October 24, 2012

Mary Shallenberger, Chair
California Coastal Commission
45 Fremont Street Suite 2000
San Francisco, CA 94105

RE: Opposition to Pacific Gas & Electric Seismic Survey: Consistency Certification and Coastal Development Permit (E-12-005 and CC-027-12).

Dear Chair Shallenberger and Honorable Commissioners,

On behalf of the Surfrider Foundation and the San Luis Obispo Chapter of the Surfrider Foundation (Surfrider), thank you for the opportunity to submit comments regarding Pacific Gas and Electric's (PG&E) proposal ("Project") to conduct seismic testing near the Diablo Canyon Power Plant (DCPP). Surfrider has identified significant impacts within PG&E's Final Environmental Impact Report (FEIR) and we have acquired outside information that leads us to highly question the value of the Project. While PG&E recently modified implementation of the Project (segmenting testing over the course of a few years) we are still bothered by the enormous impacts testing will have on marine life and ocean users. We urge you to carefully consider the below concerns and ***deny both the Consistency Certification and the Coastal Development Permit.***

Recreational Impacts:

Surfrider's concerns about impacts to ocean users began when we first read the Draft Environmental Impact Report (DEIR). In May 2012, we submitted comments to California State Lands Commission (CSLC) and PG&E highlighting our concerns about recreational impacts. We pointed out measures were only being taken to protect divers in the area, but the DEIR did not consider potential impacts to surfers, swimmers and other ocean users. In Volume I of the FEIR, PG&E responded *directly to Surfrider's* concerns, with the below statement:

> "In response to this and other related comments…MM LU-1 has been revised to include noticing beaches and local dive shops ***regarding offshore areas closed to diving, surfing, and swimming***." [1]

Based on this statement, it seems clear that diving, surfing, and swimming will not be allowed within Project zone. However, in the FEIR, PG&E only addresses the prohibition of diving and is *clearly disregarding the safety of other ocean users* and is *obviously presenting contradictory information.*

[1] http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/FEIR_Comments/FEIR_RTCs_NGOs_(13of14)_Surfrider.pdf

Surfrider would like to highlight statements from PG&E's FEIR that clearly **acknowledge impacts to ocean users:**

> "The proposed offshore activities *would* expose persons present in the water to harmful noise levels…"
>
> "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"
>
> "Noise levels in excess of 154 dB re 1 µPa could be considered potentially harmful to recreational divers *and swimmers* in the Project area".
>
> "The potential exists that noise levels in water due to Project activities could be harmful to humans who ignore the notices and enter water in close proximity to the air guns while being *deployed within the an active survey area" (emphasis added).* [2]

Yet within the same section of the FEIR, PG&E makes this contradictory declaration:

> "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 potential impacts to swimmers and surfers from seismic survey noise are Less than Significant". [3]

Despite the contradictory statements, it's clear the Project will expose ocean users to harmful seismic testing impacts.

Determining Impacts to Ocean Users

From the beginning of Surfrider's investigation into the impacts of seismic testing on recreationalists, we have struggled to find detailed information contained within PG&E's FEIR. For example, Surfrider kept asking the following questions:

> 1.) How close will the vessel/air guns be to shore?
> 2.) What would be the instantaneous decibel (dB) exposure levels be to nearshore environments?

The below charts and maps (which *finally* answer the above questions) were <u>not</u> originally contained in the FEIR. Surfrider contacted Coastal Commission Staff asking for clarification; and in order to answer our questions, Coastal Commission Staff had to request additional information from PG&E.

It's important to reiterate the PG&E affirms 154 dB "could be harmful to swimmers and divers" [4].

