo County Air Pollution Control District (APCD) CEQA Handbook are established by the APCD to reduce emissions of criteria pollutants from off-road construction equipment, and are routinely applied to projects in San Luis Obispo County. These mitigation measures have proven effective in reducing emissions of criteria pollutants from off-road construction equipment and reducing impacts to sensitive receptors in the project area. The standard mitigation measures are considered to be a standard good practice by the APCD. This measure would be consistent with APCD guidance for reducing emissions for short-term activities.

MM AQ-1b. The Best Available Control Technology (BACT) Measures listed in the current APCD CEQA Handbook are established by the APCD to reduce emissions of criteria pollutants from off-road construction equipment, and are routinely applied to projects in San Luis Obispo County. In particular, these mitigation measures are effective at reducing emissions of ozone precursors (volatile organic carbon [VOC] and nitrous oxides [NOx]). This measure would be consistent with APCD guidance for reducing emissions for short-term activities.

As described above, potentially feasible mitigation measures to reduce this significant impact would involve actions to avoid or reduce total emissions from Project-related vessels and vehicles. Mitigation Measures (MMs) AQ-1a and AQ-1b are identified in the EIR and incorporated into the CSLC's approval and MMP. A requirement that the survey vessel meet the California Air Resources Board's (CARB) Tier 2 engine certification was identified as a potentially feasible measure in the Draft EIR; however, PG&E provided compelling information that it would be technologically infeasible to meet this requirement because the engine power needed to tow the air gun array and hydrophone streamers prevents meeting Tier 2 certification. The CSLC agrees with this conclusion and, therefore, finds the measure infeasible. Other suggestions and recommendations in the record included those provided by the APCD in its written comments. However, as explained in the CSLC's response to the APCD in the Final EIR, it has been infeasible for the CSLC, at this time, to identify a comprehensive set of actions to mitigate this significant impact through avoidance or minimization of emissions. The required actions under MM AQ-1a and MM AQ-1b achieve all that feasible, including setting forth measurable performance criteria, but the impact nonetheless remains significant.

Implementation of the Modified Timing Three-Loop Configuration would reduce air quality impacts by eliminating the need for onshore survey activities in the Northern onshore area. MMs AQ-1a and -1b are designed to reduce emissions of criteria pollutants from off-road construction equipment, and are consistent with measures established by the local APCD to control short-term emissions. However, these measures cannot effectively be applied to vessels, and therefore vessel emissions would not be reduced. (See also AQ-3b.) Therefore, even with implementation of the Modified Timing Three-Loop Configuration, San Luis Obispo County Standard Mitigation Measures and BACT Measures, emissions from vessels would still exceed the daily

significance thresholds and the mitigated emissions would be considered *Significant and Unavoidable*.

CEQA FINDING NO. AQ-2	Class: **SU**
Impact No.:	**AQ-2:** Survey activities would result in daily emissions of criteria pollutants that would exceed air quality significance thresholds.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR. (3) Specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.

EXPLANATION

As proposed by PG&E, project activities would occur over an 82-day period, including mobilization and demobilization. The actual survey, including anticipated interruptions for equipment maintenance, vessel refueling, and additional shut-downs for marine mammal presence, crew changes, and unanticipated weather delays, would be conducted over 65 days.

Air emissions during survey operations would be primarily from the survey vessel engines as the vessel tows strings of seismic sources (air guns) and sound recording devices (hydrophones) along pre-determined routes. Additional emissions are also expected from the supporting vessels that would be concurrently conducting mammal surveys, supporting the primary seismic vessel, and scouting the area for obstructions. During this time, construction vehicles, including Vibroseis™ and Accelerated Weight Drop (or equivalent) rigs, would also be operated to produce an onshore seismic wave.

As previously discussed, the EIR analysis determined that Alternative IIIb, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets, and identified this alternative as the Environmentally Superior Alternative. Under this Alternative, the active survey operation would be shortened by approximately 7 days (from 41 to 34 days), and refueling would not be needed. These changes combined would reduce the overall survey duration by 14 days (from 82 to 68 days), and would accordingly reduce the potential impacts to air quality due to the Project. However, even under this Alternative, it is likely that survey operations would affect air quality. Under the Approved Project, daily emissions of criteria pollutants would be the same as for Alternative IIIb, but would occur over 2 years, if the second survey year were necessary.

Emission estimates generated in support of the EIR indicate that the criteria pollutant emissions during survey operations would exceed the daily significance thresholds. Consequently, the impact from the uncontrolled emissions during mobilization would be considered *Significant*. As explained below, the CSLC identified or addressed potentially feasible mitigation measures in the EIR (including in the Response to

Comments) that could avoid, substantially lessen, or further reduce the significant effect, based on the environmental analysis in the EIR, and public and public agency input. However, the CSLC has not identified any feasible mitigation measures or project design elements that would reduce the effect to a less than significant level based on the identified thresholds of significance..

SUMMARY OF MITIGATION AND RATIONALE

See discussion under Impact AQ-1, above. Implementation of the Modified Timing Three-Loop Configuration would reduce adverse effects on air quality by reducing the survey duration. As previously discussed under Impact AQ-1, potential impacts from off-road construction equipment could be reduced through the implementation of the Standard Mitigation Measures (MM AQ-1a) and BACT (MM AQ-1b). However, even with the CSLC's approval of the Modified Timing Three-Loop Configuration, these MMs would not reduce emissions from vessels to below the significance threshold identified in the EIR, and no additional feasible measures are known at this time; therefore, the CSLC finds that this effect remains *Significant and Unavoidable*.

CEQA FINDING NO. AQ-3	Class: **SU**
Impact No.:	**Impact AQ-3**: Total Project activities would result in quarterly emissions of criteria pollutants that would exceed air quality significance thresholds.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR. (3) Specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.

EXPLANATION

Because the total Project duration is expected to last at least one (calendar) quarter, the total emissions must be evaluated against the quarterly significance criteria for criteria pollutants. The total quarterly emissions estimated for the Project exceed the Quarterly Level 1 and 2 air quality thresholds. Under the Approved Project, the emissions associated with total Project activities would not occur during the first fifteen days of the quarter (October 1 through 15), and would be split over two quarters, if the second survey year were necessary, thus reducing the emissions in any one quarter, even with repeated mobilization and demobilization. However, even with this reduction, quarterly criteria pollutant emissions may exceed air quality thresholds. In accordance with San Luis Obispo County APCD rules, an exceedance of the Quarterly Level 1 thresholds requires implementation of Standard (APCD) Mitigation Measures and BACT for construction equipment (MM AQ-1a and AQ-1b, respectively). An exceedance of Level 2 thresholds additionally requires implementation of a Construction Activity Management Plan (CAMP) and off-site mitigation. The CAMP is a plan that contains details about the construction activities and identifies the mitigation measures that will

be used to reduce criteria pollutant emissions. The Applicant will submit the CAMP to the SLO APCD for review and approval prior to the start of construction.

As explained below, the CSLC identified or addressed potentially feasible mitigation measures in the EIR (including in the Response to Comments) that could avoid, substantially lessen, or further reduce the significant effect, based on the environmental analysis in the EIR, and public and public agency input. Furthermore, the Approved Project would further reduce impacts by beginning later in the quarter and, potentially, splitting survey activities and associated emissions over two years. However, the CSLC has not identified any feasible mitigation measures or project design elements that would reduce the effect to a less than significant level based on the identified thresholds of significance.

SUMMARY OF MITIGATION AND RATIONALE

For MM AQ-1 and AQ-2, See discussion under Impact AQ-1, above.

MM AQ-3a. Fugitive dust controls such as those identified in the MM are listed in the current APCD CEQA Handbook, and are established by the APCD to reduce fugitive dust emissions from off-road construction equipment. These mitigation measures are designed to keep fugitive dust emissions below the 20 percent opacity limit identified in the APCD Rule 401 Visible Emissions and to ensure that dust is not emitted offsite. These measures are routinely applied to projects in San Luis Obispo County and would be consistent with APCD guidance for reducing emissions for short-term activities.

MM AQ-3b. Implementation of Emission Reduction Programs (ERP) is an approach used by air pollution control districts and the state of California to help meet air quality standards and reduce community exposure to criteria pollutants. An example of an existing ERP is the SLO APCD Engine Emission Reduction Incentive (EERI) Program. This program provides funding on a first-come-first-served basis to help pay for projects that reduce heavy-duty diesel engine emissions. This mitigation provides an enforceable mechanism for PG&E to coordinate with the APCD to develop specific measures to reduce or offset emissions. Because vessels would be the main source of the estimated emissions, and there are few standard measures suitable for vessels, this mitigation would allow the APCD and PG&E to develop a combination of feasible measures.

As described above, potentially feasible mitigation measures to reduce this significant impact would involve actions to avoid or reduce total emissions from project-related vessels and vehicles, and additionally involve compensatory measures that will be identified in the ERP. MMs AQ-3a and AQ-3b are identified in the EIR and incorporated into the CSLC's approval and MMP as a result. While the MM specifies, to the extent feasible, performance criteria that must be met, the specific provisions of the ERP required by MM AQ-3b are not known at this time, and could not feasibly be known at the time the EIR was prepared. PG&E met with the APCD In April 2012 to discuss project air emissions and the need for PG&E to prepare an ERP. The APCD staff has stated that it is confident that implementation of the to-be-developed ERP would

successfully reduce project emissions below daily and quarterly air quality significance thresholds; however, the particular measures of the ERP that would ensure this reduction are still in development, and rely to a large extent on the information presented in the EIR and identification of vessels and boat owners who may participate (therefore making it infeasible to complete the ERP and include it as an MM in the EIR). The CSLC finds this impact remains and will remain significant until such time that specific feasible mitigation is developed as a result of negotiations between the APCD and PG&E. The CSLC also notes there is no guarantee that this type of mitigation is practicable. Therefore, the Project impacts on air quality remain *Significant and Unavoidable*.

Cumulative Impacts: Impacts to Air Quality as a result of the Project would be cumulatively considerable. While the approval of the Modified Timing Three-Loop Configuration and implementation of the above-described mitigation measures reduce the total emissions in impacts AQ-1, AQ-2 and AQ-3, these impacts all remain *Significant and Unavoidable*, and therefore the CSLC concludes that the cumulative impacts related to Air Quality are likewise *Significant and Unavoidable*. As described in the EIR, any impact that exceeds significance thresholds is cumulatively significant because the significance thresholds used in the EIR were developed by considering the entire air basin.

CEQA FINDING NO. TERBIO-2 Class: **LTSM**

Impact No.:	**TERBIO-2:** Lighting from offshore survey activities would adversely affect migrating birds.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR.

EXPLANATION

Proposed offshore activities would not impact most terrestrial biological resources, but they could impact wildlife migrating or feeding in the offshore project area. Offshore seismic activities would occur 24 hours per day, and lighting would be required at night for safety reasons, and to enhance detection of marine wildlife. Night lighting can be detrimental to animals in nearby areas for a variety of reasons, including disruption of circadian rhythms, disruption of melatonin levels, avoidance due to light sensitivity in species with exceptional night vision, increased predation, increased mortality on roads, and decreased food consumption by small, nocturnal, herbivorous animals. The typical net effect of lighting is that adjacent areas are utilized to less than their fullest extent.

In particular, birds that spend most of their lives at sea are often highly influenced by artificial lighting in coastal areas and in dark, two-dimensional ocean environments. Nocturnal seabird species may be attracted to lights because of their predilection for bioluminescent prey. Fledgling bird species such as murrelets and petrels have a particularly strong tendency to move towards artificial lights; however, the seismic

surveys would be conducted during the late fall months, when fledgling birds would not be expected to occur in the project area.

Artificial night lighting associated with the project could attract and disorient migrating birds. The tendency of birds to move toward lights when migrating at night, and their reluctance to leave the sphere of light influence for hours or days once encountered, has been well documented. This tendency seems to increase on dark nights, coupled with inclement weather. The seismic survey activities would occur during the fall migration season (from September through December), and along the Pacific Flyway bird migration corridor.

In its comments on the Draft EIR, PG&E provided Summary Observation Log Notes documenting avian behavioral reactions to nighttime light from offshore platforms, from a 2010 study prepared for the Bureau of Ocean Energy Management Regulation and Enforcement (BOEMRE). The BOEMRE study found that no adverse reactions by birds to platform lighting were observed. While these observations pertain to illuminated fixed structures, avian behavioral patterns associated with the project, which involves a limited number of moving vessels during night-time activities, are not expected to be markedly different, with the exception that roosting/nesting would not be as likely.

The EIR concludes that impacts of offshore lighting would be relatively small, because (1) vessel lighting would be on a small number of moving vessels (i.e., three), and (2) the nighttime lighting would be short-term (i.e., for approximately 41 days).

As previously discussed, the EIR analysis determined that Alternative IIIb, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets, and identified this alternative as the Environmentally Superior Alternative. Under this Alternative, the active survey operation would be shortened by approximately 7 days (from 41 to 34 days), and refueling would not be needed. These changes combined would reduce the overall survey duration by 14 days (from 82 to 68 days), and accordingly reduce the potential impacts due to nighttime lighting. Under the Approved Project, active survey operations would be similarly shortened and the need for refueling eliminated. Also, because project activities would be limited to October 15 through December 31 of each year, impacts would occur during less of the September-through-December fall migration period, but would have impacts over two years, if the second survey year were necessary. Because of repeated mobilization and demobilization, the overall survey duration would also be slightly longer than Alternative IIIb.

Even under Alternative IIIb, the Environmentally Superior Alternative, and the Approved Project, despite the limited number of ships emitting light and the short duration, lighting could still adversely affect birds in the various ways described above and would be considered a *Significant* impact prior to the implementation of mitigation. The CSLC therefore requires implementation of light reduction measures as described in the EIR and incorporated into the CSLC's approval and MMP.

SUMMARY OF MITIGATION AND RATIONALE

MM TERBIO-2. Light reduction procedures, such as those identified in the MM, are commonly applied to nighttime vessel operations. However, vessel lighting is also essential for safe navigation, and may also improve monitoring efforts for marine mammals (see MM MARINEBIO-12d). This mitigation requires PG&E to minimize vessel lighting that would not interfere with safe operation of the Project vessels.

Safe operation of vessels requires some nighttime lighting, but vessel lighting that can be safely reduced will reduce the impact on seabirds. Implementation of the Modified Timing Three-Loop Configuration would reduce this adverse effect by reducing the survey footprint and duration. With the implementation of the recommended mitigation measure, impacts would be reduced to *Less than Significant*.

CEQA FINDING NO. TERBIO-7

Class: **LTSM**

Impact No.:	**TERBIO-3:** Onshore seismic survey activities may require some limited tree trimming, which could adversely affect native oak trees by improper thinning, or disease transmittance.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR.

EXPLANATION

Onshore terrestrial biological resources—such as special-status species, sensitive natural communities, wetlands and other waters of the United States, and native oak trees—occur throughout the project area. Most of the onshore project components would be restricted to disturbed roads and trails and there would be minimal ground disturbance or impacts to terrestrial resources.

Tree trimming would not likely be required along paved roads with existing vehicular traffic; however, trees may be present along lesser-used unpaved roads and trails. Trees that need to be trimmed to facilitate equipment access along the seismic routes could be adversely affected if they are trimmed improperly (e.g., over-trimmed) or trimmed with contaminated equipment, which could result in the trees becoming diseased. Under the Approved Project, impacts would be equivalent, if the second survey year were necessary, but split up over two years. Potentially feasible mitigation measures to reduce this significant impact would involve actions to minimize tree-trimming and ensure only a qualified person conducted any necessary trimming. MM TERBIO-7 is identified in the EIR and incorporated into the CSLC's approval and MMP as a result.

SUMMARY OF MITIGATION AND RATIONALE

MM TERBIO-7: If trees need to be trimmed to allow the survey vehicles access to survey routes, this measure will require the trimming to be conducted by a certified

arborist to avoid the potential spread of disease and damage to oak and other native trees.

With the implementation of the recommended mitigation measure, impacts would be reduced to *Less than Significant*.

CEQA FINDING NO. TERBIO-8	Class: **LTSM**
Impact No.:	**TERBIO-8:** Onshore trucks and equipment required for the Project would result in the spread of invasive species and the pathogen responsible for Sudden Oak Death.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR.

EXPLANATION

Invasive weeds, which can take over the native vegetation and negatively impact the local economy and natural habitat, can spread through contaminated equipment, including trucks and clothes. Contaminated equipment can also spread Sudden Oak Death (*Phytophthoraramorum*), a disease of oak trees and more than 100 other plant species. This disease has been found throughout much of coastal California, but to date has not become established in San Luis Obispo County. This disease has killed over a million trees in coastal California forests and has the potential for broad ecological changes to natural areas, including significantly increasing the risk of wildfire. This pathogen is also a serious concern to the commercial nursery industry. Trucks contaminated with Sudden Oak Death could spread this pathogen throughout the Project area.

As previously discussed, the EIR analysis determined that Alternative IIIb, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets, and identified this alternative as the Environmentally Superior Alternative. Under this Alternative the onshore survey activities would only be conducted in the Central and Southern areas, and would no longer be needed for the Northern onshore area. Accordingly, the potential for project-related vehicles to spread invasive weeds and/or Sudden Oak Death would be reduced when compared to the proposed project. This reduction would also occur under the Approved Project, which has the same onshore footprint as Alternative IIIb. Potentially feasible mitigation measures to reduce this significant impact would involve actions to minimize the spread of disease through vehicle sanitizing practices. MM TERBIO-8 is identified in the EIR and incorporated into the CSLC's approval and MMP as a result.

