

TO: California Energy Commission
Docket Office, MS-4
Re: Docket No. 11-IEP-1J
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DOCKET

11-IEP-1J

DATE _____

RECD. Aug 02 2011

FROM: San Luis Obispo Mothers for Peace
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RE: Comments and Recommendations of the San Luis Obispo Mothers for Peace
(SLOMFP) in response to the Nuclear Power Workshop for the 2011 Integrated Energy
Policy Report

Dear Commissioners:

As concerned California ratepayers and residents, and as a non-profit group of local citizens active as legal intervenors in licensing cases pertaining to the Diablo Canyon nuclear plant, and in consideration of the many issues raised by our state's reliance on nuclear power in a post-Fukushima world, SLOMFP requests the CEC to adopt the following in the 2011 IEPR proceeding:

- 1) The CEC should recommend that SCE and PG&E undertake immediate studies to determine how they would replace 4400 MW of baseload generation in the short and long term should their nuclear plants be rendered unusable by a seismic event or other natural disaster as well a potential shutdown due to acts of malice or terror.
- 2) Given the NRC has promulgated a waste confidence ruling increasing the allowable on-site storage of waste for as long as 60 and possibly 100 years after shutdown, questions of responsibility for overseeing the waste and ongoing storage costs need to be evaluated. The environmental and health risks, as well as the monetary costs of such lengthy on-site storage in seismically active zones needs to be thoroughly evaluated by the CEC. Currently, Diablo is storing over 2,000 metric tons, almost five million pounds of waste, and that amount is growing daily. The spent fuel pools are not covered by a concrete containment dome; they are covered only by metal and the casks are on a pad out in the open. Diablo is NOT a no fly zone and it is vulnerable to attacks from the sea!
- 3) The CEC should recommend that the federal government review liability limits under Price-Anderson (\$12.6 billion) in light of damage estimates that exceed \$100 billion in Japan. As a state, how would California residents, property owners and businesses be "made whole again" after a nuclear accident in light of the gap between coverage and damages? Would the state cover the excess losses?
- 4) The CEC should recommend that the 1967 Certificate of Public Convenience and Necessity (CPCN) issued for Diablo Canyon be reviewed and updated in light of new evidence on population, seismic vulnerabilities, the findings for the NRC and the Department of Homeland Security that all nuclear facilities are targets of terrorists, and the absence of a permanent offsite solution to safe storage of radioactive wastes that will remain lethal for 250,000 years.

- 5) The CEC should recommend an updating and analysis of the costs associated with increasing the emergency planning and evacuation zones from 20 to 50 miles and beyond in the wake of the NRC's own recommendation that residents voluntarily evacuate a similar sized area around Fukushima. The CEC should also review the emergency plans adopted for areas surrounding both nuclear plants, including the lack of provisions for evacuation of communities closest to the plants in the event that an earthquake or other act of nature, or a terrorist attack should destroy roads or bridges necessary for evacuation.
- 6) The CEC should recommend a study of a worst case scenario and cost analysis for the consequences of a beyond design basis earthquake occurrence at the two California nuclear power plants that encompass environmental, economic, and health issues.
- 7) The CEC needs to ensure that the seismic studies include the concerns of many geologists who spoke at the July 26, 2011 workshop. Specifically, this includes: 1) The basement rock/Franciscan Formation under the plant needs to be carefully studied. This includes possible thrust and blind faults in the hills and high angle faults (possibly even the Los Osos Fault) that have no surface expression and can generate sizeable earthquakes. The 2005 San Simeon and 1994 Northridge quakes are examples of blind thrust faults 2) A complete earthquake history of all faults within a 75 mile radius. 3) An analysis of the possible links to surrounding fault zones, which would be expanded to include the broader geological setting along the entire coast of California. 4) An extension of the study to the shelf break.

The alternative to all of this is to realize that since neither of these plants could be built today because of their seismic volatility, the CEC should find a way to replace this energy with renewables. As shown by Dr. Makhijani, all nuclear power could easily be replaced by wind and take up less space with none of the serious ramifications. If an earthquake occurs, a wind turbine could fall -- what a difference in consequences.