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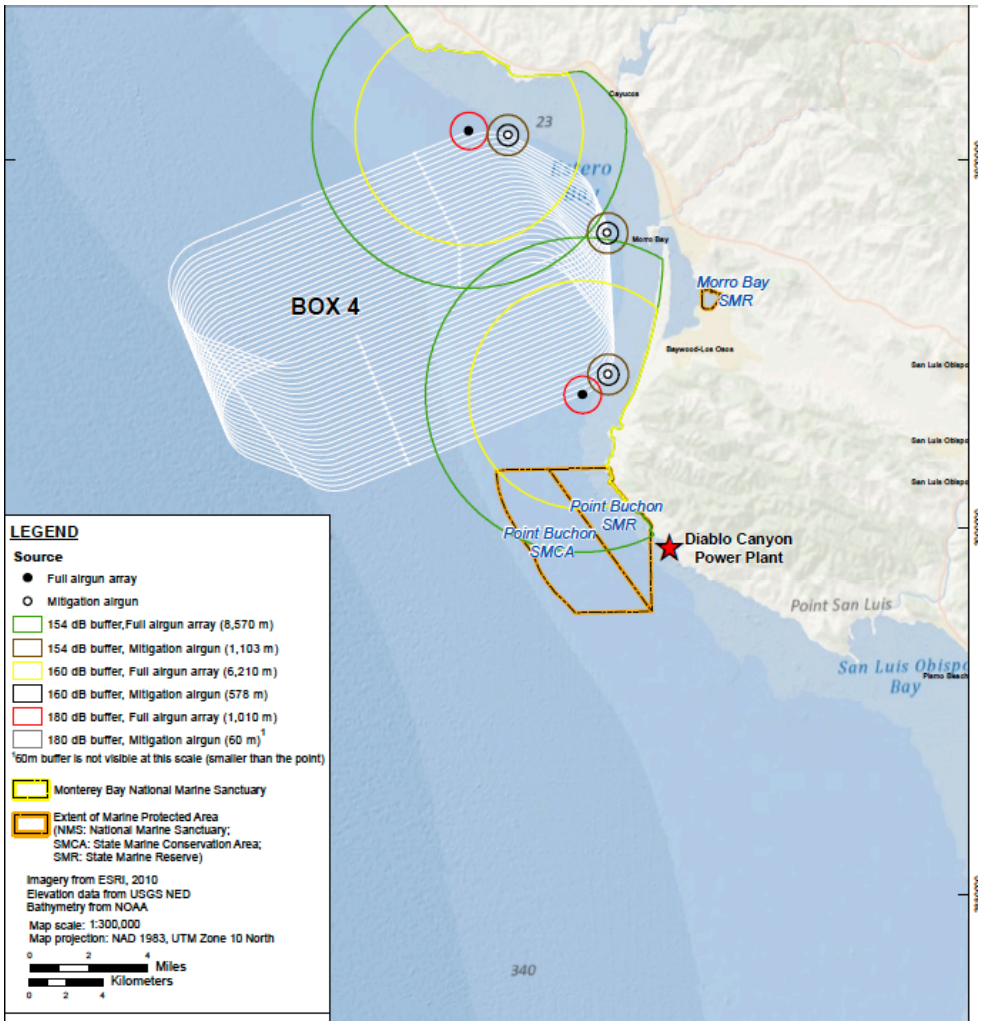
[2] PG&E FEIR: http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.11_NOISE.pdf
[3] PG&E FEIR: http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.11_NOISE.pdf
[4] PG&E FEIR: http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.11_NOISE.pdf