SUMMARY OF MITIGATION AND RATIONALE

MM TERBIO-8: This mitigation measure is designed to reduce the spread of invasive weeds and Sudden Oak Death by removing seeds and spores from project-related vehicles prior to entry into the project area.

Implementation of the Modified Timing Three-Loop Configuration would reduce this adverse effect by omitting survey activities in the Northern onshore area. With the implementation of the recommended mitigation measure, impacts would be reduced to *Less than Significant*.

CEQA FINDING NO. MARINEBIO-1 Class: **LTSM**

Impact No.:	**MARINEBIO-1:** Vessel transit during mobilization and demobilization activities would potentially disturb or kill (due to collision) sea turtles, fish, or marine mammals
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR.

EXPLANATION

The R/V *Langseth*, R/V *Sea Trek*, and M/V *Dolphin II* would mobilize to the project area from San Diego, approximately 240 nm (444 km) from Morro Bay. The cruising speed of the *Langseth* when not towing seismic gear is up to 12 knots (22 km per hour), and transit from San Diego is expected to require about 6 days. The M/V *Michael Uhl* (or similarly sized local vessel) would also travel within the project area during mobilization and demobilization activities. The cruising speed of the *Michael Uhl* is 8.5 knots (16 km per hour), with a maximum speed of 10 knots (18.5 km per hour).

Sea turtles, fish, or marine mammals could be disturbed or struck by the vessels during mobilization to the project area. As discussed in the EIR, ship strikes involving whales are fairly common, including whales known to migrate through the project area. The timing of the survey, when fewer whales would likely to be in the project area, would reduce potential impacts to migrating whales. During transit to and from the site, the project-related vessels would typically travel at speeds lower than the range of speeds associated with marine mammal collisions (greater than 13 knots [24 km per hour]). However, lethal collisions, even with slow-moving survey boats, have recently occurred in the region and the risk of collisions may increase at night when surface feeding rates increase. As discussed in the EIR, given their behavior patterns, turtles and fish are less likely than whales to be involved in a ship strike.

As previously discussed, the EIR analysis determined that Alternative IIIb, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets, and identified this alternative as the Environmentally Superior Alternative. Under this Alternative, refueling would not be needed, thereby reducing the potential for ship strikes of marine wildlife during transit. Under the Approved Project, refueling would also be eliminated, but mobilization and demobilization would occur twice, if the second survey year were necessary. However, mobilization would not occur until October 15 in both instances, when regional densities of many marine species, particularly marine mammals, are lower than in September. Consequently, although the total duration of mobilization and demobilization would

increase with the Approved Project, the likelihood of collisions during each mobilization is expected to decrease,

Under every alternative except the No Project Alternative, ship strikes remain a possibility during transit. Potentially feasible mitigation measures to reduce this significant impact would involve procedures for reducing the chances of collision by maintaining safe distances when mammals are observed, and for reporting all physical contact and near-misses that may occur during mobilization and demobilization. MM MARINEBIO-1 is identified in the EIR and incorporated into the CSLC's approval and MMP as a result.

SUMMARY OF MITIGATION AND RATIONALE

MM MARINEBIO-1: The development and implementation of protocols that require safe distances from marine mammals during transit will reduce the chances of striking an animal during transit to and from the Project area.

Implementation of the Modified Timing Three-Loop Configuration would reduce this adverse effect by eliminating the need for refueling during the surveys and by timing mobilization during a period of lower marine mammal densities, even though mobilization and demobilization would occur twice; however, the modification but would not avoid this impact altogether. Project vessels will be required to maintain safe distances from marine mammals by implementing protocols that apply to transit to and from the Project area, which will reduce the potential for vessel strikes to *Less than Significant*.

CEQA FINDING NO. MARINEBIO-12	Class: **SU**
Impact No.:	**MARINEBIO-12:** Injury or mortality of marine mammals would occur due to noise during seismic survey acquisition.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR. (3) Specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.

EXPLANATION

The potential impacts of anthropogenic noise on marine mammals may vary from no effect to potentially lethal. A large amount of research over the last two decades has attempted to quantify these effects. For a species to be affected by noise, the amplitude, duration and frequency of the noise influence how the animal is affected. It is also important to consider the hearing ability and behavioral state of the animal to determine how sensitive it may be to the noise as well as whether the animal is likely to be in the vicinity of the noise source. Potential effects of noise may be classified into the following categories:

- Masking;
- Behavioral disturbance;
- Temporary hearing loss (TTS) or permanent hearing loss (PTS); and
- Other physiological effects (e.g., stress or immune response).

As defined under the Marine Mammal Protection Act (MMPA), "take" means "harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect. "Harassment is defined under the MMPA as any act of pursuit, torment, or annoyance that:

- has the potential to injure a marine mammal or marine mammal stock in the wild *(termed Level A Harassment)*; or
- has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, but which does not have the potential to injure a marine mammal or marine mammal stock in the wild *(termed Level B Harassment)*.

The EIR employs a number of techniques to analyze the expected noise levels and exposure resulting from the project and the effects those conditions may have on marine mammals. The EIR provides estimates of the numbers of expected "takes" by species. The analysis also used factors such as population size, density expected during the survey, and sensitivity to the frequencies that would be generated by the air guns and other noise sources to put those estimates into the context of the vulnerability of each species. For special status species, a single "take"—from either physical injury or behavioral disturbance—is considered to be significant in this analysis. The EIR found *Significant and Unavoidable* impacts to fin, humpback and blue whales resulting from noise. Substantial interference in the movement of any native resident, such as the Morro Bay stock of harbor porpoise, is also considered to be significant. Based on this threshold, the project's impacts on the Morro Bay stock of harbor porpoise are expected to be *Significant and Unavoidable*. Project impacts on sea otters are also considered to be *Significant and Unavoidable* because of the proximity of the survey to sea otter habitat and the species' special status under State and federal laws, although the survey is unlikely to affect pup areas (see Impact MARINEBIO-13 below).

PG&E's proposal to conduct the survey in a window between September and December reduces, but does not eliminate, significant impacts to some marine mammals. More specifically, the likelihood of occurrence of many non-resident marine mammals, particularly the federally endangered blue, fin and humpback whales, decreases over the course of the proposed survey window.

As previously discussed, the EIR analysis determined that Alternative IIIb, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets, and identified this alternative as the Environmentally Superior Alternative. Under this Alternative, the omission of Zone 3 would reduce potential noise-related impacts to marine mammals present within the

northernmost portion of the project area. In addition, the active survey operation would be shortened by approximately 7 days (from 41 to 34 days), and refueling would not be needed. These changes combined would reduce the overall survey duration by 14 days (from 82 to 68 days), and would accordingly reduce the impacts associated with exposure to and disturbance from underwater noise to marine mammals. Under the Approved Project, active survey operations would be similarly shortened and the need for refueling eliminated. Restriction of air gun operation to November and December over two years would also shift the survey further outside the whale migration season than Alternative IIIb, thus reducing impacts to some mysticete species such as the federally endangered blue, fin and humpback whales, and would reduce the level of these impacts as compared to Alternative IIb (Phased Survey) because that alternative assumed a September through December window in both years. However, as described in detail in Section II of the Final EIR (Responses to Comments), the Approved Project would not reduce the overall impact to some marine mammals because it would result in disturbance and injury in two consecutive years instead of a single disturbance; this could particularly impact the resident Morro Bay harbor porpoise population, whose individuals would likely experience the survey both years. Based on the noise modeling results and analysis of impacts to marine mammals expected to be in the area, the potential impact for both Alternative IIIb and the Approved Project is Significant.

Potentially feasible mitigation measures to reduce this significant impact would involve actions to avoid or reduce the instances and severity of marine mammals' exposure to high levels of sound generated from project-related survey activities. Several of PG&E's project design elements and Applicant Proposed Measures are designed to reduce the severity of this effect, including the seasonal timing of the project, and these along with MMs MARINEBIO-12a through -12j are identified in the EIR and incorporated into the CSLC's approval and MMP as a result. Included in these measures are monitoring and shutdown requirements, and an adaptive management strategy to ensure measures are effective in reducing the impact. During the environmental documentation process, the CSLC identified a breadth of potentially feasible measures, as summarized above, and received input from agencies, organizations, and members of the public asserting other potentially feasible measures and alternatives that the CSLC should consider in order to reduce or avoid the impacts. In response, the CSLC incorporated revisions into the Final EIR and MMP where it determined the recommendations were feasible and effective in reducing the impact, and provided a detailed explanation in the responses to comments in the Final EIR where it determined that the measure either would not reduce the effect or for specific economic, legal, technological, or other considerations, the recommendation was infeasible.

As explained below, the CSLC identified or addressed potentially feasible mitigation measures and alternatives in the EIR (including in the Response to Comments) that could avoid, substantially lessen, or further reduce the significant effect, based on the environmental analysis in the EIR, and public and public agency input; this includes selecting Alternative IIIb, the Environmentally Superior Alternative. However, the CSLC has not identified any feasible mitigation measures or project design elements that would reduce the effect to a less than significant level based on the identified thresholds of significance. Furthermore, to the extent Alternative IIIb, the Environmentally Superior

Alternative, could reduce this impact by avoiding the potential increase in marine mammal noise disturbance and/or injury associated with the second survey year on Morro Bay harbor porpoise, the CSLC finds this alternative infeasible based on the economic and social impacts that would result to fishermen, fishing-related businesses, ancillary businesses, and the regional communities and the need to reduce the duration that these community members experience economic hardship in any given year. These impacts are described in EIR Sections 4.13 – Commercial Fishing and 7.1 – Socioeconomic Effects, as well as documented in written comments and oral public testimony provided during the environmental documentation process. Additionally, the CSLC in its approval is imposing further survey duration and timing constraints to avoid or minimize to the extent feasible the impacts associated with the additional survey year. As a result, the CSLC concludes the above-described evidence in the record renders Alternative IIIb infeasible due to economic considerations.

SUMMARY OF MITIGATION AND RATIONALE

MM MARINEBIO-12a: The project as proposed includes the performance of a pre-survey to identify and document the presence of marine mammals in the project area. The purpose of MM MARINEBIO-12a is to conduct the survey to allow for better coverage of the project area, and to process the data obtained from the survey so it can be used to refine the work plan, as needed. By conducting the pre-survey earlier, there is time allowed to analyze the data and communicate the findings to CSLC and NMFS. If the data suggest the implementation schedule needs to be refined, or mammal densities are greater than assumed in the EIR analysis, there would be time to discuss this with CSLC and NMFS to agree on an appropriate set of actions, if any. The additional lead-time also provides a buffer for weather days to ensure the safety of the aerial surveys.

MM MARINEBIO-12b: The project as proposed includes the use of aerial surveys to identify the presence of marine mammals; these surveys would be performed prior to survey initiation, and 1 week prior to initiating survey activities in each survey zone. The aerial surveys would provide valuable information regarding long-range mammal migration rates and routes that would supplement Marine Mammal Observer (MMO) observations onboard the vessels. Recognizing the value of this information, this MM extends the duration of the aerial surveys.

MM MARINEBIO-12c: Several pinniped haul-out areas, where pinnipeds haul out onto land to rest, breed, or nurse pups, occur within the project area. This MM is provided to avoid disturbance to pinnipeds at haul-out areas during aerial surveys and thus avoid the addition of another source of disturbance to marine mammals.

MM MARINEBIO-12d: The project as proposed includes marine mammal monitoring to be performed by qualified marine mammal observers (MMOs) during daylight survey operations; however, PG&E does not provide specifics regarding the nature of the MMO qualifications or the manner in which they would conduct monitoring activities. Given the importance of effective MMO operations, this MM has been developed to provide specifics in this regard. In addition, nighttime monitoring by MMOs is not included as

part of the project, but marine wildlife may be present near survey vessels at night and could be at risk for ship strike. With the proper equipment, it may be possible to monitor for or confirm the presence of marine mammals during nighttime, subject to real-time conditions. Therefore, this MM is provided to enhance the quality and effectiveness of the MMO activities.

MM MARINEBIO-12e: The project as proposed by PG&E included establishment of a Safety Zone (the distance from the air gun array at which noise levels are >160 dB re 1 µPa) and Exclusion Zone (the distance from the air gun array at which noise levels are >180 dB re 1 µPa). If marine mammals are observed within these zones, the survey vessel crew would undertake specified actions to avoid potential takes. This MM is proposed to enhance the protectiveness of this Project element. The 1.1-nm (2-km) Exclusion Zone proposed in this MM is specifically for the full air gun array. This clarification results in the ability for PG&E to apply the proposed marine mammal air gun array power-down procedures, rather than effect immediate shutdowns. As a consequence, additional details are required to estimate appropriate power-down thresholds to calculate Exclusion Zones during actions related to this MM. This MM therefore requires that the pre-survey sound-check be conducted in at least one area of rocky seabed to provide field data for calculation of 180 dB rms array power-down and single air-gun Exclusion Zones.

MM MARINEBIO-12f: The project as proposed specified that a single scout vessel with qualified MMOs would traverse the Exclusion Zone during the surveys. Because of the large size of the survey area, and the potential that it could become necessary to alter course to avoid marine wildlife, a single scout vessel might not be sufficient to observe marine mammals migrating into the Exclusion Zone or into the path of the survey vessel. This MM is provided to further increase the effectiveness of marine mammal monitoring and reduce the potential for noise-related takes. While additional scout vessels could increase the risk of ship strikes, the likelihood of this occurring would be low considering the low speed of these vessels. In addition, the benefit of increasing the detection rate of MMOs would outweigh the potential risk of a ship strike.

MM MARINEBIO-12g: The project as proposed specified that Passive Acoustic Monitoring (PAM) would be employed by MMOs during daylight and nighttime hours to reduce the potential for ship strikes to marine mammals. However, the effectiveness of this technology is limited. Monitoring by MMOs would not be as effective during nighttime hours due to limited visibility. Many resident species will have high densities in inshore areas (including harbor porpoise, sea otters, bottlenose dolphins, and harbor seals). In addition, Church Rock appears to be a hotspot for humpback whales and other cetaceans. Therefore, because of the increased density of marine mammals in these areas, this MM calls for the proposed surveys to be conducted during daylight hours where marine mammal densities are highest to increase detection success by MMOs and to reduce the potential for nighttime ship strikes.

MM MARINEBIO-12h: As noted in the MM, some marine mammal species have long dive times and only spend short periods of time at the surface between dives. This trait can hinder MMO observation effectiveness. Other species are hard to spot at long

range or in poor conditions. Increasing the scan period prior to ramp-up,[7] as specified in this MM, will improve sighting opportunities.

MM MARINEBIO-12i: The purpose of this MM is to provide the opportunity for agency input *before* a take or exceedance of a take limit occurs. If repeated shutdowns occur that information would be considered while the survey is ongoing to assess the mitigation strategy in light of current conditions. This MM is intended to insert flexibility into the overall mitigation strategy by establishing a "performance criterion" or trigger (multiple shutdowns) to alert the CSLC and NMFS of these events, and provide an opportunity for real-time consultation. This MM allows for the discretion of the CSLC, NMFS and the MMOs to evaluate the importance of observed real-time conditions and ensure the identified measures continue to be effective. The MM allows for continued survey operation to avoid disruption to the survey and unnecessary increases in the survey duration, which could itself create further impact.

MM MARINEBIO-12j: This MM is proposed to increase protection of North Pacific Right Whales, which are present today in extremely low numbers (i.e., they are considered "depleted" under the MMPA). Although a sighting of the North Pacific Right Whale is considered to be highly unlikely, this MM addresses that possibility.

While impacts to certain individual species are expected to be below the threshold of significance established for this analysis, even with implementation of the above MMs, the overall potential noise-related Project impacts on marine mammals are considered to be *Significant and Unavoidable.*

CEQA FINDING NO. MARINEBIO-13	Class: **SU**
Impact No.:	**MARINEBIO-13:** Injury or mortality to Southern Sea Otters would occur due to noise during seismic survey acquisition.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR. (3) Specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.

EXPLANATION

The range for southern sea otters extends from about Half Moon Bay north of the Project area to Santa Barbara in the south. They are resident to the Project area where they inhabit nearshore waters, with the highest density near Point Buchon. In 2010, the

[7] "Ramp-up" is a standard mitigation measure identified in high energy seismic survey guidelines for marine surveys. This has occurred in recognition of the potential risk that immediate hearing damage could occur to a nearby marine mammal if a high-energy sound source, such as an air gun array, were turned on suddenly. The ramp-up procedure generally involves the gradual increase in intensity of a sound source to full operating intensity over a period of time. It is assumed that marine mammals will hear the sound and move away before hearing damage or physiological effects occur.

coast from San Simeon to Point Sal contained 874 sea otters, approximately 30.5 percent of the total population of this stock. They breed between both June and July and October and November. Sea otters feed primarily on invertebrates, and dive depths are typically less than 98 feet (30 m) for females and less than 131 feet (40 m) for males.

Sea otters appear insensitive to seismic noise at ranges greater than 0.6 miles (900 m), but can be disturbed by close approaches from boats. There are limited available data on responses of sea otters to seismic air guns, as well as their hearing abilities, but the ability to raft without immersing their heads and ears is considered enough to preclude injury from noise. Acoustic impacts would be reduced but not eliminated by Applicant Proposed Measures incorporated as part of the project.