- 8) The CEC needs to take the safety culture back to the original design of the plants. This would require that the density of the spent fuel pools be returned to the original density within a reasonable period of time. It also would take off all the waivers of old rules and the formation of new rules that have weakened the safety and security of the California plants. The CEC is responsible for California residents. The NRC is ignoring some of its own rules, making new rules to loosen regulations, or providing waivers for our aging plants. The CEC has the responsibility to ensure that these rules are no longer bent, waived, or ignored. A June 2011 AP article discovered many cases in which the NRC either downgraded assessments of safety threats or reworded regulations so that aging plants such as Diablo Canyon and San Onofre could comply with regulations. There is even a term for this: "sharpening the pencil."
- 9) We recommend that the CEC investigate the problems of entrainment and impingement at the two nuclear power plants in California, Diablo Canyon and San Onofre, as they continue to degrade coastal waters. The Federal Clean Water Act requires that cooling water intake structures minimize the environmental impacts to aquatic organisms due to impingement on intake screens and the killing of eggs and larvae as they pass through the cooling water systems. But Pacific Gas & Electric Company (PG&E) admits in its License Renewal Application that "For all regulatory

and assessment purposes, entrainment losses caused by Diablo Canyon Nuclear Power Plant (DCNPP) are considered 100 percent of all organisms withdrawn from the Pacific Ocean with the intake flow under all conditions. Annual entrainment of larval fish is estimated to range between 1.48 and 1.77 billion. The CEC should assess the damage to the California fishing industry due to these practices.

- 10) The CEC needs to assess the margin of human error, if any, that is acceptable at the nuclear power plants in California. PG&E has a history of problems at the plant (and in its other facilities such as San Bruno), which leads to concerns about the ongoing safety of the Diablo Canyon plant, particularly since so many experienced employees are retiring. Nuclear energy is an unforgiving technology and human errors can lead to catastrophic events that can change California in one second.

Three NRC inspections in a row indicate adverse trends. Just in the last four quarters, the NRC inspectors found 11 violations. One of these is an adverse trend in problem identification and problem resolution. A Diablo Canyon Independent Safety Committee member admonished PG&E by indicating there seemed to be a lack of thoroughness – not going deep enough – a lack of senior leadership providing oversight. Just in the last PG&E report to the Independent Safety Committee, many problems were cited and the causes included a flawed procedure, a guidance error, inappropriate analyzation of the system, an unresolved issue that has been carried over for a couple of years, corrosion, long time degradation, a missed opportunity to see the vulnerability, and installation not in accordance with design requirements. An average of 200 issues are brought before the Corrective Action Program weekly and these must be serious enough for people to write the issue down and submit it to the CAP system.

The fire protection system has not been green for many years, which is a huge concern. Diablo Canyon has, on average, one transformer fire every five years; the last one in 2008 would have killed employees if it had occurred during the day. Valves that provide emergency cooling water to the Unit 2 reactor core and containment vessel were stuck in the closed position for 18 months without anyone at the plant noticing. The plant would have been unable to provide cooling water to the reactor core and containment vessel if an accident had occurred. On top of that, there are many legacy issues that have been on the books for more than a year and there is a backlog in operations and maintenance. Recently, and perhaps still, there has been ineffective preventative maintenance program implementation. Even the California Department of Toxic Substances Control levied a fine of \$193,000 for 56 violations at the Diablo plant. An unlatched door was discovered in two successive inspections. A damaged fuel assembly rod separated into two pieces during assembly movement in the spent fuel pool. More training is always mandated, but more problems continue to surface. It is our contention that past performance indicates future performance.

[A NRC inspection after the Fukushima disaster uncovered 20 problems at Diablo, including many safety issues in an emergency. These are described in much more detail after Number 11, below.]

- 11) Mr. Levine, co-sponsor of AB1632 offered the quote: “By failing to prepare, we are preparing to fail.” The CEC needs to seriously consider that a nuclear plant

accident at Diablo or San Onofre could have enormous effects on California and, as Dr. Lam demonstrated in his presentation, the “unlikely”/“impossible” event has already occurred in Japan. If a similar disaster happened here, and no one can deny it could, the ramifications would be far reaching. Mr. Levine demonstrated that had the contamination that has occurred in Japan had happened here, the plume would go directly to California’s food supply.

Safety Considerations at Diablo Canyon Nuclear Power Plant

NRC Inspection completed April 26, 2011

The purpose of the inspection was to assess DCNPP’s readiness to cope with beyond design basis events. Several problems noted by the inspectors were alarming in light of the disaster in Fukushima. A severe earthquake could cause multiple system failures—loss of power; loss of cooling water; blockage preventing access to areas both within the plant and from the outside. Inspectors found problems in all of these areas and more.

The following list includes items from the inspection report that are noteworthy as factors that could exacerbate a catastrophe resulting from a Beyond Design Basis event, such as the earthquake and tsunami that devastated the Daiichi nuclear power plant region in Fukushima, Japan.

LOSS OF POWER

Because Pacific Gas and Electric used the alternate ac option to comply with the station blackout rule, the station does not have a coping assessment per NUMARC 87-00. **As a result, the station does not have a calculation to predict when core damage would occur during an extended station blackout event.** Operator access to important areas of the plant would be limited after core damage occurred.