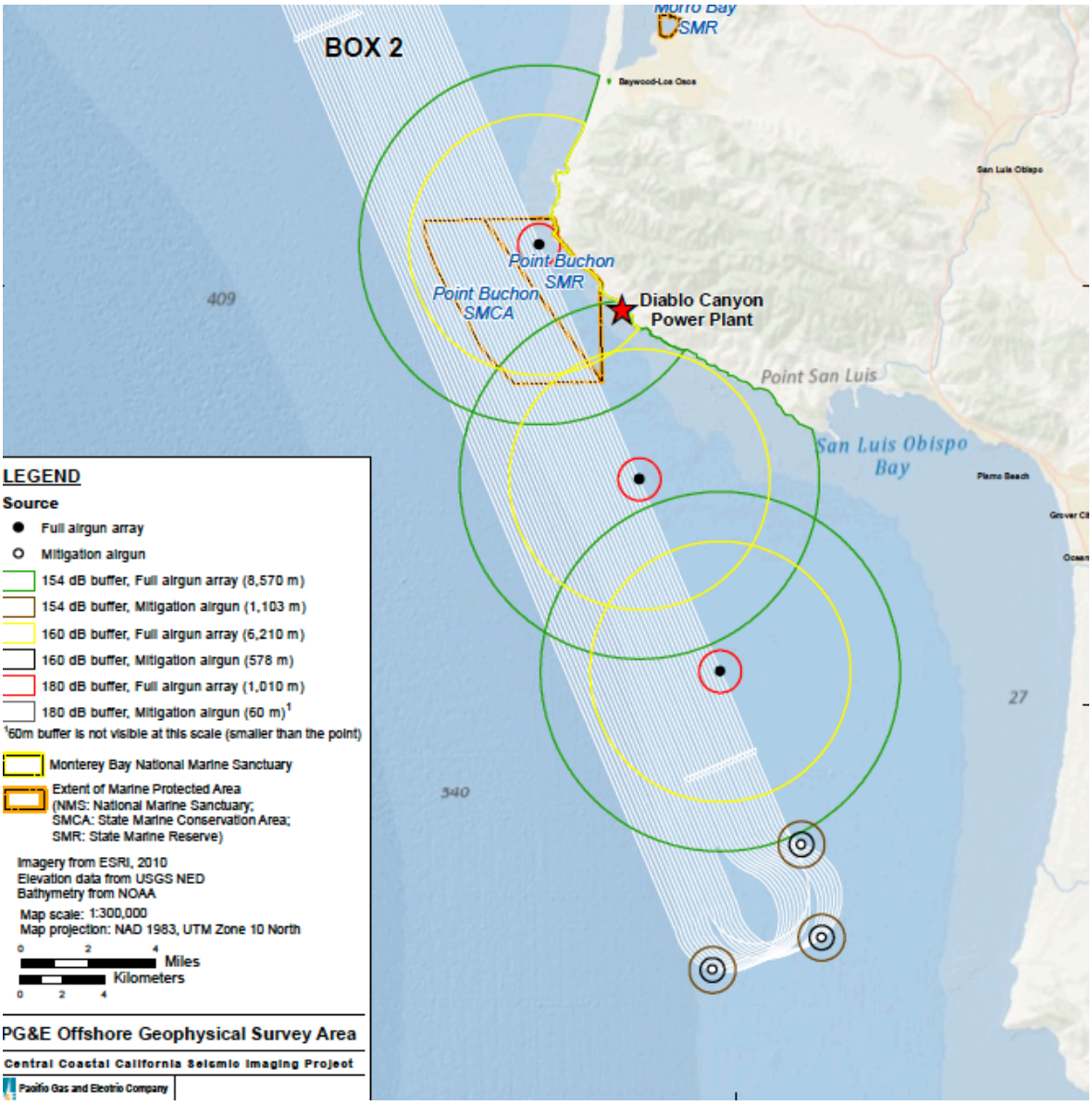
More importantly, the U.S. Navy conducted a study on divers and concluded that **145 dB is a safe level for humans**, stating:

> "In June 1999 NSMRL set interim guidance for the operation of low frequency underwater sound sources in the presence of recreational divers at 145 dB… Based on this guidance, the operation of the SURTASS LFA sonar will be restricted in the vicinity of known recreational and commercial diving so that sound levels will not exceed 145 dB".[5]

The below Project maps illustrate some beaches will receive 160 dB (yellow circles). Since dB ratios are logarithmic, 160 dB is **30 times above the safety threshold** the Navy identified at 145 dB.