For the EIR analysis, the NMFS Level A threshold for cetaceans (180 dB) was used as the Level B threshold for sea otters. Because sea otters have the ability to avoid immersion of their heads and ears, this Level A noise level was considered to be appropriate for assessing the extent of noise impacts to Southern sea otters and was determined to be limited to Level B harassment (i.e., no mortality is expected to occur). Noise modeling results indicated that 62 sea otters (2.2 percent of population) are likely present within the area that would be ensonified to sea otter disturbance levels. In addition, the EIR analysis determined that boat disturbance to sea otters would affect 12 and 8 individuals, respectively, for (1) the survey vessel, and (2) geophone line deployments. The boat disturbance estimates during the survey are for one vessel only. If more vessels would be used for mitigation, then the numbers for boat disturbance should be increased proportionate to the number of vessels present and their proximity to sea otter habitat.

As previously discussed, the EIR analysis determined that Alternative IIIb, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets, and identified this alternative as the Environmentally Superior Alternative. Under this Alternative, the omission of Zone 3 would reduce potential noise-related impacts to sea otters present within the northernmost portion of the project area. In addition, the active survey operation would be shortened by approximately 7 days (from 41 to 34 days), and refueling would not be needed. These changes combined would reduce the overall survey duration by 14 days (from 82 to 68 days), and would accordingly reduce the impacts associated with exposure to and disturbance from underwater noise to sea otters. Based on the noise modeling and analysis of impacts to sea otters expected to be in the area, this potential impact is Significant.

Potentially feasible mitigation measures to reduce this significant impact would involve actions to avoid or reduce the instances and severity of sea otters' exposure to high levels of sound generated from project-related survey activities. Several of PG&E's project design elements and Applicant Proposed Measures are designed to reduce the severity of this effect, including the seasonal timing of the Project, and these along with MMs MARINEBIO-12a through -12i are identified in the EIR and incorporated into the CSLC's approval and MMP as a result. As described above for Impact MARINEBIO-12,

during the environmental documentation process, the CSLC identified a breadth of potentially feasible measures, and received several specific comments asserting other potentially feasible measures and alternatives that the CSLC should consider in order to reduce or avoid the impacts, including a phased survey approach starting later in the season, which would further avoid the sea otter pupping season.

In response, the CSLC incorporated revisions into the Final EIR and MMP where it determined the recommendations were feasible and effective in reducing the impact, and provided a detailed explanation in the responses to comments in the Final EIR where it determined that the measure either would not reduce the effect or for specific economic, legal, technological, or other considerations, the recommendation was infeasible. These specific reasons are also described above for Impact MARINEBIO-12. In this respect, the CSLC has done all that is feasible to identify or address all potentially feasible mitigation measures that could avoid, substantially lessen, or further reduce the significant effect, including approving the Modified Timing Three-Loop Configuration, which restricts the survey to the November 1 – December 31 survey window. However, the CSLC has not identified any feasible mitigation measures or project design elements that would reduce the effect to a less than significant level based on the identified thresholds of significance. Furthermore, to the extent Alternative IIIb, the Environmentally Superior Alternative, could reduce this impact by avoiding the potential increase in disturbance associated with the second survey year on sea otters, the CSLC finds this alternative infeasible based on the economic and social impacts that would result to fishermen, fishing-related businesses, ancillary businesses, and the regional communities and the need to reduce the duration that these community members experience social and economic hardship in any given year. These impacts are described in EIR Sections 4.13 – Commercial Fishing and 7.1 – Socioeconomic Effects, as well as documented in written comments and oral public testimony provided during the environmental documentation process.

SUMMARY OF MITIGATION AND RATIONALE

See MM MARINEBIO-12a through -12i, above.

Acoustic impacts would be reduced by Applicant Proposed Measures incorporated in the project and MMs MARINEBIO-12a through -12i, including survey timing, project-specific Exclusion Zone, air gun ramp-up, aerial surveys, MMOs, and PAM. In addition, although the Approved Project would result in mobilization and demobilization in 2 years rather than one and exposure to sound on two separate survey occasions if the second survey year were necessary, the restricted timing of November-December would help alleviate the overall impact to sea otters. Although implementation of these measures would reduce the impact to sea otters, and the survey is unlikely to affect pup areas, potential impacts on sea otters as a result of the Approved Project would still result in Level B Harassment. Therefore, the impact is considered to be *Significant and Unavoidable* because of the proximity of the survey to sea otter habitat.

Cumulative Impacts: Impacts to Biological Resources – Marine as a result of the project would be cumulatively considerable. While the approval of the Modified Timing

Three-Loop Configuration and implementation of the above-described mitigation measures reduce the total noise exposure and potential for vessel strikes in impacts MARINEBIO-12 and MARINEBIO-13, this impact remains *Significant and Unavoidable*, and therefore the CSLC concludes that the cumulative impacts related to Biological Resources – Marine are likewise *Significant and Unavoidable*. As described in the EIR, the project, even as modified by approval of the Modified Timing Three-Loop Configuration and incorporation of all mitigation measures, would create impacts that when viewed in the context of past, present, and probable future projects are *Significant and Unavoidable*.

CEQA FINDING NO. CUL-1 Class: **LTSM**

Impact No.:	CUL-1: Offshore mobilization/demobilization activities could directly or indirectly impact cultural resources
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR.

EXPLANATION

Mobilization and demobilization in the offshore project areas would include placing and retrieving approximately 600 seafloor geophones, using a local vessel and divers, over a period of approximately 11 days (5 days for deployment and 6 days for demobilization). The nearshore geophone routes do not traverse known shipwreck locations. In addition, geophone placement and removal in depths of 10 feet (3 meters) or less would be performed by hand by divers, as opposed to using heavy equipment, and thus would have a limited potential to impact offshore resources. However, PG&E anticipates using a locally available vessel to deploy and retrieve the geophones in depths of 10 to 66 feet (3 to 20 meters), and to transport the divers in shallower locations.

If offshore cultural resources are present, they could be adversely impacted by any anchor deployed from the vessel, if needed, or by the 40 pound (wet) geophones deployed by the vessel. Damage to offshore cultural resources caused by deploying an anchor or geophones could be a significant impact.

Under the Approved Project, the nearshore geophone deployment activities are the same as under the proposed project, except that if survey activities were not completed the first year, the geophone lines would remain on the seafloor for a longer period of time; however, because the geophones are stationary once placed, the potential impacts to undersea cultural resources in the project area are unchanged, and remain potentially significant. Potentially feasible mitigation measures to reduce this significant impact would involve actions to identify and avoid cultural resources such as shipwrecks. MM CUL-1 is identified in the EIR and incorporated into the CSLC's approval and MMP as a result.

SUMMARY OF MITIGATION AND RATIONALE

MM CUL-1: This mitigation measure is designed to reduce potential impacts to undersea cultural resources (e.g., shipwrecks) associated with nearshore activities involving the use of an anchor or geophone placement. Documentation of shipwreck locations would help prevent impacts to cultural resources by providing site-specific information that will aid in avoiding disturbance of these resources during deployment and retrieval of the geophones.

With the implementation of the recommended mitigation measure, impacts would be reduced to *Less than Significant*.

CEQA FINDING NO. GHG-1 Class: **SU**

Impact No.:	**GHG-1:** The Project would result in emissions of GHGs that would exceed significance thresholds
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR. (3) Specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.

EXPLANATION

During the project, the survey and the supporting vessels are expected to emit GHGs. In addition, onshore construction vehicles will also emit GHGs when they deploy and retrieve the onshore geophones. The emissions above were compared to the county-wide and state-wide emissions inventories, and the proposed San Luis Obispo County APCD significance threshold for non-stationary combustion sources. Based on this comparison to county-wide and statewide emissions, the emissions from the project are relatively low. However, the project would exceed San Luis Obispo County APCD's proposed emission threshold and is not an activity undertaken to result in a net reduction of emissions (emission reduction measure, as listed in the 2001 Clean Air Plan). Consequently, the uncontrolled GHG emissions from the project are considered to be potentially significant.

As previously discussed, the EIR analysis determined that Alternative IIIb, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets, and identified this alternative as the Environmentally Superior Alternative. Under this Alternative, the active survey operation would be shortened by approximately 7 days (from 41 to 34 days), and refueling would not be needed. These changes combined would reduce the overall survey duration by 14 days (from 82 to 68 days), and accordingly reduce the potential contributions to greenhouse gases due to the Project. However, even under this Alternative, it is likely that survey operations would adversely affect greenhouse gases. Under the Approved

Project, in contrast, total GHG emissions are expected to be slightly higher than under Alternative IIIb, even considering the more restrictive survey window.

To the extent Alternative IIIb, the Environmentally Superior Alternative, could reduce this impact by avoiding the GHG emissions associated with the second survey year, the CSLC finds this alternative infeasible based on the economic and social impacts that would result to fishermen, fishing-related businesses, ancillary businesses, and the regional communities and the need to reduce the duration that these community members experience economic hardship in any given year. These impacts are described in EIR Sections 4.13 – Commercial Fishing and 7.1 – Socioeconomic Effects, as well as documented in written comments and oral public testimony provided during the environmental documentation process. Additionally, the CSLC in its approval is imposing further survey duration and timing constraints to avoid or minimize to the extent feasible the impacts associated with the additional survey year. As a result, the CSLC concludes the above-described evidence in the record renders Alternative IIIb infeasible due to economic considerations.

SUMMARY OF MITIGATION AND RATIONALE

Implementation of MM AQ-1a, MM AQ-1b, and MM-AQ-3b would result in less fuel consumption and, therefore, reduce GHG emissions. These mitigation measures include reduction of idling times, use of newer and more efficient equipment and use of electrical equipment where feasible, all of which result in less fuel consumption. The measures are among the strategies identified by the EPA Sector Strategies Division as ways of reducing fuel use and GHG emissions from construction related activities. As described above, potentially feasible mitigation measures to reduce this significant impact would involve actions to avoid or reduce total emissions from project-related vessels and vehicles. Mitigation measures to reduce GHG impacts are identified in the EIR and incorporated into the CSLC's approval and MMP. A requirement that the survey vessel meet the CARB Tier 2 engine certification was identified as a potentially feasible measure in the Draft EIR; however, PG&E provided compelling information that it would be technologically infeasible to meet this requirement because the engine power needed to tow the air gun array and hydrophone streamers prevents meeting Tier 2 certification. The CSLC agrees with this conclusion and, therefore, finds the measure infeasible. Other suggestions and recommendations in the record included those provided by the APCD in its written comments. However, as explained in the CSLC's response to the APCD in the Final EIR, it has been infeasible for the CSLC, at this time, to identify a comprehensive set of actions to mitigate this significant impact through avoidance or minimization of emissions. The required actions in the EIR and MMP achieve all that feasible while still achieving the Project Objectives, including setting forth measurable performance criteria, and approving Alternative IIIb, the Environmentally Superior Alternative, but the project will nonetheless result in significant GHG impacts.

As discussed under MM AQ-3b, until it can be demonstrated that emissions reductions in the Emissions Reduction Program (in development) would decrease the emissions below the proposed significance threshold levels, these MMs would not reduce impacts

from emissions of GHGs to *Less than Significant.* Therefore the Project GHG emissions would be considered *Significant and Unavoidable*.

Cumulative Impacts: GHG-related impacts resulting from the Project, like Air Quality impacts, are considered both individually and cumulatively considerable due to the Project's incremental contribution to the overall problem of ozone-depleting and climate change pollutants when combined with past, present, and probable future projects identified in the EIR.

CEQA FINDING NO. LU-1	Class: **SU**
Impact No.:	**LU-1:** Offshore Project activities would adversely impact offshore recreational activities during a peak season.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR. (3) Specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.

EXPLANATION

The EIR considered potential impacts to the following offshore recreational activities commonly performed in the offshore project area: recreational boating, whale watching, water sports (such as diving, surfing, and swimming), and recreational fishing. Of these, the EIR determined that impacts to recreational fishing would be Significant as described below.

While the recreational fishing season varies somewhat from year to year, it is expected that project activities (anticipated to occur from September through December under the proposed project) would occur during the peak season of some local recreational fishing, such as lingcod, rock fish, and albacore. Recreational fishing would be precluded from the active offshore seismic survey areas.

The recreational fishery for rockfish, Cabezon, and lingcod is open year-round to divers and shore-based anglers, but is closed to boat-based anglers seasonally (for the 2011-2012 season, the lingcod fishery is closed to boat-based anglers from January 1, 2011 through May 1, 2012). Additionally, fishing for these fish is restricted to areas 40 fathoms (240 feet [73 meters]) or less, which includes only the nearshore areas of the coast within the 3-nm State limit. The albacore season changes every year, but generally occurs at some time between August and November.

The project as proposed would not restrict recreational fishing for the entirety of a peak season for all targeted species, and recreational fishing could still take place outside of the active project area. Under the Approved Project the northernmost survey zone is eliminated and the survey window is shortened, thereby reducing areas and times in which recreational fishing would be precluded due to the project; however, impacts will

occur in 2 years instead of one if survey activities are not completed in year one. However, even under the Approved Project, it is likely that survey operations would result in preclusion from certain fishing areas during a peak season and this impact therefore remains significant.

Potentially feasible mitigation measures to reduce this significant impact would involve actions to minimize the survey area and disruption or preclusion of recreational activities. MM LU-1, as a result, was identified in the EIR and incorporated into the CSLC's approval and MMP. The CSLC incorporated revisions into the Final EIR and MMP where it determined recommendations identified during the environmental documentation process were feasible and effective in reducing the impact, and provided a detailed explanation in the responses to comments in the Final EIR where it determined that the suggested measure either would not reduce the effect or for specific economic, legal, technological, or other considerations, the recommendation was infeasible. Specifically, the CSLC incorporated expanded notification procedures into the MM to broaden the suite of recreational interests that would receive notification; however the CSLC found that economic compensation to fishermen and other recreational interests would not avoid or reduce a physical environmental impact (i.e., disruption or preclusion of activity), and was therefore not appropriate mitigation for impacts to recreational fishing (See Findings Required Under CEQA, above, for an explanation of treatment of socioeconomic impacts under CEQA). These impacts are described in EIR Sections 4.13 – Commercial Fishing and 7.1 – Socioeconomic Effects, as well as documented in written comments and oral public testimony provided during the environmental documentation process. Nonetheless, the CSLC finds the economic and social impacts that would result to fishermen, fishing-related businesses, ancillary businesses, and the regional communities and the need to reduce the duration that these community members experience economic hardship in any given year are critical considerations in its approval, and is therefore approving the Modified Timing Three-Loop Configuration, which would reduce the amount of time in any given year these activities would be disrupted.

As explained above, therefore, the CSLC has done all that is feasible to identify or address all potentially feasible mitigation measures that could avoid, substantially lessen, or further reduce the significant effect, including approval of the Modified Timing Three-Loop Configuration. However, the CSLC has not identified any feasible mitigation measures or project design elements that would reduce the effect to a less than significant level based on the identified thresholds of significance.

SUMMARY OF MITIGATION AND RATIONALE

MM LU-1: This mitigation measure is designed to reduce impacts to offshore commercial and recreational activities by establishing a means of communicating project status to allow commercial and recreational interests to plan accordingly. This MM was expanded to establish a centralized means of communicating important and timely information about the project to the public, and identifies some specific parties or organizations that must receive information. Although this mitigation does not avoid the

need to impose temporary restrictions for the public, it would provide better information on which the public can choose to alter recreational and commercial activities.

This mitigation measure would reduce impacts to recreational fishermen due to the project. However, even with implementation of this MM, fishermen would be precluded from certain fishing areas during peak seasons, and the impact would still be considered *Significant and Unavoidable.*

CEQA FINDING NO. LU-2	Class: **SU**
Impact No.:	**LU-2:** Offshore Project activities would conflict with some applicable land use plans.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR. (3) Specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.

EXPLANATION

A network of MPAs was created in response to California Marine Life Protection Act (MLPA) (Fish & G. Code, §§ 2850–2863) requirements and is intended primarily to protect or conserve marine life and habitat. Three MPAs are present in the Project area as proposed: the Point Buchon State Marine Reserve (SMR) and State Marine Conservation Area (SMCA), the Cambria SMCA, and the White Rock SMCA. Because of the locations of the fault zones, locating the seismic survey within the MPAs was proposed by PG&E to collect data on specific seismic "targets."

As noted above, the offshore survey may result in "take" of marine species, which is prohibited in the MPAs without a permit. Because of this conflict, the EIR's analysis found the project's impact on MPAs to be *Significant and Unavoidable*. The CDFG has authority over the MPAs and would, at its discretion, need to issue a Scientific Collecting Permit (SCP) in order for the project to proceed with any part that would result in "take" in the MPAs. Even with the CSLC's approval of a Geophysical Survey Permit for the Approved Project, the CDFG would still need to consider whether to issue an SCP for parts of the survey over which it has approval authority.

The MPAs in the project area would be considered "environmentally sensitive habitat areas" (ESHAs) under the Coastal Act (Articles 5, 6, and 7), as there is plant and animal habitat in the MPAs that is considered especially valuable, and worthy of MPA designation. In addition, project activity would potentially interfere with ongoing monitoring efforts aimed at measuring the effectiveness of the management of the MPAs, such as the studies conducted by the Collaborative Fisheries Research Program (CCFRP) since 2007.

The northernmost project area extends slightly into the MBNMS; none of the survey lines enter into the MBNMS. In accordance with the National Marine Sanctuaries Act, flying motorized aircraft at less than 1,000 feet (304 meters) is prohibited in this area. For protection of marine mammals, aerial surveys of marine mammals would be conducted using small aircraft. Flights over the offshore project area would occur approximately 10 days prior to survey initiation, and 1 week prior to initiating survey activities in each survey zone. It is possible that this aircraft would fly less than 1,000 feet (305 meters) above the MBNMS, which would conflict with the policy regarding overflight of motorized aircraft above the MBNMS. Potentially feasible mitigation measures to reduce this significant impact would involve actions to avoid or reduce the presence of project-related vessels and equipment in these protected areas and actions to minimize the take of living marine organisms in the MPAs.