The inspectors found that in the development of extreme damage mitigation guidelines Procedure EDG-12, “Start Diesel Generator Without DC Power,” Revision 0A, the licensee had not considered factors **that could limit the effectiveness of the procedure following on extended station blackout event**, including the need for a greater volume of starting air required to start the diesel engines without generator field flash, the potential for longer starting cranking times due to the increase in lube oil viscosity following the loss of preheating, and the need to overcome diesel generator starting air receiver leakage which would be inadequate to start the diesel generator after ten hours **if actual leakage occurred at the maximum rate of the design acceptance criteria.**

The inspectors noted that the licensee had installed a sixth diesel generator in 1992 to comply with the alternate ac requirements of the station blackout rule. However the station blackout diesel generator was the same design and located in the same general location as the other five standby diesel generators. **All six of the diesel generators were air cooled and open to the 85-foot plant elevation. The inspectors concluded the alternate ac and other standby diesel generators could be susceptible to a common mode failure because of the similarities in design and location.**

Four 20 foot extension cables were missing from the storage location. These cables are used to provide power to the 24-inch fans.

LOSS OF COOLING WATER

Portable long term cooling Pump 0-1 would not function when tested; and The licensee was unable to place the necessary temporary hoses from raw water reservoir to the plant due to obstructions created by recent security modifications.

The inspectors identified that the licensee **did not have the ability** to implement Procedure OP D-1:V, Auxiliary Feedwater System Alternate Auxiliary Feedwater Supplies, Revision 21, on both units simultaneously **to support mitigation of a postulated earthquake**. Procedure OP D-1:V uses the diesel-driven long term cooling pump to provide inventory from the raw water storage tank to the turbine-driven auxiliary feedwater system. The inspectors identified that the procedure and staged equipment **only supported make up to one of the Diablo Canyon units**.

The inspectors found that some procedures to cope with beyond design events, such as Procedures EDG-2, External Spent Fuel Pool Makeup, EDG-3, Spent Fuel Pool Cooling via Spray, EDG-9, Use of Fire Engine to Supply Water to Steam Generators, and EDG-6, Makeup to Condensate Storage Tank, **relied on the availability of non-seismically qualified sections of the firewater system for inventory makeup**.

Procedure OP K-2A:III, "Alternate Methods of Pressurizing and Filling the Firewater System," **included an error** associated with direction for aligning the firewater system in the section for the system.

The licensee was unable to run fire hoses from the raw water reservoir to the 115' elevation due to recent security modifications. Initial review determined that the hoses could be run.

Procedural error with OP K-2A:III, "Alternate Methods of Pressurizing and Filling the Firewater System".

LOCATIONS INACCESSIBLE—DUE TO BLOCKAGES

The licensee had a contractual arrangement with a third party to supply an alternate seawater source for cooling the component cooling water heat exchanger following a B.5.b event. However, **contractor would use the state highway system to transport the equipment to the site following a beyond design basis event**. The state highway system and plant access roads may not be available following a beyond design basis event.

The licensee identified that the memorandum of understanding was not in place with the California National Guard for the **contingency to supply diesel fuel to the site** when the main road is unavailable.

The inspectors identified that the beyond design basis mitigation for loss of the station ultimate heat sink pumps included a replacement pump to provide seawater to the component cooling heat exchangers by a commercial contractor. **However, the inspectors concluded that the contractor may not be capable of transporting the equipment to the site following an earthquake and tsunami.**

The manually cross-tied supply headers were not walked down due to confined space

restrictions.

Equipment racks were not secured to the storage container. **The main structural members of the fire truck storage building may yield during an event. Debris may create a hazard/obstacle for accessing the fire truck.**

VENTILATION, FLOODING, RADIATION DOSE, TRAINING

Doors B20, B19, B28, B39-2, B43-2, B20-2, and B19-2 would not self-latch due to the ventilation flow in the auxiliary building.

The latching mechanism on Door 285-2 was degraded.

Following an earthquake the check valves in the diesel fuel oil vault **could fail** which could lead to flooding in the vault.

Although the plant drain system is not credited for flood mitigation, it is an available feature. A walkdown of the plant drains (**excluding those in high radiation areas**) identified three drains that **were partially blocked and three drains with welded covers.**

The inspectors identified that several procedures required manual actions in plant locations that **may become inaccessible during some beyond design basis events due to high radiation fields events. The licensee had not performed an assessment of the expected radiation dose at these plant locations.**

All extreme damage mitigation guidelines tasks were not sequenced into the reactor operators training cycle. Operators have not participated in an exercise or tabletop drill with offsite fire responders and site fire brigade as required by an NRC commitment.

Because of these and other problems in an industry which is unforgiving of human error, it is our contention that nuclear power is inherently unworkable in human society. No company, run and staffed by human beings, can be counted on to ensure the safety of living beings, not only for thousands of generations (let alone, years), but through hundreds or thousands of governments. Nuclear power, with its attendant hazardous waste and costs is not a viable option for our energy needs, and we urge that it be phased out immediately.