[5] U.S. Navy Diver Study establishing safety threshold: http://www.surtass-lfa-eis.com/DiverStudies/index.htm



The below upslope sound propagation chart illustrates that dB levels could reach 190 at 0.13 nautical miles (which is approximately 789 feet <u>from</u> shore). That means that anyone who is recreating in the nearshore environment **would be exposed to decibel levels that are 1,000 times greater than the established safety threshold.**

Sound Pressure Level (SPL) (dB re 1 uPa)	Upslope Distance (In Shore)			Downslope Distance (Offshore)			Alongshore Distance		
	M[1]	SM[2]	NM[3]	M[1]	SM[2]	NM[3]	M[1]	SM[2]	NM[3]
190	250	0.16	0.13	280	0.17	0.15	320	0.20	0.17
187	390	0.24	0.21	370	0.23	0.20	410	0.25	0.22
180	1,010	0.63	0.55	700	0.43	0.38	750	0.47	0.40
170	2,990	1.86	1.61	1,760	1.09	0.95	1,760	1.09	0.95
160	6,210	3.86	335	4,450	2.77	2.40	4,100	2.55	2.21
154	8,570	5.33	4.63	7,820	4.86	4.22	6,780	4.21	3.66
120	24,650	15.32	13.31	251,320	156.16	135.70	94,870	58.95	51.23

M[1] = Meters; SM[2] = Statute miles; NM[3] = Nautical Miles

[6] Central Coastal California Seismic Imaging Project 1.0 Expanded Project Description. Originally obtained from CCC Staff.

Clearly, this Project will have significant impacts to ocean users. Surfrider is very troubled that PG&E is not applying the precautionary principle when analyzing seismic testing impacts to humans.

Documented Impacts to Ocean Users:

Dr. Marsha Green has been studying and documenting underwater acoustic impacts on humans and marine mammals for several decades. In 2004, she was appointed to the Federal Advisory Committee to make recommendations to the U.S. Congress regarding acoustic impacts on marine mammals. During the course of her research she has compiled the following impacts to humans from underwater acoustic noise.

- "On August 25, 1994 a scuba diver was accidentally exposed to testing of the US Navy's LFA sonar system. (Comments submitted at Public Hearing of California Coastal Commission, 12/12/97). The ship transmitting the sonar was over 100 miles northwest of the diver who reported distinct and disorienting lung vibration as a result.

- Pestorius and Curley (1996) exposed Navy divers to low frequency active sonar and reported that one of the divers had to be hospitalized and was later under treatment for seizures.

- A Hawaiian resident who was in the water when the Navy was conducting their low frequency active sonar test in Hawaii in March, 1998 was disoriented and nauseous afterward and had to see a physician who diagnosed her with symptoms comparable to acute trauma. (Declaration filed in court, March 25, 1998.) The Navy admitted that this swimmer was exposed to the sonar at 120 dB while she was in the water, far below the operational sonar at 240 dB. In her court declaration this woman also detailed the behavior of nearby dolphins while the broadcast was taking place. The dolphins' behavior, in her view as a naturalist and long term observer of dolphins, was abnormal, including staying close to shore, staying near the surface and vocalizing excessively."[7]

Ecological Impacts:

Impacts to ocean ecosystems due to seismic testing can be potentially significant; including harm to sensitive habitats and marine mammals (i.e. fish, sea birds, invertebrates, turtles, porpoise, sea otters, etc); and four endangered species. PG&E's FEIR openly admits there will be "significant and unavoidable" impacts to marine life, and their "takings analysis" shows thousands of marine mammals will be harassed and/or possibly killed. [8] As mentioned above, Dr. Green has logged reports of impacts to marine mammals from underwater noise. She explains the following account of harm to marine mammals in her research compilation:

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[7] Compilation of Dr. Green's research regarding noise impacts to marine mammals and humans. http://www.oceanmammalinst.com/mgpaper.html#document

[8] PG&E's FEIR Marine Resources: http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.04_BIOLOGICAL_RESOURCES-MARINE.pdf

> "In a more recent statement in Nature (March 5, 1998), Alexandros Frantzis linked a stranding of Cuvier's beaked whales in the Mediterranean to military low frequency active (LFA) sonar trials the day before. Cuvier's beaked whales rarely strand. A Bioacoustics Panel investigated this stranding and it is clear that the NATO vessel transmitting the LFA sonar came within 10 km of the beach where the whales stranded. The panel concluded these whales were exposed to LFA sonar at 150-160 dB". [9]

Another well-cited article from *Canadian Journal of Fisheries and Aquatic Sciences* documents that fish catches, after air gun use, decreased 40%-80% (depending catch method). [10] Finally a statement made the Marine Mammal Commission from former California Coastal Commissioner Sara Wan shows evidence of marine mammals stranding following anthropogenic noise activities saying:

> "However, while the connection is more obvious in the case of beaked whales, other cetaceans have also been involved in strandings associated with anthropogenic noise. Minke whales, (Bahamas 2000), pygmy sperm whales (Canary Islands 1988), and bottlenose whales (Canary Islands 1988) have stranded concurrent with beaked whales. In other instances, melon-headed whales (Hawaii 2004), harbor porpoises (Haro Strait 200317), and humpback whales (Brazil 2002) have stranded in events that did not involve beaked whales. In addition to these, NMFS is still investigating whether the pilot whales, minke whales, and dwarf sperm whales that stranded in North Carolina (January 2005) had traumas consistent with acoustic impacts." [11]

In addition to these discrete ecological impacts, Surfrider is also concerned about broader impacts to the newly developed network of Marine Protected Areas (MPA). *The State spent the better half of a decade working on establishing MPA and this project would clearly interfere with MPA productivity.*

It's equally concerning that this project would completely halt biological monitoring of MPAs and impair effective management of the network. The MLPA requires scientific monitoring of protected areas in order to evaluate MPAs as a tool for conservation and fisheries management. The EIR openly admits significant impacts to biological monitoring of MPAs. This Project would therefore have statewide implications since the monitoring of MPAs at Morro Bay is tied to larger statewide efforts to collect data (currently conducted by Monitoring Enterprise).

Finally, we are concerned that the FEIR does a poor job of considering the project's cumulative impacts on marine resources when combined with the impacts from the operation of the DCPP, which include impacts from its seawater intake. We mentioned this in our DEIR comment letter in May and we believe both CSLC and PG&E are dismissing the cumulative impacts from once-through cooling of the DCNPP. As such we believe this dismissal is inconsistent with CEQA guidelines § 15130(a) and 14 CCR § 15130(b)(5).

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[9] Compilation of Dr. Green's research regarding noise impacts to marine mammals and humans. http://www.oceanmammalinst.com/mgpaper.html#document

[10] Engås, A., Løkkeborg, S., Ona, E., and Soldal, A.V. (1996). Effects of seismic shooting on local abundance and catch rates of cod (Gadus morhua) and haddock (Melanogrammus aeglefinus). *Canadian Journal of Fisheries and Aquatic Sciences 53(10), p.* 2238-2249.

[11] Commission Wan Statement: http://awionline.org/sites/default/files/uploads/legacy-uploads/documents/CCC_Comments_12-05-1238105852-10137.pdf

Project Not Required by State Legislation

There have been incorrect statements made in the media that seismic testing at DCPP is required by state legislation (AB 1632). AB 1632 merely requires the California Energy Commission (CEC) to compile and evaluate existing scientific studies in order to determine the potential vulnerability of the State's nuclear power plants due to aging or from a major seismic event—but it does not mandate seismic testing. [12] There has also been some confusion regarding recommendations/directives from the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) to conduct testing at DCPP.