As previously discussed, the EIR analysis determined that Alternative IIIb, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets, and identified this alternative as the Environmentally Superior Alternative. Under this Alternative, the survey footprint is reduced, and would avoid the MBNMS and the White Rock-Cambria MPAs – thereby reducing conflicts with MPA policies due to the project. In addition, under this Alternative, the active survey operation would be shortened by approximately 7 days (from 41 to 34 days), and refueling would not be needed. These changes combined would reduce the overall survey duration by 14 days (from 82 to 68 days), and would accordingly reduce potential impacts to marine organisms due to the project. Under the Approved Project, the overall survey footprint would be the same as under the Environmentally Superior Alternative; however, survey operations will cause conflicts with the MPAs and the CCFRP research twice instead of once if the survey is not completed in year one. The CSLC is imposing a restricted survey window to minimize this impact to the extent feasible.

Under the Approved Project, impacts to marine wildlife would not be avoided altogether, and the Point Buchon SMR/SMCA would still remain within the survey footprint. Therefore, conflicts with policies regarding that MPA would not be avoided and the impact, as a result, is considered *Significant and Unavoidable*. During the environmental documentation process, the CSLC identified a breadth of potentially feasible measures, and received several specific comments asserting other potentially feasible measures and alternatives that the CSLC should consider in order to reduce or avoid the impacts, including eliminating placement of seafloor geophones within the MPA boundaries and routing the survey tracklines to outside the MPAs.

As explained below, the CSLC identified or addressed potentially feasible mitigation measures in the EIR (including in the Response to Comments) that could avoid, substantially lessen, or further reduce the significant effect, based on the environmental analysis in the EIR, and public and public agency input. However, the CSLC has not identified any feasible mitigation measures or project design elements that would reduce the effect to a less than significant level based on the identified thresholds of significance.

To the extent Alternative IIIb, the Environmentally Superior Alternative, could reduce this impact by avoiding the MPA land use conflicts associated with the second survey year, the CSLC finds this alternative infeasible based on the economic and social impacts that would result to fishermen, fishing-related businesses, ancillary businesses, and the regional communities and the need to reduce the duration that these community members experience economic hardship in any given year. These impacts are described in EIR Sections 4.13 – Commercial Fishing and 7.1 – Socioeconomic Effects, as well as documented in written comments and oral public testimony provided during the environmental documentation process. Additionally, the CSLC in its approval is imposing further survey duration and timing constraints to avoid or minimize to the extent feasible the impacts associated with the additional survey year. As a result, the CSLC concludes the above-described evidence in the record renders Alternative IIIb infeasible due to economic considerations.

SUMMARY OF MITIGATION AND RATIONALE

MM LU-2: Even with the elimination of the northernmost survey zone, it may still be necessary to conduct aerial overflights over the MBNMS to assess for the presence of marine mammals approaching the survey areas. This mitigation measure would reduce the potential for conflict with MBNMS policies restricting aircraft overflight.

With the implementation of the recommended mitigation measure, impacts due to aircraft overflight over the MBNMS would be reduced to *Less than Significant*. In addition, MMs MARINEBIO-1 and MARINEBIO-12a through -12j would reduce impacts to marine wildlife due to the project, and approval of the Modified Timing Three-Loop Configuration would reduce the above-described conflicts with the MBNMS and MPAs. However, the CSLC determined the elimination of seafloor geophones and re-routing the survey vessel would be infeasible, as the seismic fault lines identified for study are located directly underneath the MPAs and therefore, incorporating the recommendation would not achieve the project objectives. As a result, even with implementation of all feasible MMs, the potential project impacts on marine wildlife, including those within the Point Buchon SMR/SMCA, are considered to be *Significant and Unavoidable.* In addition, project activities would potentially interfere with ongoing monitoring efforts aimed at measuring the effectiveness of MPA management, such as the CCFRP studies. Accordingly, the conflicts with MPA policies would remain *Significant and Unavoidable.*

CEQA FINDING NO. NO-1 Class: **LTSM**

Impact No.:	**NO-1:** The proposed offshore activities would expose persons present in the water to harmful noise levels.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR.

EXPLANATION

Studies have shown that high levels of underwater noise can cause dizziness, hearing damage, or other sensitive organ damage to divers and swimmers, as well as indirect injury due to startle responses. Based on studies evaluated in the EIR, noise levels in excess of 154 dB re 1 µPa could be considered potentially harmful to recreational divers, surfers, and swimmers in the project area. As presented in the EIR, noise at and above these levels has been modeled for the project.

Divers, swimmers, surfers, or other persons may be present in the vicinity of offshore project area waters, but would be unlikely to approach active survey track areas, because the active survey areas would be restricted to non-survey vessels and monitored by project support boats.

The coastline along Point Buchon is rocky cliffs, and would not be amenable to shore access. Furthermore, the general public is precluded from the DCPP property, which represents a significant amount of that shoreline. The distances from the beaches in the Project area vicinity to the nearest survey zones range from approximately 3 to 6.5 nm (5.6 to 12 km). In addition, the Communication Plan required under MM LU-1 (see above) would include notices and beach postings to notify the public of active survey areas.

Therefore, potentially harmful noise levels from the air guns would not be expected to affect swimmers and surfers because there would be a substantial distance between them and the noise source. In addition, they would not be fully submerged. Based on the above, the EIR determines that potential impacts to swimmers and surfers from seismic survey noise are *Less than Significant*.

Divers entering the water from boats have greater opportunity to get close to the survey areas, as compared to swimmers and surfers, and therefore would have greater potential for impacts due to the project noise. Implementation of MM-LU-1 would alert divers to the survey activities and their preclusion from the active survey areas. However, it is possible that divers could enter the project area from locations where notices were not posted, or divers could choose to ignore the postings.

As previously discussed, the EIR analysis determined that Alternative IIIb, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets, and identified this alternative as the Environmentally Superior Alternative. Under this Alternative, the omission of Zone 3 would reduce the active survey areas in which divers would be present. In addition, the active survey operation would be shortened by approximately 7 days (from 41 to 34 days), and refueling would not be needed. These changes combined would reduce the overall survey duration by 14 days (from 82 to 68 days). The potential impacts to divers would be reduced as a result of these changes. In addition, the CSLC is imposing a more restricted survey schedule as part of the Approved Project, such that the impacts are restricted to the November – December window. However, even under the Approved Project, which includes a second year if surveys are not completed the first

year, potential impacts to divers from project noise could be significant. Potentially feasible mitigation measures to reduce this significant impact would involve actions to minimize the potential presence of non-project-related divers in or about to enter the waters in the active survey area. The CSLC therefore requires implementation of measures designed to observe and remove divers from waters in the survey area as described in the EIR and incorporated into the CSLC's approval and MMP.

SUMMARY OF MITIGATION AND RATIONALE

MM NO-1: This mitigation measure would augment MM LU-1 by further reducing the potential for divers to be present in the active survey area, and accordingly would further reduce potential impacts to them due to project noise.

With the implementation of the above recommended mitigation measure and MM LU-1, impacts would be reduced to *Less than Significant*.

CEQA FINDING NO. NO-2 Class: **LTSM**

Impact No.:	**NO-2:** The proposed onshore activities would result in a temporary increase in ambient noise levels in the project vicinity.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR.

EXPLANATION

The project includes the deployment of nodal recording devices called geophones onshore in the Northern, Central, and Southern areas. In the Northern Area, geophones would be deployed in undeveloped land with limited number of noise sensitive receptors, including a community hospital and a bed and breakfast. In the Central Area, the geophones would be placed near the shoreline off of Morro Bay, along the Morro Bay sandspit. In the Southern Area, the geophones would be deployed in mostly undeveloped areas, though portions of the deployment would be near recreational and commercial land uses. These geophones would be deployed by foot, with the support of vehicles that generate noise. The use of vehicles would be limited to a 1-week period before the survey and 1-week period after the survey. Some limited additional vehicle trips to the deployment areas would be needed for routine status checks and maintenance. Once deployed, the geophones would not generate any noise. Therefore, the only noise associated with geophones is the limited use of passenger vehicles to deploy the units during two 1-week periods. As proposed by PG&E, deployment would be limited to the hours of 7 a.m. to 9 p.m.

In addition to geophone deployment and retrieval, noise would also be generated in the Southern Area during onshore seismic surveys using two types of seismic source vehicles (Vibroseis and AWD). The Vibroseis vehicle employs a vibrator to generate vibrations in the earth. When used, the vehicle tires are raised off the ground and the vibrator can then be activated. Four such vehicles would be used synchronously to

generate the desired seismic wave magnitude. The AWD vehicle (or equivalent equipment) would be used on portions of the survey route that are not accessible by the four Vibroseis vehicles. The AWD vehicle generates energy output by dropping a large, heavy, hardened-steel hammer on a base plate positioned on the ground surface. The noise-generating vehicles would be driven to a survey point, activated, and the results recorded. Then the vehicles would be moved to the next location. These vehicles would be used for 1 week and restricted to the hours of 7 a.m. to 9 p.m.

The vehicles would be operated in areas with a limited number of noise-sensitive receptors (mostly recreational areas). Based on this type of receptor and the "impulsive" nature of the generated noise, if operations of the vehicles were occurring regularly throughout the year, long-term noise levels could not exceed a maximum of 75 dBA for any duration and 60 dBA on an hourly basis to be consistent with the General Plan and county ordinance. Extrapolating from the highest of the vehicle measurements, the vehicles would have to remain at least approximately 550 feet from any noise-sensitive receptor to remain under these General Plan and county ordinance thresholds (ignoring the contribution from existing background levels for simplification). When adding the existing background, the distance would need to be greater. However, additional noise attenuation or reduction would be expected due to the presence of vegetation and other barriers between the vehicles and the receptor.

AWD/Vibroseis equipment activation would occur over a short time, typically 1 to 3 minutes per station, including setup and listen time, with actual active noise generation approximately half of that time. As proposed by PG&E, the Southern Area seismic surveys would be conducted along private PG&E roads and trails, where there is no residential housing or fixed recreational facilities and limited recreationists. Use of the vehicles in the Southern Area would be limited to 1 week and the vehicles would only be present at any single location for less than 1 day. Noise impacts to any one receptor would be short term (less than 1 day) and restricted to the hours of 7 a.m. to 9 p.m.

The above project-related activities are similar to construction activities in terms of how they would be assessed with respect to noise impacts. The local ordinance allows for construction activities as long as operations are limited to 7 a.m. to 9 p.m. on weekdays and 8 a.m. to 5 p.m. on weekends. The project as proposed would be limited to the hours of 7 a.m. to 9 p.m. While consistent with the weekday ordinance limit, these hours of operation would be inconsistent with the weekend ordinance limit. Therefore, even though the activities are short-term in nature and would expose a limited number of noise sensitive receptors, the use of the vehicles may have an adverse impact on noise-sensitive receptors because the weekend activities may occur outside the levels allowed by the ordinance. While there are a limited number of expected receptors, some recreational receptors may come within 550 feet of the vehicles during noise generation activities.

As previously discussed, the EIR analysis determined that the Approved Project, which eliminates the northernmost survey zone, would accomplish the project objectives associated with the primary survey targets as effectively the Environmentally Superior Alternative. The onshore seismic noise-generating activities under the Approved Project

are also the same as under the proposed project, but are split over 2 years if the survey is not completed in the first year; thus the potential noise impacts to recreationists in the project Area are substantially the same, and remain potentially significant. Potentially feasible mitigation measures to reduce this significant impact would involve actions to minimize the potential noise and vibration impacts from onshore project activities. The CSLC therefore requires implementation of measures designed to limit the hours of operation of noise-generating equipment as described in the EIR and incorporated into the CSLC's approval and MMP.

SUMMARY OF MITIGATION AND RATIONALE

MM NO-2: This mitigation measure would reduce the effects of project noise on nearby receptors by limiting the hours of noise production.

With the implementation of the above recommended mitigation measure, impacts would be reduced to *Less than Significant*.

CEQA FINDING NO. NO-4 Class: **LTSM**

Impact No.:	**NO-4:** The proposed onshore activities would expose persons to increased groundborne vibration or groundborne noise levels.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR.

EXPLANATION

The only appreciable source of vibration associated with the project that may impact sensitive receptors is the use of the Vibroseis and AWD (or equivalent) vehicles in the Southern Area. However, use of the vehicles in the Southern Area would be limited to a 1-week period, and the vehicles would be operating at any one location for less than 1 day. In addition, receptors would only be exposed during the hours from 7 a.m. to 9 p.m.

As discussed previously, the above activities are similar to construction activities. The local ordinance allows for construction activities as long as operations are limited to the period from 7 a.m. to 9 p.m. on weekdays and 8 a.m. to 5 p.m. on weekends. As proposed by PG&E, the project activities would be limited to the hours from 7 a.m. to 9 p.m. While consistent with the weekday ordinance limit, this period of operation would be inconsistent with the weekend ordinance limit. Therefore, although the vibration-generating activities are short-term in nature and would expose a limited number of receptors to additional vibration levels, the use of the vehicles may have a significant impact on sensitive receptors because the weekend activities may occur outside the levels allowed by the ordinance.

As previously discussed, the EIR analysis determined that the Approved Project, which eliminates the northernmost survey zone, would accomplish the project objectives

associated with the primary survey targets as effectively the Environmentally Superior Alternative. The onshore seismic noise-generating activities under the Approved Project are also the same as under the proposed project, but are split over 2 years if the survey is not completed in the first year; thus the potential noise impacts to recreationists in the project Area are substantially the same, and remain potentially significant.

SUMMARY OF MITIGATION AND RATIONALE

MM NO-2: This mitigation measure would reduce the effects of Project vibration on nearby receptors by limiting the hours of activity.

With the implementation of MM NO-2, impacts would be reduced to *Less than Significant*.

CEQA FINDING NO. FISH-1 Class: **SU**

Impact No.:	**FISH-1:** Offshore Project activities would adversely impact commercial fishing by precluding fishing for all or most of a season.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR. (3) Specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.

EXPLANATION

As proposed by PG&E, the survey would follow tracklines in four distinct zones. The proposed survey footprint would encompass an area from Cambria to Point Sal, an offshore area of approximately 530 nm^2 (1,820 km^2) extending approximately 15 nm (27 km) offshore, and in water depths of approximately 100 to 1,000 feet [30 to 305 meters]. Within this survey footprint, a number of fisheries and gear types could be affected during the proposed survey period.

The project as proposed would be conducted within an 82-day period during the months of September through December. An estimated 41 days would be required to conduct the surveys, which would be the most restrictive phase of the survey as it relates to interrupting fishing activity. If fishing is precluded in the project area during the entire survey period, multiple gear types and fishing activity would be affected and all or most of a season could be impacted.

The project area supports year-round and seasonal fisheries, the closures of which vary from year to year and cannot be forecasted precisely. For year-round fisheries, the proposed project would restrict approximately one-quarter of the year. For fisheries that are only open during the proposed survey months, the impact would be much greater, and may effectively exclude fishing in the project area for an entire season.

The ability for fishermen to fish in alternate locations is highly dependent on the fishery (gear type, season, and other conditions). Although substitution could, for some fisheries, maintain fishing activity during the proposed survey period, it may also be less efficient and/or incur higher fuel and other costs. For example, fisheries that rely on set gear may be disproportionately affected because it would be either impractical or unreasonable to attempt to move gear around the survey's planned timetable and tracklines, or to seek other areas outside of the project area.

Because the project would adversely affect all or most of a commercial fishing season, the impact is expected to be *Significant*. Potentially feasible mitigation measures to reduce this significant impact would involve actions to minimize the survey area and disruption or preclusion of commercial fishing activities as well as actions to minimize the expected short-term impacts to fishery resources (i.e., impact to CPUE). During the environmental documentation process, the CSLC identified a breadth of potentially feasible measures, and received several specific comments asserting other potentially feasible measures and alternatives that the CSLC should consider in order to reduce or avoid the impacts, including avoiding or minimizing port/harbor closures, conducting the survey during a different time of year, and requiring PG&E to provide economic compensation to commercial fishermen. MM LU-1, as a result, was identified in the EIR and incorporated into the CSLC's approval and MMP.

The CSLC incorporated revisions into the Final EIR and MMP where it determined recommendations identified during the environmental documentation process were feasible and effective in reducing the impact, and provided a detailed explanation in the responses to comments in the Final EIR where it determined that the suggested measure either would not reduce the effect or for specific economic, legal, technological, or other considerations, the recommendation was infeasible. Specifically, the CSLC incorporated expanded notification procedures into the MM to broaden the suite of interests that would receive notification; however, the Approved Project does not eliminate the need for restrictions, and safe survey operations would still be dependent upon environmental conditions and technical requirements. Therefore, impacts to commercial fishing will not be avoided, as fishing will still be precluded from certain areas during part of a peak fishing season. The CSLC also determined that conducting the survey during a different time of year in order to avoid commercial fishing seasons would unacceptably increase significant impacts to marine mammals, and found that economic compensation to fishermen and other recreational interests would not avoid or reduce a physical environmental impact (i.e., disruption or preclusion of activity), and was therefore not appropriate mitigation for impacts to commercial fishing (See Findings Required Under CEQA, above, for an explanation of treatment of socioeconomic impacts under CEQA). These impacts are described in EIR Sections 4.13 – Commercial Fishing and 7.1 – Socioeconomic Effects, as well as documented in written comments and oral public testimony provided during the environmental documentation process. Nonetheless, the CSLC finds the economic and social impacts that would result to fishermen, fishing-related businesses, ancillary businesses, and the regional communities and the need to reduce the duration that these community members experience economic hardship in any given year are critical considerations in its approval, and is therefore approving the Modified Timing Three-Loop Configuration,

which will reduce the amount of time in any given year these activities would be disrupted.

As explained above, therefore, the CSLC has done all that is feasible to identify or address all potentially feasible mitigation measures that could avoid, substantially lessen, or further reduce the significant effect, including approval of the Modified Timing Three-Loop Configuration. However, the CSLC has not identified any feasible mitigation measures or project design elements that would reduce the effect to a less than significant level based on the identified thresholds of significance.

SUMMARY OF MITIGATION AND RATIONALE

MM LU-1 will reduce the effects of preclusion on commercial fishing during the project by providing better information for planning fishing activities during the survey period. MM LU-1 will not eliminate the need to restrict fishing in the project area, but will require PG&E to communicate where active surveys areas would be on a regular basis, which will allow commercial fishermen the opportunity to make more informed choices about whether and where to fish.

Preclusion or disruption of fishing in the project area would have a significant impact on commercial fishing. Implementation of the Approved Project will reduce this adverse effect by reducing the survey footprint and duration, although it will cause impacts to occur in 2 separate seasons if survey activities are not completed the first year. MM LU-1 reduces impacts to commercial fishing by requiring PG&E to provide current information about active survey areas to allow fishermen to make more informed decisions about fishing during the survey. However, even with implementation of the Modified Timing Three-Loop Configuration and MM LU-1, fishermen will still be precluded from fishing in active survey areas during peak seasons, and the impact is still considered *Significant and Unavoidable.*

CEQA FINDING NO. FISH-2	Class: **SU**
Impact No.:	**FISH-2:** Project activities would have short-term adverse effects on catch resulting from survey-related noise.
Finding(s):	(1) Changes or alterations have been required in, or incorporated into, the Project that avoid or substantially lessen the significant environmental effect as identified in the EIR. (3) Specific economic, legal, social, technological or other considerations make infeasible the mitigation measures or project alternatives identified in the EIR.

EXPLANATION

The project would have short-term adverse effects on commercial catch caused by the following:

- Restrictions or preclusion in the project area during some or all of the survey (as discussed in Impact FISH-1);

- Fish injury; and/or
- Behavioral response of fish, leading to reduced catch per unit effort (CPUE).

Restrictions and preclusion were discussed above under Impact FISH-1; the adverse effects on catch would be related to reductions in fishing activities in the project area during the survey, resulting in lower catch.

Fish injury, particularly related to hearing effects, may occur, especially if the exposure is in close proximity to the air guns. Hearing effects are expected to be temporary; available relevant studies have not shown long-term physiological impacts or mortality related to Temporary Threshold Shifts (temporary impacts to hearing) in fish. However, these studies have shown various behavioral responses in fish, such as “startle” and “alarm” responses. The study types include observed behavior of caged or captive fish exposed to a noise source (Skalski et al. 1992), and other studies using video-recorded behavior of reef-dwelling fish as an air gun array passes.

The importance of behavioral effects to commercial fishing is the potential to reduce CPUE. For the EIR, a search of literature and publicly available reports was conducted to identify information on short- and long-term effects on CPUE. Studies that provided a timeframe for changes in CPUE measured short-term effects, typically those occurring within a matter of days or weeks. One study conducted in Estero Bay targeted behavioral and CPUE effects, concluding there were behavioral effects above certain noise levels and CPUE dropped by over 50 percent. However, the experiment design did not allow for measurements at various distances from the sound source and did not measure response after the source ended. Therefore, no definitive thresholds could be drawn about changes in CPUE with distance or time from the source.

The EIR assumed that a reduction in CPUE related to noise effects would occur during and immediately after the active survey phase (when the air guns would be in use), or an estimated 41 days. However, the EIR also considered that fishing preclusion would extend longer than the active survey phase to accommodate set-up, movement between survey zones, and other operational requirements. Therefore, CPUE may be recovering in the active survey zones before preclusion of the area has ended. For this reason, the EIR stated effect on catch from reduced CPUE may not be discernible from reduced catch caused by preclusion. In addition, if fishermen sought alternative areas to fish while they were restricted from the area, reduced catch could be offset by catch in areas unaffected or less affected by survey activity and restrictions. It may be also possible for fishing activity to occur in the project area during the survey period outside of restricted areas.

However, because the project would nonetheless adversely affect all or most of a commercial fishing season, the impact is expected to be *Significant*. Potentially feasible mitigation measures to reduce this significant impact would involve actions to minimize the survey area and disruption or preclusion of commercial fishing activities, as well as actions to minimize the expected short-term impacts to fishery resources (i.e., impact to CPUE). During the environmental documentation process, the CSLC identified a breadth of potentially feasible measures, and received several specific comments

asserting other potentially feasible measures and alternatives that the CSLC should consider in order to reduce or avoid the impacts, including avoiding or minimizing port/harbor closures, conducting the survey during a different time of year, and requiring PG&E to provide economic compensation to commercial fishermen. MM LU-1, which provides for a notification and communication plan to minimize disruption of fishing activities, was identified in the EIR and incorporated into the CSLC's approval and MMP. The CSLC incorporated other revisions into the Final EIR and MMP where it determined recommendations identified during the environmental documentation process were feasible and effective in reducing the environmental impact of the Project on commercial fishing, and provided a detailed explanation in the responses to comments in the Final EIR where it determined that the suggested measure either would not reduce the effect or for specific economic, legal, technological, or other considerations, the recommendation was infeasible.

As previously discussed, the EIR analysis determined that the Approved Project, which eliminates the northernmost survey zone and allows the survey to be phased if necessary, accomplishes the project objectives associated with the primary survey targets. Under the Approved Project, the survey footprint is limited to three survey zones, thereby reducing areas in which the Project would preclude fishing, and the total survey duration is reduced, but spread over 2 years. Overall, the Approved Project reduces the impact on catch during each year, but it results in the impact occurring twice. The Approved Project also does not eliminate the need for restrictions, and safe survey operations would still be dependent upon environmental conditions and technical requirements. Therefore, impacts on catch will not be avoided, as fishing will still be precluded from certain areas during part of a peak fishing season, and will be repeated if a second survey year is necessary. The CSLC also determined that conducting the survey during a different time of year in order to avoid commercial fishing seasons would unacceptably increase significant impacts to marine mammals, and found that economic compensation to fishermen and other recreational interests would not avoid or reduce a physical environmental impact (i.e., disruption or preclusion of activity), and was therefore not appropriate mitigation for impacts to commercial fishing (See Findings Required Under CEQA, above, for an explanation of treatment of socioeconomic impacts under CEQA). These impacts are described in EIR Sections 4.13 – Commercial Fishing and 7.1 – Socioeconomic Effects, as well as documented in written comments and oral public testimony provided during the environmental documentation process. Nonetheless, the CSLC finds the economic and social impacts that would result to fishermen, fishing-related businesses, ancillary businesses, and the regional communities and the need to reduce the duration that these community members experience economic hardship in any given year are critical considerations in its approval, and is therefore approving the Modified Timing Three-Loop Configuration, which will reduce the amount of time in any given year these activities would be disrupted, even though it may increase the effects related to CPUE.

As explained above, therefore, the CSLC has done all that is feasible to identify or address all potentially feasible mitigation measures that could avoid, substantially lessen, or further reduce the significant effect, including approval of the Modified Timing Three-Loop Configuration. However, the CSLC has not identified any feasible mitigation

measures or project design elements that would reduce the effect to a less than significant level based on the identified thresholds of significance.

SUMMARY OF MITIGATION AND RATIONALE

MM LU-1 would reduce the effects of the project on commercial fishing catch by providing better information for planning fishing effort during the survey period(s). The mitigation measure does not eliminate the need to restrict fishing in the project area, but requires PG&E to communicate where active surveys areas will be on a regular basis, which will allow commercial fishermen the opportunity to make more informed choices about whether and where to fish.

Reduced catch caused by preclusion of fishing in the project area, fish injury, and reduced fishing success (CPUE) will have a significant impact on commercial fishing. Implementation of the Approved Project will reduce this adverse effect by reducing the survey footprint and duration, and MM LU-1 will reduce impacts to commercial fishing by requiring PG&E to provide current information about active survey areas to allow fishermen to make more informed decisions about fishing during the survey, but these measures are balanced by the survey activities occurring over 2 years instead of 1. Therefore, even with implementation of MM LU-1, fishermen would still experience reduced catch in the project area under the Approved Project, and the impact is still considered *Significant and Unavoidable.*

Cumulative Impacts: The combination of the Approved Project with past, present, and probable future projects will have cumulatively significant effects to commercial fishing because the seismic surveys will contribute to disturbance in the project area. By adding to the seasonal disruption, more fishing activity is likely to be impacted. The disruption will occur at a time that the local commercial fishing industry is in transition and implementing elements of the 2008 *Morro Bay and Port San Luis Commercial Fisheries Business Plan* to establish a sustainable fishery.

Cumulative effects are potentially significant because the local commercial fishing industry has been weakened by other factors, and the proposed seismic surveys may cause additional disruptions.

MM FISH-1, Inclusion of Survey Schedule by Zones in the Project Communication Plan, alleviates some of the impacts to fishing activity by providing better information in a timely fashion to local fishermen to enable them to plan their activities with more certainty. Implementation of this mitigation measure, however, does not reduce the regional cumulative impact to less than significant and therefore this incremental cumulative impact is considered *Significant and Unavoidable*.

MODIFIED EXHIBIT F – CENTRAL COASTAL CALIFORNIA SEISMIC IMAGING PROJECT

STATEMENT OF OVERRIDING CONSIDERATIONS

Modified Timing Three-Loop Configuration

August 20, 2012

INTRODUCTION TO STATEMENT OF OVERRIDING CONSIDERATIONS

The California State Lands Commission (CSLC) as the lead agency under the California Environmental Quality Act (CEQA) has prepared a Final Environmental Impact Report (EIR) (State Clearinghouse No. 2011061085) for the Central Coastal California Seismic Imaging Project (Project), which Pacific Gas and Electric Company (PG&E or Applicant) proposes to conduct offshore and adjacent to the Diablo Canyon Power Plant (Diablo Canyon or DCPP), a nuclear power plant located in Avila Beach, San Luis Obispo County.[1] The EIR identifies significant impacts of the Project that cannot feasibly be mitigated to below a level of significance. This Exhibit (Modified Exhibit F, Statement of Overriding Considerations) addresses the CSLC's obligations under Public Resources Code section 21081, subdivisions (a)(3) and (b). (See also § 15091, subd. (a)(3) and § 15093 of the State CEQA Guidelines.[2])

Under these provisions, CEQA requires the CSLC to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of the Project (as approved by issuance of the Geophysical Survey Permit), against the backdrop of unavoidable significant environmental impacts. For purposes of CEQA, if the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable significant environmental effects, those effects may be considered "acceptable" and the decision-making agency may approve the underlying project (State CEQA Guidelines § 15092, subd. (b)(2)(B)). CEQA, in this respect, does not prohibit the CSLC from approving the Geophysical Survey Permit even if the seismic survey activities as authorized by that permit may cause significant and unavoidable environmental effects.

Based on the analysis conducted in preparation of the Final EIR, information provided by PG&E, information obtained through the public review process, and other information in the administrative record, this Statement of Overriding Considerations presents a discussion of the Project selected for approval, which is described below and hereafter referred to as the "Modified Timing Three-Loop Configuration." This discussion includes (1) mitigation measures that avoid or substantially lessen significant effects but not to a level below significance, (2) the specific significant effects on the environment

[1] The Final EIR was published in July 2012 and is available on the CSLC website at: www.slc.ca.gov (under the "Information" tab and "CEQA Updates" link).

[2] The State "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

attributable to the Project that cannot feasibly be mitigated to below a level of significance, (3) benefits derived from the Project, and (4) specific reasons for approving the Project.

Alternatives and Mitigation Measures

As explained in *California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1000, "When it comes time to decide on project approval, the public agency's decisionmaking body evaluates whether the alternatives [analyzed in the EIR] are *actually* feasible….At this final stage of project approval, the agency considers whether '[s]pecific economic, legal, social, technological, or other considerations…make infeasible the mitigation measures or alternatives identified in the environmental impact report.' Broader considerations of policy thus come into play when the decisionmaking body is considering actual feasibility than when the EIR preparer is assessing potential feasibility of the alternatives" [citations omitted].

Alternatives

The CSLC finds that the No Project Alternative is the environmentally superior alternative because it is the only alternative that would reduce impacts to *Less than Significant*. However, the CSLC finds that this alternative is infeasible for the following reasons.

- The California Energy Commission (CEC) conducted a comprehensive assessment of DCPP as directed by Assembly Bill (AB) 1632 (Blakeslee, Chapter 722, Statutes of 2006; codified as Pub. Resources Code, § 25303). AB 1632 did not expressly mandate that PG&E conduct a new three-dimensional (3D) geophysical survey of earthquake fault zones near the DCPP; it required only that the effects upon the State's electric supplies of a seismic event at the power plant be evaluated. The CEC's assessment found that an extended shutdown at the plant would have major economic, environmental, and reliability implications, and recommended that PG&E update DCPP's seismic assessments. The CEC specifically recommended that PG&E use "3D geophysical seismic reflection mapping and other advanced techniques" to supplement ongoing seismic research programs. The California Public Utilities Commission (CPUC) directed PG&E to complete these advanced seismic studies and submit the results as part of the CPUC's review of United States Nuclear Regulatory Commission (NRC) license renewal applications for the DCPP. The Project was proposed in response to this directive; selecting the No Project Alternative would put PG&E in the position of non-compliance with the CPUC directive.
- The Project objectives would not be met. No new information regarding the survey targets (either on- or offshore and including data on the Shoreline fault that was discovered in 2008) would be obtained. At-depth information regarding fault geometries would not be obtained in the area offshore of the DCPP. Key geologic features, such as the dip angle of the various faults, would remain as gaps in the understanding of the seismicity in the DCPP vicinity. The current regional seismic database would not be augmented. Choosing the No Project

Alternative would not allow PG&E to refine its predictive ground motion/seismic hazard modeling to the extent required.

The CSLC finds that the alternatives considered in the EIR (other than the No Project Alternative) would reduce one or more of the significant impacts, but would not eliminate them altogether. The CSLC further determines that Alternative IIIb (Three-Loop Configuration) would have lower overall environmental impacts than the other alternatives analyzed individually in the EIR, and is therefore identified in the EIR as the Environmentally Superior Alternative. Alternative IIIb would accomplish the Project objectives associated with survey targets in three of the proposed survey zones, but would not accomplish the objectives for data collection in the northernmost survey zone (Zone 3). In Zone 3, the survey target of interest to PG&E is the Hosgri-San Simeon step-over. However, discussions with PG&E and the Independent Peer Review Panel (IPRP)[3] revealed technical opinions that conclusions about the Hosgri-San Simeon step-over feature could be drawn from existing information, or obtained with techniques other than 3D high-energy seismic surveys. Therefore, conducting seismic surveys in this zone was considered of less technical value than the other three proposed survey zones, and the CSLC concludes, as a result, that Alternative IIIb would accomplish most of the project objectives. Under Alternative IIIb, impacts would be reduced primarily through:

1. Reducing the survey footprint, which would:
    - avoid the White Rock-Cambria Marine Protected Areas (MPAs);
    - increase the survey's distance from the Monterey Bay National Marine Sanctuary (MBNMS);
    - reduce impacts to marine wildlife due to noise; and
    - reduce impacts to commercial and recreational fishing from preclusion; and
2. Reducing the survey duration, thereby reducing impacts to marine wildlife, air quality, greenhouse gases (GHGs), and commercial and recreational fishing. Overall, the survey duration would be reduced by approximately 14 days from 82 days to 68 days - within which the period of active full air gun deployment would be reduced by approximately 7 days, from 41 days to 34 days.

<u>Modified Timing Three-Loop Configuration</u>

While Alternative IIIb (Three-Loop Configuration) as described in the EIR reduces the survey footprint (thereby avoiding two MPAs), shortens the expected survey duration, and reduces several significant impacts as compared to the applicant-proposed Project, the CSLC determines that additional modifications to the survey timing would likely further reduce impacts to some marine species and reduce the adverse social and economic consequences on commercial fishermen, fishing-related businesses, ancillary

[3] The CPUC's Decision 10-08-003 (2010) established the IPRP to conduct a peer review of the proposed seismic study plans and, if the Project is implemented, to review study findings. The IPRP includes staff from the CPUC, CEC, California Seismic Safety Commission, California Coastal Commission, and County of San Luis Obispo with contract support from the California Geological Survey.

businesses, and the regional communities. **Based on all available information presented, the CSLC adopts a modified version of Alternative IIIb, as set forth below, which incorporates additional survey timing restrictions, as well as aspects of Alternative IIb (Phased Survey), which was also analyzed in the EIR.**

The Modified Timing Three-Loop Configuration consists of Alternative IIIb as modified by the following:

- Project Timing: Project-related activities including mobilization to the area, pre-survey aerial surveys, pre-survey terrestrial surveys, onshore and nearshore geophone deployment, and other initial equipment deployment will not commence prior to **October 15**. Project-related activities will not be conducted after December 31;
- Survey Activities: Use of air guns (i.e., commencement of survey) will not commence prior to **November 1**;
- Phasing Contingency: In the event the survey has not been completed by December 31, 2012, survey and related Project activities may occur between October 15, 2013, and December 31, 2013, subject to the above restrictions (e.g., no use of air guns before November 1, 2013).