Cited case law states both the PUC and the CEC must collaborate with other state agencies in fulfilling agency roles; and neither the PUC nor the CEC can overstep the jurisdiction of any other state agency that originally comes from a federally approved program, such as the California Coastal Commission (CCC)[13]. Therefore in order for CPUC to direct PG&E to conduct testing, the CCC *must* also approve. Most notably, the Nuclear Regulatory Commission (NRC) has exclusive jurisdiction over nuclear safety and operations and the NRC has not mandated the use of this seismic testing.

Flawed Scope of Work:

After careful review of the existing documentation, analysis of expert testimony and discussions with expert geophysical researchers, Surfrider questions the overall value of the PG&E's Project and believes testing is unnecessary. Simply put, the Project is unlikely to provide the information necessary to improve seismic safety estimates for DCPP and will not advance worst-case scenario modeling or address the most serious risks.

Upon speaking with an expert research geophysicist at the USGS, Surfrider learned that PG&E's seismic surveying **would not answer the two most critical questions required to understand seismic risk.** The first parameters are the geometry of the faults (which may be addressed by seismic surveys) and the relationship of adjacent faults to each other (do they intersect), which is partly based on geometry and partly on other factors such as how a particular earthquake behaves (not addressed by seismic surveys). The second parameters are how the faults behave (slip rate, frequency, return interval). The proposed study will not address both set of parameters and will only potentially and marginally reduce uncertainties related to the first parameter - fault geometry. [14]

Our concerns about Project necessity were compounded when we learned the Project would duplicate pervious studies, and that existing data was not being synthesized to paint a full picture of fault lines near DCPP. A former PG&E geologist testified the following:

> "A good deal of their planned work includes offshore and onshore geophysical programs that duplicate existing investigations and analyses completed by the USGS and others…. Nothing in the planned

[12] Legislation text: http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_1632&sess=0506&house=B&author=blakeslee
[13] See case law: *Orange County Air Pollution Control Dist. v. Pub. Util. Com.*, 484 P.2d 1361, 1367 (Cal. 1971) and *Voices of the Wetlands v. SWRCB, 69 Cal Rptr 3d 487(2007)*
[14] Derived from personal communication with Dr. Jeanne Hardebeck Sept and Oct 2012;

additional surveys, both onshore and offshore, offers any prospect for any result beyond marginal improvement to what is already known…."[15]

Conclusion:

Surfrider questions the overall value of this Project because it will have devastating effects on ocean ecosystems and impact coastal and ocean recreation, tourism and the local economy. This Project jeopardizes marine life and ocean users while hoping to create a seismic profile that will not conclusively reduce uncertainties regarding earthquake hazards at DCPP. PG&E has not conducted due diligence to justify the need for this project. Instead, PG&E should synthesize existing data (collected over the decades by several entities), utilize recent data (collected by PG&E both terrestrially and through offshore low energy testing) to better understand seismic risks, seek further independent review of the need for additional study, and only then propose a project using state of the art techniques that minimize environmental harm to estimate earthquake hazards.

The proposed project violates several sections of the Coastal Act that address marine life protection and recreational resources (specifically Sections: 30220, 30224, 30234.5, 30223, 30230,30260, and 30210). The onus of stopping these precedent setting and harmful project resides squarely on the Coastal Commission and we respectfully urge you to deny this Project.

Thank you in advance for considering these comments.

Sincerely,

Stefanie Sekich-Quinn
Stefanie Sekich-Quinn

Surfrider Foundation, HQ
California Policy Manager

Brad Snook
Brad Snook

Surfrider Foundation, San Luis Obispo Chapter
Chair

[15] Dr Hamilton testimony at CPUC Feb 2012. http://a4nr.org/wp-content/uploads/2012/02/021012-Hamilton-testimony-014-Full.pdf