In adopting this option to Alternatives IIIb and IIb, the CSLC has balanced the economic, legal, social, technological, and other benefits of the project, including region- or statewide environmental benefits, against the adverse environmental consequences as described in this Statement of Overriding Considerations. In this respect, some specific significant impacts would decrease or may increase depending on when PG&E completes surveying the target faults identified in its Project objectives. Implementation of adaptive management, as suggested during public comment (see Comment Letter No. 23 in the EIR, Volume 1, from the Natural Resources Defense Council, Ocean Conservancy, and The Otter Project, May 3, 2012) could also decrease impacts. If all, or part, of the first year survey fails to yield useful data, the survey proposed for year two could be reduced or eliminated and related impacts (up to 50 percent of the total impact on wildlife and fisheries) avoided entirely.

For example, as discussed in greater detail below:

- With the shortened Project duration, total vessel emissions and emissions during the fourth quarter of 2012 under the Modified Timing Three-Loop Configuration would be less than those resulting from the Environmentally Superior Alternative (Alternative IIIb – Three-Loop Configuration), if PG&E completes the Project in a single year. This could be accomplished if there were fewer delays caused by equipment malfunctions, weather, presence of marine mammals, or other circumstances than PG&E anticipates may occur in year one.
- Vessel emissions would likely be greater, however, if PG&E needs to complete the Project in year two, since PG&E would, in the second year, need to bring the survey vessel back to the Project area and would need to repeat mobilization and demobilization activities.

Similar impacts relating to some marine mammals, MPAs, and Fishing activities may also be reduced or increased under the Modified Timing Three-Loop Configuration option depending on whether PG&E is able to complete the survey in one year or two years.

As required by section 15091, subdivision (c) and section 15093, subdivision (b) of the State CEQA Guidelines, the CSLC's specific reasons for not adopting the Environmentally Superior Alternative are contained in Modified Exhibit E – Statement of Findings, and in this Statement of Overriding Considerations (Modified Exhibit F).

Mitigation Measures

The CSLC finds that all mitigation measures identified in the EIR have been imposed to avoid or lessen impacts to the maximum extent feasible.[4]

Conclusions for Impacts Related to Emissions Due to Survey Vessels (AQ-1, AQ-2, AQ-3, and GHG-1).

Based on emission estimates, the proposed survey operations are predicted to result in criteria pollutant[5] emissions that will exceed the daily air quality significance thresholds and quarterly Level 1 and 2 air quality thresholds. The EIR presents a comprehensive set of mitigation measures that are adopted as part of this Project approval by the CSLC. The mitigation measures will reduce, to the maximum extent feasible, the probability, severity, or frequency of air quality threshold exceedances.

Measures specific to reducing daily or quarterly air quality significance threshold exceedances include the following:

- Application of the "Standard Mitigation Measures for Construction," listed in the current edition of the San Luis Obispo County Air Pollution Control District (APCD) CEQA Handbook;
- Implementation of Best Available Control Technology (BACT) Measures as defined in the current San Luis Obispo County APCD CEQA Handbook; and
- Implementation of Fugitive Dust Controls.

An additional measure associated with this impact is preparation of a Project-specific Emissions Reduction Plan (ERP), with input from the APCD. While this measure will not reduce actual Project-related emissions, it will provide a mechanism to implement a set of emission reductions, including identification of suitable means to offset those emissions by reducing emissions associated with other sources. Additionally, while total

[4] Impacts and mitigation measures are identified and discussed throughout Section 4.0 of the EIR. A summary of all impacts and mitigation measures is provided in the Mitigation Monitoring Program (MMP), adopted as part of this Project approval, as set forth in Exhibit D.

[5] As discussed in EIR Section 4.2, Air Quality, criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with a diameter of 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), lead (Pb), sulfates (SO_4), and hydrogen sulfide (H_2S).

Project emissions could be increased if the additional year of survey activities were necessary to complete the surveys, because of the restricted time frame of the survey, quarterly emissions exceedences may not be as severe as with the applicant-proposed Project and other alternatives (as described in Section 5.3.2 of the EIR).

PG&E met with the APCD in April 2012 to discuss Project air emissions and the need for PG&E to prepare an ERP. The APCD staff has stated that it is confident that implementation of the to-be-developed ERP would successfully reduce Project emissions below daily and quarterly air quality significance thresholds; however, the particular measures of the ERP that would ensure this reduction are still in development and rely to a large extent on the information presented in the EIR and identification of vessels and boat owners who may participate (therefore making it infeasible to complete the ERP and include it as a mitigation measure in the EIR). The CSLC finds this impact remains and will remain significant until such time that specific feasible mitigation is developed as a result of negotiations between the APCD and PG&E. Therefore, the Project impacts on air quality remain *Significant and Unavoidable*.

These above measures will also reduce the Project's contributions to GHGs in the Project area.

Conclusions for Impacts Related to Marine Mammals (BIO-12 and BIO-13).

The proposed surveys will produce seismic noise at specific magnitudes and frequencies that are designed to provide penetration of the earth's crust to the desired depths, but that would also have the potential to harm or disturb marine mammals. A number of alternative technologies for deep seismic imaging are considered in the EIR alternatives evaluation. None of those alternative options were deemed likely to reduce environmental impacts while achieving the Project objectives. All were rejected as viable options and were eliminated from further consideration.

The EIR presents a comprehensive set of mitigation measures that are adopted as part of this Project approval by the CSLC. The mitigation measures will reduce, to the maximum extent feasible, the probability, severity, or frequency of marine mammal impacts. Given that these noise magnitudes and frequencies cannot be adjusted to avoid impacts to marine mammals, measures in the EIR specific to reducing impacts to marine mammals from that noise include the following.

- Conducting a marine mammal pre-survey to determine marine mammal density in the Project area, to allow for adjustments in the survey timing or avoidance of large mammal concentrations.
- Conducting aerial surveys to identify the presence of marine mammals within the survey areas;
- Development of flight plans to avoid areas where pinnipeds "haul out" onto land;
- Establishment of Marine Mammal Observer (MMO) qualifications and use of equipment and procedures to enhance marine mammal detection rates, particularly during night-time operations;

- Establishment of an expanded Exclusion Zone, within which, if marine mammals are observed, the survey vessel crew would undertake specified actions to avoid potential takes;
- Use of multiple scout boats with MMOs to increase detection rates;
- Performance of track lines with highest mammal densities during daylight hours;
- Increase the scan period prior to air gun ramp-up[6] to allow for the presence of species with long dive time and to accommodate poor visibility conditions;
- Employment of a program of adaptive management when mammal sightings trigger multiple shut downs to provide the opportunity for agency input *before* a take or exceedance of a take limit occurs; and
- Establishment of shut down contingency in the event of a North Pacific Right Whale.

Implementation of the Modified Timing Three-Loop Configuration will likely further reduce impacts to blue, fin, and humpback whales, as the later air gun start date of November 1 places the survey within a time frame of lower expected densities of these species. In addition, these mitigation measures and the timing restriction will also be effective in reducing noise impacts to sea otters and minimize conflict with sea otter breeding. If the survey is not completed by December 31, 2012, and the survey is completed in year two, the impacts to Morro Bay harbor porpoise could be increased as compared to the Environmentally Superior Alternative (Alternative IIIb – Three-Loop Configuration), as they are resident species in the Project area and would be exposed to noise impacts twice; however, the duration of each exposure would be reduced from that of the applicant-proposed Project and the Environmentally Superior Alternative.

Conclusions for Impacts Related to Conflicts with Marine Protected Areas (MPAs) (LU-2).

A network of MPAs was created in response to California Marine Life Protection Act (MLPA) (Fish & G. Code, §§ 2850–2863) requirements and is intended primarily to protect or conserve marine life and habitat. Three MPAs are present in the Project area as proposed: the Point Buchon State Marine Reserve (SMR) and State Marine Conservation Area (SMCA), the Cambria SMCA, and the White Rock SMCA. Under the approved project, the Modified Timing Three-Loop Configuration, the survey footprint is reduced as compared to the applicant-proposed Project, and will avoid the White Rock-Cambria MPAs – thereby reducing conflicts with MPA policies due to the Project and increasing the distance between the survey track lines and the MBNMS. However,

[6] "Ramp-up" is a standard mitigation measure identified in high energy seismic survey guidelines for marine surveys. This has occurred in recognition of the potential risk that immediate hearing damage could occur to a nearby marine mammal if a high-energy sound source, such as an air gun array, were turned on suddenly. The ramp-up procedure generally involves the gradual increase in intensity of a sound source to full operating intensity over a period of time. It is assumed that marine mammals will hear the sound and move away before hearing damage or physiological effects occur.

impacts to marine wildlife will not be avoided altogether, and the Point Buchon SMR/SMCA will still remain within the survey footprint. Under the Modified Timing Three-Loop Configuration, if a second survey year is necessary, any conflicts with the MPAs would be of shorter duration, but may be repeated. Reentry into the MPAs may or may not be necessary in the second year, and would require approval by the California Department of Fish and Game (CDFG). The offshore survey may result in "take" of marine species, which is prohibited in the MPAs without a permit. In addition, the northernmost Project area extends slightly into the MBNMS; none of the survey lines enter into the MBNMS. In accordance with the National Marine Sanctuaries Act, flying motorized aircraft at less than 1,000 feet (304 meters) is prohibited in this area.

The EIR presents a comprehensive set of mitigation measures that are adopted as part of the CSLC's approval of the Modified Timing Three-Loop Configuration. The mitigation measures will reduce, to the maximum extent feasible, the probability, severity, or frequency of conflicts with MPAs. The following measure in the EIR applies to reducing conflicts with these protected areas:

- Restrictions of aircraft flying less than 1,000 feet above MBNMS Exclusion Zones

The measures listed above for marine mammals are also consistent with the intent of the establishment of MPAs to protect or conserve marine life and habitat.

Conclusions for Impacts Related to Commercial and Recreational Fishing (LU-1, FISH-1 and FISH-2).

Non-Project vessels will be restricted from active survey areas during Project implementation. The Project area supports year-round and seasonal fisheries, the closures of which vary from year to year and cannot be forecasted precisely. Under both the applicant-proposed Project and the Environmentally Superior Alternative (Alternative IIIb – Three-Loop Configuration), year-round fisheries would be restricted for approximately one-quarter of the year. For fisheries that are only open during the proposed survey months, the impact would be much greater, possibly excluding fishing in the Project area for an entire season. The ability for fishermen to fish in alternate locations is highly dependent on the fishery (gear type, season, and other conditions). Although substitution could, for some fisheries, maintain fishing activity during the proposed survey period, it may also be less efficient and/or incur higher fuel and other costs.

The Project will also have potential short-term adverse effects on commercial catch caused by fishing preclusions and fish injury or behavioral changes due to Project-related noise. As noted in Section 7.1, Socioeconomic Effects, of the EIR, there will be adverse economic impacts resulting from the proposed geophysical survey, particularly to individual fishermen in the San Luis Obispo County region, including commercial fishermen and charter boat operators, and other businesses that support the fishing industry (e.g., bait, tackle, other supplies and fuel). While the Project is not expected to have long-term or widespread impacts on the local economy, by restricting the survey to the November 1 to December 31 time frame (October 15 for pre-survey preparation and

mobilization), the Modified Timing Three-Loop Configuration reduces the duration of the disruption and/or preclusion of fishing activities, and in turn, reduces the social and economic effects associated with a longer disruption of the fishermen's and other community members' livelihoods. While fishing could be disrupted in the subsequent year if the survey is not completed by December 31, 2012, the duration of each disruption would be less. The benefit provided by restricting the project timing, even if a second survey year is necessary, while not related to "potentially significant environmental effects" analyzed in the EIR, is an important consideration in the CSLC's decision to approve the Modified Timing Three-Loop Configuration, as discussed further below.

The EIR presents a comprehensive set of mitigation measures that are adopted as part of this Project approval by the CSLC. The mitigation measures will reduce, to the maximum extent feasible, the probability, severity, or frequency of physical impacts to commercial and recreational fishing. The following measure in the EIR applies to reducing impacts to recreational and commercial fishing:

- Development and implementation of a communication plan with local fishing, boating, and other recreational interests.

Significant Impacts

Although the Applicant has designed the Project to minimize environmental effects, and the CSLC has approved the Modified Timing Three-Loop Configuration and imposed all feasible mitigation measures to further reduce impacts, impacts remain that are considered significant.

Remaining Project-related significant impacts are within the following environmental issue areas analyzed in the EIR:

- Air Quality [**AQ**];
- Biological Resources - Marine [**MARINEBIO**];
- Greenhouse Gases [**GHG**];
- Land Use and Recreation [**LU**]; and
- Commercial Fishing [**FISH**].

As shown in Table 1, these significant impacts fall into the following categories:

- Emissions Due to Survey Vessels;
- Impacts to Marine Mammals;
- Conflicts with MPAs; and
- Impacts to Commercial and Recreational Fishermen.

Table 1. List of Significant Impacts Identified for the Project, as Modified by the Modified Timing Three-Loop Configuration

Impact	Impact Summary	Impact Description
Emissions Due to Survey Vessels		
AQ-1	Mobilization and demobilization activities (including equipment deployment and retrieval) would result in daily emissions of criteria pollutants that would exceed air quality significance thresholds.	Criteria pollutant emissions during mobilization and demobilization (including equipment deployment and retrieval) would be associated with (1) transit of the survey vessel to and from the Project area; (2) support boats used to deploy the equipment and to transport the survey crew, required equipment, and support provisions; and (3) onshore construction vehicles that would be used to deploy the onshore geophones. Estimated criteria pollutant emissions associated with these actions exceed the daily air quality significance thresholds. The San Luis Obispo County APCD staff has stated that it is confident that implementation of the to-be-developed Emission Reduction Program (ERP) would successfully reduce Project emissions below daily and quarterly air quality significance thresholds; however, the particular measures of the ERP that would ensure this reduction are still in development.
AQ-2	Survey activities would result in daily emissions of criteria pollutants that would exceed air quality significance thresholds	Criteria pollutant emissions during survey operations would be associated with (1) transits of the survey vessel along tracklines; (2) support boats conducting mammal surveys, supporting the primary vessel, and scouting the area for obstructions; and (3) onshore construction vehicles that would be used for onshore seismic noise generation. Estimated criteria pollutant emissions associated with these actions exceed the daily air quality significance thresholds. The San Luis Obispo County APCD staff has stated that it is confident that implementation of the to-be-developed ERP would successfully reduce Project emissions below daily and quarterly air quality significance thresholds; however, the particular measures of the ERP that would ensure this reduction are still in development.
AQ-3	Total Project activities would result in quarterly emissions of criteria pollutants that would exceed air quality significance thresholds.	Because the Project duration is expected to last nearly one (calendar) quarter in year one, the total emissions must be evaluated against the quarterly significance criteria for criteria pollutants. Similar additional emissions could occur in year two if the survey is not completed in year one. The total quarterly emissions estimated for the Project exceed the Quarterly Level 1 and 2 air quality thresholds.

Table 1. List of Significant Impacts Identified for the Project, as Modified by the Modified Timing Three-Loop Configuration

Impact	Impact Summary	Impact Description
		The San Luis Obispo County APCD staff has stated that it is confident that implementation of the to-be-developed ERP would successfully reduce Project emissions below daily and quarterly air quality significance thresholds; however, the particular measures of the ERP that would ensure this reduction are still in development. Timing restriction of October 15 to December 31 would reduce the effect related to quarterly emissions; however, a phased survey over 2 years would increase the overall emissions of the Project.
GHG-1	The Project would result in emissions of GHGs that would exceed significance thresholds.	During the Project, offshore survey and supporting vessels and onshore construction vehicles will emit GHGs. Estimated emissions would exceed San Luis Obispo County APCD's proposed emission threshold. If a second survey year is necessary, overall GHGs would be higher than Alternative IIIb. The San Luis Obispo County APCD staff has stated that it is confident that implementation of the to-be-developed ERP would successfully reduce Project emissions below daily and quarterly air quality significance thresholds; however, the particular measures of the ERP that would ensure this reduction are still in development.
Impacts to Marine Mammals		
MARINE BIO-12	Injury or mortality of marine mammals would occur due to noise during seismic survey acquisition.	Noise generated underwater during the seismic survey would adversely affect marine mammals, by either: (1) masking other noises needed for survival; (2) disturbing their behavioral patterns; (3) resulting in temporary or permanent hearing loss; or (4) causing other physiological effects, such as stress or immune response. Restricting air gun operation to the November 1 to December 31 time frame would reduce these impacts on blue, fin, and humpback whales, but a second survey year, if it is necessary, could increase impacts on Morro Bay harbor porpoise.
MARINE BIO-13	Injury or mortality to Southern Sea Otters would occur due to noise during seismic survey acquisition.	No mortality of sea otters is expected. Noise generated underwater during the seismic survey would disturb sea otters' normal behaviors. Restricting the air gun operation to the November 1 to December 31 time frame would slightly reduce conflicts with breeding

Table 1. List of Significant Impacts Identified for the Project, as Modified by the Modified Timing Three-Loop Configuration

Impact	Impact Summary	Impact Description
Conflicts with Marine Protected Areas (MPAs)		
LU-2	Offshore Project activities would conflict with some applicable land use plans.	The offshore survey may result in "take" of marine species, which is prohibited in the MPAs without a permit. The CDFG has authority over the MPAs and would, at its discretion, need to issue a Scientific Collecting Permit in order for the Project to proceed with any part of the Project that would result in "take" in the MPAs. In addition, Project activities would potentially interfere with ongoing monitoring efforts aimed at measuring the effectiveness of MPA management. If the second year of the survey is necessary, these impacts would be increased, although the length of each impact event would be decreased.
Impacts to Commercial and Recreational Fishing		
LU-1	Offshore Project activities would adversely impact offshore recreational activities during a peak season.	Non-Project vessels would be precluded from active survey areas within the offshore Project area; survey operations would result in preclusion of recreational fishermen from certain fishing areas during a peak season. Limiting project activities to October 15 – December 31 would decrease this impact in a given year; however, some impacts would occur twice if the survey is not completed in the first year.
FISH-1	Offshore Project activities would adversely impact commercial fishing by precluding fishing for all or most of a season.	Non-Project vessels would be precluded from active survey areas within the offshore Project area; survey operations would result in preclusion of commercial fishermen from certain fishing areas during a peak season. Limiting project activities to October 15 – December 31 would decrease this impact in a given year; however, some impacts would occur twice if the survey is not completed in the first year.
FISH-2	Project activities would have short-term adverse effects on catch resulting from survey-related noise.	The Project would have short-term adverse effects on commercial catch caused by (1) Restrictions or preclusion in the Project area during some or all of the survey; (2) Fish injury; or (3) Behavioral response of fish, leading to reduced catch per unit effort (CPUE). Limiting project activities to October 15 – December 31 would decrease this impact in a given year; however, some impacts would occur twice if the survey is not completed in the first year.

BENEFICIAL IMPACTS OF THE PROJECT

Region-wide Benefits

This Project can be traced back to AB 1632, which required that the CEC, as part of its electricity and natural gas forecasting and assessment activities, compile and assess existing scientific studies to determine the potential vulnerability to a major disruption, due to aging or from a major seismic event, of the State's two nuclear facilities, including a specified analysis of the impact of a major disruption on system reliability, public safety and the economy. As stated earlier, AB 1632 did not mandate geophysical surveys. However, the CEC recommended that 3D geophysical surveys of nearby faults would yield information that could ultimately prove helpful in evaluating DCPP's reliability, and, consequently, the CPUC ordered PG&E to pursue such surveys.

PG&E will submit data from the survey for analysis by the NRC pursuant to its regulatory authority over the safety aspects of nuclear power, which includes plant licensing and license extensions. The State may set electricity generation priorities, but cannot shut down the plant or order safety-related modifications; those are within the NRC's jurisdiction. The NRC may consider the seismic survey results in evaluating relicensing of the DCPP prior to expiration of its current license in 2024, but, more immediately, it may at any time order enhancements to the safety of the plant or a complete shut-down.

The ultimate aim of AB 1632 was to improve system reliability, public safety, and economic impacts caused by disruptions from California's nuclear power plants. To the extent that data generated from the Project could refine the understanding of fault geometries in the area offshore of the DCPP and could be used to update PG&E's predictive ground motion/seismic hazard modeling, the Project could ultimately benefit the overall safety and reliability of the DCPP operations.

The CSLC must therefore balance the possibility that the survey may produce data that the NRC might consider sufficient to justify requiring enhancements to the safety of the DCPP against the significant or potentially significant environmental and socioeconomic impacts from the Project. The consequences, however, of a major failure at the facility would be incalculable. Using the partial melt-down at the Fukushima Dai-Ichi facility as an example, both the economy and the environment of virtually the entire San Luis Obispo County coast could be devastated. Given the extreme and far reaching consequences to both the regional economy and the environment that could result from a major failure at DCPP, the possibility that new data about potential earth movement from seismic events could lead to improvements to plant safety must be considered sufficient to override the otherwise clear concerns about the environmental impacts that would result from collection of these data.

Benefits to the State Economy

As noted above, preventing or lessening economic impacts caused by disruptions from nuclear power plants, as well as enhancing public safety and system reliability, was a primary consideration in AB 1632. Conducting the CEC-mandated geophysical survey

in the near future would also enable the CEC to identify alternatives to the DCPP should the NRC, after evaluating the seismic survey data, order a short- or long-term shut-down of the DCPP for safety reasons. The benefits of safe and reliable operation of the DCPP to the state economy, while less direct and immediate than benefits to the region, are substantial in the context of maintaining a safe and reliable power grid. According to the CEC (2011), nuclear power generation provides 15.7 percent of California's in-state generation, of which DCPP provides about 50.6 percent (about 8.0 percent of total in-state generation) (see http://energyalmanac.ca.gov/overview/energy_sources.html). The continued contribution of power generation is essential to the state economy.

CSLC ADOPTION OF STATEMENT OF OVERRIDING CONSIDERATIONS

Under Public Resources Code section 21081, subdivisions (a)(3) and (b) and State CEQA Guidelines section 15093, subdivision (a), the decision-making agency is required to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project against its unavoidable environmental risks when determining whether to approve a project.

For purposes of CEQA, if the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable significant environmental effects, the decision-making agency may approve the underlying project. CEQA, in this respect, does not prohibit the CSLC from approving the Project, issuance of a Geophysical Survey Permit, even if the seismic survey activities as authorized by that permit may cause significant and unavoidable environmental effects.

This balancing is particularly difficult given the significant and unavoidable impacts on resources discussed above and the potential adverse social and economic impacts resulting from the proposed seismic survey on fishermen and fishing-related businesses. Nevertheless, the CSLC finds, as set forth below, that the benefits of the information expected to be obtained by implementing the Project outweigh and override the expected significant effects. Furthermore, the CSLC finds that the social and economic considerations related to the commercial fishermen, fishing-related businesses, ancillary businesses and the regional communities, and the need to reduce the duration that these community members experience economic hardship in any given year, provide specific support for the CSLC's adoption of the Modified Timing Three-Loop Configuration, even though it is not the Environmentally Superior Alternative identified in the EIR.

The CLSC has balanced the benefits of the Project against the significant unavoidable impacts that would remain after selection of the Modified Timing Three-Loop Configuration and with implementation of all feasible mitigation in the EIR that is adopted as enforceable conditions of the CSLC's approval of the Project. The CSLC adopts and makes this Statement of Overriding Considerations with respect to the impacts identified in the EIR that cannot be reduced to a less than significant level. Each benefit set forth above or described below constitutes an overriding consideration

warranting approval of the project, independent of the other benefits, despite each and every significant unavoidable impact.

OVERRIDING CONSIDERATIONS CONCLUSION

The Project objective to collect data regarding at-depth geologic features in the DCPP vicinity would not be met if the Geophysical Survey Permit was not granted to conduct the high-energy seismic survey associated with the Project. Experts within PG&E and the IPRP have indicated that there are no commercially available survey techniques other than the high-energy seismic survey techniques planned for the Project that are capable of generating the necessary data. These experts have designed the survey to focus on specific target areas, where associated data are particularly and uniquely critical. If the Geophysical Survey Permit was not granted for the Project, it would not be possible for PG&E to collect the location-specific, at-depth data that it (and the IPRP) has determined are needed for DCPP hazard analyses.

Desktop and less intensive techniques (such as low-energy and two-dimensional seismic surveys) have been conducted to study the seismicity of the DCPP area, and are ongoing. PG&E has used these techniques to provide data for the hazard models required to assess the current safety of the DCPP; however, deeper survey data are needed that can only be obtained using high energy seismic surveys. In addition, the previously unidentified Shoreline fault zone that the U.S. Geological Survey and PG&E discovered in 2008 approximately 0.6 mile (1 kilometer) offshore of the DCPP has not been recently or adequately mapped using deep, high energy seismic surveys that would shed light on this fault's direction and potential connectivity to other faults, including the Hosgri fault. These data are necessary to more realistically defining the faults and reducing the uncertainty in the parameters in order to refine and improve the risk hazard analysis for the DCPP. According to the IPRP, "Increased knowledge of the Shoreline fault is particularly important because the fault is located so close to the DCPP." (IPRP Comments on the Draft EIR for DCPP Seismic Studies, May 2, 2102.) Therefore, if the Geophysical Survey Permit was not granted the need for at-depth data will be unmet. Further, the ability to better assess the potential for a Fukushima-scale event would also be unmet, and the implications for public safety, particularly in the immediate Project area, could be devastating.

With the technical input of the IPRP, an alternative was developed to meet the critical technical objectives of the Project while reducing the scope and duration of the Project to avoid significant impacts on the White Rock-Cambria MPAs, and to reduce significant effects on Air Quality; Biological Resources - Marine; Greenhouse Gases; Land Use and Recreation; and Commercial Fishing. The EIR identified this alternative as the Environmentally Superior Alternative (Alternative IIIb – Three-Loop Configuration); however based on information presented during the environmental documentation process and consideration of whether and how to approve the Project, the CSLC determined that the Modified Timing Three-Loop Configuration has certain specific social and economic benefits to the regional community as compared to the Environmentally Superior Alternative, as described above, that outweigh the adverse environmental consequences of the project as approved. Furthermore, the CSLC

determined that the benefit of reducing impacts to certain marine species by restricting the survey timing, even though such a restriction could result in the need for a second survey year, outweighs the adverse effect of an increase in impacts related to air and GHG emissions, as well as other potential incremental increased impacts to Land Use and Biological Resources (i.e., harbor porpoises). Importantly, these possibly-increased impacts would only occur if the survey is not completed in the first year.

The CSLC further finds that all mitigation measures identified in the EIR have been imposed to avoid or lessen impacts to the maximum extent feasible. Based upon the above discussion, the CSLC finds that the Project's benefits set forth above override and outweigh its unavoidable adverse environmental effects.

Data to support the overriding factors are found in the EIR, including in the following EIR sections: Introduction, Project Description, Air Quality, Biological Resources-Marine, Greenhouse Gases, Land Use and Recreation, and Commercial Fishing and in the administrative record of proceedings.

CALIFORNIA STATE LANDS COMMISSION
STATE OF CALIFORNIA
SURVEY PERMIT PRC 9009
GENERAL PERMIT TO CONDUCT GEOPHYSICAL SURVEYS

Pursuant to Division 6 of the California Public Resources Code and Title 2 of the California Administrative Code, the State of California, acting by and through the California State Lands Commission (CSLC), hereby issues Pacific Gas & Electric Company (Permittee) a non-exclusive geophysical survey permit subject to the following terms and conditions:

TERMS AND CONDITIONS

1. **Permit Area:** This permit covers offshore state waters identified as within the Project Boundary on Permit Exhibit A, not to exceed the state's boundary three (3) nautical miles from shore.

2. **Terms of Permit:**

   a. This permit shall commence on October 15, 2012 and shall continue until December 31, 2013, subject to the provisions of subsections b, c and d of this section, unless terminated sooner as provided in this permit.

   b. Survey activities under this permit may take place only between October 15, 2012, and December 31, 2012, and between October 15, 2013, and December 31, 2013.

   c. Air guns may not be engaged under this permit prior to November 1, 2012, or after December 31, 2012, except as provided under subsection d of this section.

   d. If the survey, as approved under this permit and as described in the environmental impact report (EIR) certified for this permit, is not completed within the period set forth in subsection c. of this section, then Permittee is authorized to resume use of air guns under this permit between November 1, 2013, and December 31, 2013, provided that all survey work during 2013 is in full compliance with this permit and is consistent with what was analyzed in the EIR certified for this permit.

3. **Equipment/Survey Methods**: Permittee is authorized under this permit to collect geophysical data utilizing the equipment listed on Permit Exhibit B, subject to all other provisions of this permit.

4. **Multiple Use**: This permit is nonexclusive and is issued subject to all existing valid rights issued by the CSLC. Any such rights shall not be affected by the issuance of this permit. The CSLC shall have the right to issue additional non-exclusive survey permits and leases or other entitlement for uses, which are not inconsistent with this permit.

5. **Marine Wildlife Contingence Plan and Spill Plan:** Prior to permit implementation, Permittee shall 1) prepare a Marine Wildlife Contingency Plan for review and approval by the CSLC Staff. Said plan shall include measures that i) specify the distance, speed, and direction transiting vessels would maintain when in proximity to a marine mammal or reptile; ii) qualifications, number, location, and authority of onboard marine mammal and reptile monitors; iii) methods of reducing noise levels generated by the geophysical equipment; and iv) reporting requirements in the event of an observed impact to marine organisms; and 2) prepare and submit to the CSLC Staff for review and approval a spill plan for accidental releases of petroleum and/or non-petroleum products.

6. **Operations and Compliance with the Mitigation Monitoring Plan (MMP)**:

   a. Permittee shall conduct all activities in connection with the survey undertaken under this Permit with due regard for the protection of the environment, the public and all public and private property.

   b. Permittee shall carry out survey activities in accordance with the Survey Tracks, Run-Ins, Run-Outs and Line Changes generally indicated for Zones 1, 2, and 4 as set forth on Permit Exhibit A.

   c. As part of the survey, Permittee may place geophones, described in Permit Exhibit B, on the ocean floor at locations and as described in the environmental impact report certified for this permit.

   d. Permittee shall comply with all provisions of the MMP attached as Permit Exhibit C at all times when engaging in any and all activities in connection the survey undertaken pursuant to this permit, whether on lands under the jurisdiction of the State, on lands under the jurisdiction of a local governmental entity, on private lands, or, to the extent that the provisions of the MMP do not directly conflict with the provisions of any superseding federal law, regulation or requirement, on lands under the jurisdiction of the federal government of the United States.

7. **Observers**:

   a. The CSLC Staff may require Permittee to furnish food, quarters, and marine transportation, if necessary, for a CSLC representative on any vessel conducting operations authorized by this permit. The CSLC

representative may observe or inspect all operations conducted pursuant to this permit.

b. If the CSLC representative notes permit violations or determines adverse effects are being caused or are imminent, the representative may recommend suspension of activities to the CSLC Executive Officer, who may take action under this permit pursuant to Section 14.

8. **Notification Procedure**: Permittee shall follow the complete notification procedure set forth in Permit Exhibit D for all geophysical surveys where equipment is deployed. This notice shall include the information required under Permit Exhibit D, Section B, "Contents of Notice," and in the format displayed in Permit Exhibit E.

9. **Data Submission and Examination**:

a. Permittee shall submit a field operations report to the CSLC Staff as soon as possible, but not more than thirty (30) days, after the completion of any survey activities conducted under this permit. Information required shall include:

1. A narrative description of the work performed, the data obtained, and the logs produced from the operations.

2. Charts, maps, or plats indicating the areas in which any exploration was conducted and specifically identifying the lines of geophysical traverses, [pre-plot maps(s) may be used provided it accurately depicts the area and lines surveyed], accompanied by a reference sufficient to identify the data produced from each activity;

3. The dates and times during which the actual exploration was performed;

4. The nature and location of any environmental hazards;

5. A description of any encounters with marine mammals and/or reptiles and the outcome of those encounters;

6. A description of any accident, injury, damage to or loss of property which resulted from the reported activities; and

7. Such other information relative to the permitted activities as may be requested.

b. Permittee shall make available, upon request, and the CSLC Staff shall have the right to inspect and/or copy factual and physical survey results,

logs, records, field acquired data, processed records, interpretations, or any other data/ information resulting from operations under this permit. These data and information shall include, but not be limited to, geophysical data from:

1. Deep seismic reflection ("Common Depth Point") and refraction;

2. High resolution systems including but not limited to bathymetry, side-scan sonar, sub-bottom profiler, and electromechanical devices;

3. Analog and digital copies of final stacked sections and migrated sections. Printed sections chosen for CSLC use shall be made at one-half scale (2 ½ inches per second); data to include how reductions and corrections were made;

4. Post-plot maps at a reasonable and appropriate scale for the dimensions of the survey and whenever possible, a scale of 1:24,000 (l inch equals 2000 feet), with a narrative summary of accuracy of shot points and ship tracks; and

5. Copies of navigation and velocity data with narrative summary of accuracy of shot points and ship tracks.

c. In the event that information or data obtained under this permit are transferred from Permittee to a third party, or, subsequently, from a third party to another third party, the transferor shall notify the CSLC and shall require the receiving third party, in writing, to expressly agree to abide by the obligations of Permittee under this Section 9 of this permit as a condition precedent to the transfer of the information or data.

d. The following definitions apply to words used in this section:

1. "Factual or physical survey results" include all data and information gathered as the result of any and all operations conducted under this permit by whatever means.

2. "Data" mean all facts, statistics, samples, or interpretations.

3. "Processed Records" mean data collected under a permit which has been processed. Processing involves changing the form of data so as to facilitate interpretation. Processing operations include, but are not limited to, applying corrections for known perturbing causes, rearranging or filtering data, and combining or transforming data elements.

e. The CSLC reserves the right to disclose any data or information acquired from Permittee to an independent contractor or agent for the purpose of reproducing, processing, reprocessing, or interpreting such data or information for the use of the CSLC. Such data and information, as well as products derived therefrom, shall be held confidential as required by Public Resources Code 6826(c).

10. **Third Party Damage Claims**: Permittee shall make a good-faith effort to resolve all good-faith claims brought for damages resulting from Permittee's geophysical survey activities.

11. **Bond**:

a. Permittee shall furnish, and maintain, until released by the CSLC, a bond or letter of credit in the sum of five million dollars ($5,000,000.00), in favor of the State, for its exclusive use and benefit, to guarantee the faithful performance by the Permittee of this permit's terms and conditions. The bond or letter of credit shall be delivered to the CSLC at the address specified in Section 16, prior to the effective date of this permit.

b. The bond or letter of credit shall be noncancellable and shall, by its own terms, remain in effect until at least one hundred and eighty (180) days after the termination date of this permit, unless earlier released by the CSLC.

12. **Insurance**: At the option of the CSLC Staff, Permittee shall submit a certificate of self-insurance or procure and maintain liability, property damage, or other insurance for the benefit of the State in an amount satisfactory to the CSLC Staff.

13. **Indemnity**:

a. Permittee agrees to indemnify, save harmless and, at the option of the CSLC Staff, defend the State, its officers, agents and employees against any and all claims, demands, causes of action, or liability of any kind which may be asserted against or imposed upon the State or any of its officers, agents or employees by any third person or entity arising out of or connected with Permittee's operations hereunder.

b. Permittee shall also defend against, indemnify and save harmless the State from any and all liabilities, charges, expenses and costs on account of, or by reason of, any action or inaction by the CSLC or any of its officers, employees or agents in connection with approvals or authorizations given by the CSLC to Permittee regarding this permit.

14. **Suspension and Revocation**:

a. The Executive Officer of the CSLC, or other person designated by the Executive Officer, may order suspension of this permit or any activity authorized under this permit if, at any time during the term of the permit, the Executive Officer or his or her designee reasonably believes that the activities of the Permittee are in violation of any provision or condition of this permit.

b. Such suspension shall be effective upon receipt by Permittee's representative of a written or oral (to be confirmed in writing) notice thereof, which notice shall indicate (1) the extent of the suspension, (2) the reasons for the action, and (3) any corrective or preventive measures to be taken by Permittee that are deemed necessary by the Executive Officer, or Executive Officer's designee, to remedy the violation.

c. Upon receipt of the notice Permittee shall take immediate action to comply with the provisions of the suspension order. Permittee may request a hearing before the CSLC in order to present information relevant to a decision as to whether the suspension order should be lifted or modified.

d. The CSLC or the Executive Officer may lift the suspension order at any time following its issuance, and, once the order is lifted, activity under this permit may resume.

e. Any suspension, modification, or revocation of this permit shall not be a basis for any claim for damages against the State of California.

f. The CSLC may revoke this permit, after notice to the Permittee, if the CSLC finds that the Permittee has failed to comply with any provision or condition of this permit or any law or regulation governing the permitted activity.

15. **Permits**: Permittee shall obtain all necessary and applicable permits and obey all laws and regulations applicable to the conduct of operations under this permit.

16. **Notices**: All written notices to the CSLC or Permittee which are not part of the notification procedure identified in Section 8 shall be deemed to have been fully given when made in writing, and deposited in the United States mail, with first class postage prepaid, addressed as follows:

To the CSLC: California State Lands Commission
Mineral Resources Management Division
Attention: Geophysical Coordinator
200 Oceangate, 12th Floor
Long Beach, CA 90802

To the Permittee: Kris Vardas
Senior Land Planner
PG&E
4325 S. Higuera Street
San Luis Obispo, CA 93401

The address to which notices shall be mailed may be changed by written notice, as is provided in this paragraph.

17. **Assignment**: Permittee may not assign, sublease or transfer this permit or any interest therein without prior CSLC approval. However, Permittee may subcontract part or all of the work to be performed. Any such subcontractor shall be the agent of Permittee, and Permittee shall remain responsible to the State under the terms of this permit.

18. **Successors**: If for any reason this permit is transferred by operation of law or otherwise, it shall apply to and bind the heirs, successors, executors, administrators and assigns of all of the parties to this permit. All parties to this permit shall be jointly and severally liable under the terms of this permit.

19. **Nondiscrimination**: The Permittee will not discriminate against any person or entity, in regard to the administration or operation of any agreement made under this procedure, on the basis of race, color, creed, national origin, sex, marital status, religious or political affiliation, ancestry, disability, age or sexual orientation.

IN WITNESS WHEREOF, the parties hereto have executed this permit as of the date entered below.

STATE OF CALIFORNIA
STATE LANDS COMMISSION

_____ _____

Date Marina M. Voskanian, P.E.
Deputy Chief,
Mineral Resources Management Division

PERMITTEE*

_____ By: _____
Date

Title: _____

Address: _____

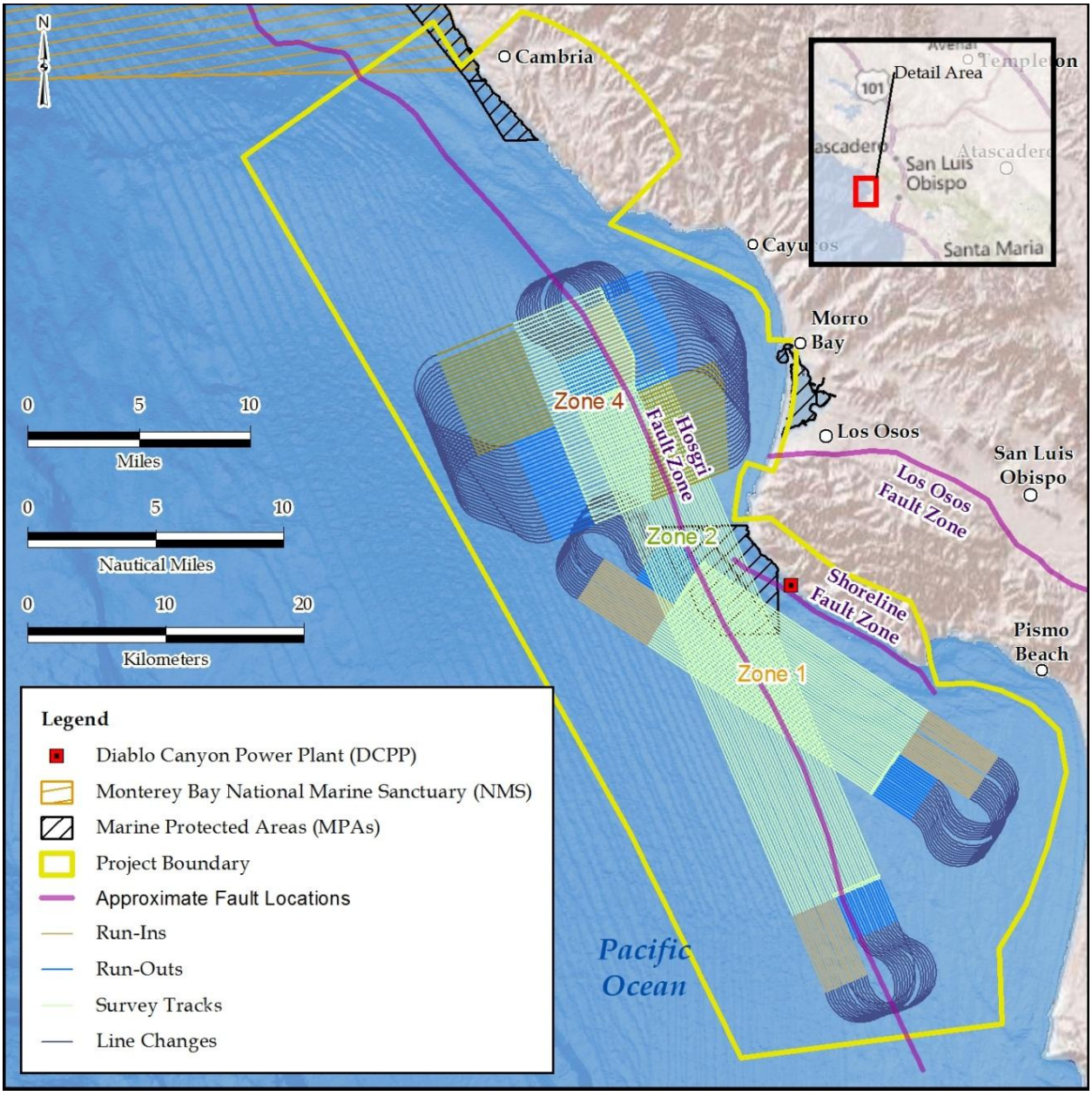
_____
City, State and Zip Code

***** In executing this document, the following is required:

Corporations:	Certificate of Corporate Secretary providing that the Board of Directors authorized the execution of this permit specifically or authority to execute documents of this type generally. An example of the type of form required is attached as Exhibit F.
Individuals:	Acknowledgment of signature is required.

PERMIT EXHIBIT A

W 6005.126



PERMIT EXHIBIT B

AUTHORIZED EQUIPMENT AND SURVEY METHODS

Under this permit, Permittee is authorized to collect geophysical data utilizing energy receivers, and acoustic pulse-generating devices not utilizing chemical explosives.

Notwithstanding the above, the Permittee is authorized to operate geophysical survey equipment in State waters only under the following conditions:

1. No survey equipment may be used other than the following as described in the certified Environmental Impact Report and equipment necessary for use of the following:

    a. Nineteen air guns (Bolt 1500LL and 1900LL): including eighteen (18) 40- to 360-cubic-inch air guns with a total discharge volume of 3,300 cubic inches and one (1) 90-cubic-inch mitigation air gun.
    b. Four (4) streamers approximately 3.7 miles long, each containing seven (7) hydrophones (Sonar dyne XSRS Transceiver 7885 and Sonar dyne XSRS Transceiver 8005).
    c. Less than Six Hundred (600) Fairfield Z700 Marine Geophones.
    d. One multibeam echosounder (Kongsberg EM 122).
    e. One sub-bottom profiler (Knudsen 320B).
    f. Marine gravity meter system (Bell Aerospace BGM3).
    g. Marine magnetometer (Geometrics model G-882).

2. Use of any air or water compression devices for generating acoustic pulses outside of pre-approved survey areas is expressively prohibited.

Any question or uncertainty as to whether particular survey equipment or methods are permitted shall be determined by the Staff of the California State Lands Commission.

PERMIT EXHIBIT C

MITIGATION MONITORING PLAN

**See Exhibit D to Calendar Item 104,
For the August 12, 2012, Meeting of
The California State Lands Commission**

PERMIT EXHIBIT D

NOTIFICATION PROCEDURES

A. **General Requirements**: Permittee, prior to the deployment of survey equipment, shall give notice in the following manner:

1. At least 15 days, but no more than 21 days, in advance of any actual operations, written notice of the proposed operations must be received by the parties specified in Paragraph C.

2. One working day in advance of the actual operations, the Permittee shall inform the California State Lands Commission Geophysical Coordinator by telephone (562-590-5201) to confirm the receipt of required notices by the parties listed in Paragraph C.

3. Permittee shall use its best efforts to notify the parties listed in Paragraph C and any other affected individuals of substantial addition, modification, deviation, delay, or cancellation, concerning the survey area or survey dates, in the original notice. Permittee shall notify the California State Lands Commission of such modifications or delays prior to their occurrence.

4. Permittee shall notify the California State Lands Commission Geophysical Coordinator by telephone within one working day of completion of the survey activity.

B. **Contents of Notice:** The written notification required shall include information in the format requested in Exhibit E and outline below:

1. The name of the vessel, the name of the ship's captain/designee, the ship's call signs and the specific radio channel which will be monitored by the vessel at all times during operations authorized by this permit;

2. The exact dates through which the survey will be conducted within any given specific area of the general permit area and the daily hours of operation during such period;

3. A full-sized navigation chart showing the area to be affected by the survey, including turning areas;

4. A listing of equipment to be used in that survey and length(s) of the tow(s);

5. The name and telephone number of a representative of the Permittee who can resolve multiple-use conflicts; and

6. The name and telephone number of the California State Lands Commission Geophysical Coordinator.

The copy of the notice to the California State Lands Commission must contain the above information, as well as the proposed tracklines, to be run and the proprietary owner of the data/information corrected.

C. **Parties to Receive Notification:** The following Parties are to receive the notice specified in Paragraph A.1. This list will be modified periodically by the Commission staff upon 15 days' notice by the State's Geophysical Coordinator:

GOVERNMENT OFFICES AND UNIVERSITIES

In addition to notification, Permittee shall coordinate all activities to be conducted under this permit with the following agencies.

California State Lands Commission
Mineral Resources Management Division
Attn: Mr. Richard B. Greenwood
Statewide Geophysical Coordinator
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331

California Coastal Commission
Attn: Alison Dettmer
45 Fremont St., Suite 2000
San Francisco, CA 94105-2219

California Department of Fish and Game, Marine Division
Attn: Marija Vojkovich
3196 S. Higuera St., Suite A
San Luis Obispo, CA 93401

California Department of Parks and Recreation
1416 9th Street
Sacramento, CA 95814

California Regional Water Quality Control Board, Central Coastal Region
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401-7906

California Historical Society
678 Mission Street
San Francisco, CA 94105

National Science Foundation
Division of Ocean Sciences
4201 Wilson Blvd., Suite 725
Arlington, VA 22230

NOAA Fisheries Service Southwest Region
Attn: Monica DeAngelis
501 W. Ocean Blvd., Suite 4200
Long Beach, CA 90802

United States Coast Guard
Eleventh Coast Guard District
Coast Guard Island Bldg 50-6
Coast Guard Island
Alameda, CA 94501-5100

United States Fish and Wildlife Service, Southwest Region
2800 Cottage Way, Room W-26
Sacramento, CA 95825

United States Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Los Angeles, CA 90053-2325

Bureau of Ocean Energy Management, Pacific OCS Region
Attn: Drew Mayerson
770 Paseo Camarillo
Camarillo, CA 93010

Bureau of Safety and Environmental Enforcement, Pacific OCS Region
Attn.: Dr. Kevin Smith
770 Paseo Camarillo
Camarillo, CA 93010

HARBORMASTER'S OFFICES

Notify Harbormaster's offices, the envelope shall be prominently labeled "SEISMIC SURVEY NOTICE - POST IMMEDIATELY"

Port of San Luis Harbor District
Attn: Steve McGrath, Harbor Manager
P.O. Box 249
Avila Beach, CA 93424

Moss Landing Harbor District
7881 Sandholdt Road
Moss Landing, CA 95039

City of Morro Bay
Harbor Department
1275 Embarcadero
Morro Bay, CA 93442

COMMERCIAL FISHERMEN AND FISHING ORGANIZATIONS

Port San Luis Commercial Fisherman's Organization, Inc.
Attn: John Costello, President
P.O. Box 450
Morro Bay, CA 93443-0450

Morro Bay Commercial Fisherman's Organization, Inc.
Attn: Jeremiah O'Brien, President
P.O. Box 450
Morro Bay, CA 93443-0450

Central California Joint Cable/Fisheries Liaison Committee
P.O. Box 2033
San Luis Obispo, CA 93443

Central Coast Women for Fisheries, Inc.
Attn: Kelli Blue
785 Quintana Road, Suite 106
Morro Bay, CA 93442

One copy sent to each of the following:

Monterey Bay Marine Sanctuary
Attn: Whalen Diedre
229 Foam Street
Monterey, CA 93940

PERMIT EXHIBIT E

Applicant/Permittee's Mailing Address

_____
_____
_____
_____

Date: _____

Jurisdiction: ____ Federal ____ State ____ Both ____

If State: Permit #PRC _____

Region: _____

Area: _____

GEOPHYSICAL SURVEY PERMIT

Check one: _____ New survey _____ Time extension of a previous survey

_____(Permittee) will conduct a geological/geophysical survey offshore California in the survey area outlined on the accompanying navigation chart segment. If you foresee potential interference with commercial fishing or other activities, please contact the person(s) listed below:

FEDERAL WATERS (outside 3 nautical miles)

1) Applicant's representative
2) BSEE representative

NOTE: Any comments regarding potential conflicts in Federal waters must be received by the Representative and BSEE within 10 days of the receipt of this notice.

STATE WATERS (Inside 3 nautical miles)

1) Permittee's representative
2) SLC representative

NOTE: Any comments regarding potential conflicts in State waters should be received as soon as possible by the Permittee's representative, no more than 15 days after the receipt of this notice.

1. Expected Date of Operation_____
2. Hours of Operation_____
3. Vessel Name_____
4. Vessel Official Number_____
5. Vessel Radio Call Sign_____
6. Vessel Captain's Name_____
7. Vessel will monitor Radio Channel(s)_____
8. Vessel Navigation System_____
9. Seismic Equipment to be used_____
10. Approximate length of cable tow_____

Applicant's Representative: (Call collect)

_____
_____
_____
_____

BSEE Representative
Kevin Smith
Geophysicist
770 Paseo Camarillo
Camarillo, CA 93010
(805) 389-7707

California State Lands Representative
Richard B. Greenwood
Statewide Geophysical Coordinator
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331
(562) 590-5201

FEDERAL AND STATE AGENCIES AND AREA MARINE ADVISORS: Please acknowledge receipt of this notice by returning a signed copy of this notice to the MMS if the survey is in Federal waters.

Recipient's Mailing Address:

_____
(Recipient's Signature)

_____
(Recipient's Title)

PERMIT EXHIBIT F

INSTRUCTIONS: CORPORATE APPROVAL

In order for a Non-Exclusive Geophysical Permit to be issued, the Commission requires proof that the Directors of the Corporation seeking the permit have given their approval to the terms of the permit. Attached is a Certificate of Corporation. Please complete the form and attach a copy of the resolution adopted by the Applicant to obtain the permit.

If the Applicant is not a corporation, please provide some explanation as to the authority of the person seeking this permit.

CERTIFICATE OF SECRETARY

I certify that:

I am the duly qualified and acting (Assistant) Secretary of _____

_____, a _____
Name of Corporation) (Name of State)

corporation authorized to do business in California.

The attached is a true copy of a resolution duly adopted by the Board of Directors of the corporation at a regular (or special) meeting duly held on _____, 20___ and entered in the minutes of such meeting in the minute book of the corporation.

The resolution is in conformity with the articles of incorporation and bylaws of the corporation, has never been modified or repealed, and is now in full force and effect.

Dated: _____, 20___.

(Corporation Seal)

_____
(Signature)

_____
Secretary