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VIA EMAIL
AND U.S. MAIL

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RE: CALIFORNIA EARTH CORPS' ("Earth Corps") COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT ("EIR") FOR SOUTHERN CALIFORNIA EDISON ("SCE") SAN ONOFRE NUCLEAR GENERATING STATION ("SONGS") STEAM GENERATOR REPLACEMENT PROJECT ("SGR") AND RATEMAKING PROCEEDING (collectively "Project") for CPUC APPLICATION: A.04-02-026.

A. INTRODUCTION

SCE's stated Project objectives are:

- Replace existing Original Steam Generators ("OSG")

The EIR should discuss whether the OSG replacement would also require replacing the heavily corroded primary and secondary coolant loops and reactor head flange whose corrosion products are the cause of the plugged OSG tubes, as well as replacement of the 100+ aging valves now prone to failure, instrumentation and control cables and their cable trays located in the 28 x 28 foot hole which must be cut to remove the OSGs.

The EIR should also discuss whether the OSG replacement will necessitate a second containment structure be placed over the repaired containment structure in order to meet NRC containment criteria, as was required for SONGS Unit #1.

- Extend the useful life of the steam generators

Actually, it is to extend the life of the power plant, not the life of the steam generators.

- Ensure the continued supply of low cost power

While the EIR acknowledges this objective of the Project, the EIR's environmental impact analysis fails to address this key component of the Project. (See sections B and D below).

B. PROJECT DESCRIPTION

An adequate Project Description is an essential component of the EIR. Public Resources Code §21065 requires that the Project be defined as "the whole of an action which has the potential for resulting in either direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment." In this EIR, the Project is described as follows: "The Proposed Project would replace the OSG's at SONGS 2 & 3." (B-1). This is inadequate, because the Project Description does not include all reasonably foreseeable consequences of the ratemaking proposal. Instead, it improperly confines the Project Description to removal, transport, staging and disposal of the steam generators only. The Project Description omits the most critical aspect of the Project, recognized in other areas of the EIR itself – that the purpose and direct impact of the Project is to extend the operating life of the plant for until 2021/2022.

Indeed, SCE's own application acknowledges the scope and purpose of the Project, "the SONGS 2 & 3 SGRP application presents the Commission with a question of long

term resource planning for the state, SCE, and SDG&E." (SCE Motion for Order to Show Cause, pg. 3, April 23, 2004).

The purpose of an EIR's Project Description, is to assist the lead agency (here, the Commission) in develop a reasonable range of alternatives to evaluate in the EIR..." CEQA Guidelines § 15124 (a)-(d).

Because this EIR's Project Description is unduly narrowed, a reasonable range of alternatives to the Project have not been developed and addressed in this EIR. (See discussion in Section C, below).

CEQA requires that an EIR consider all direct, indirect and cumulative impacts of a Project. This EIR fails to consider the direct impacts of the Project in that it fails to consider the direct impacts of extending the life of the plant's operation. Therefore, the EIR has deprived the public and the Commission of the information that it needs to determine the environmental effects of the future operations of the plant as part of its determination of whether to approve the rate making proposal (A.04-02-026). To illustrate, the EIR states that the environmental analysis for each environmental impact issue area "includes consideration of the Proposed Project described in Section B, and the alternatives described in Section C." (D.1-1). Because the Project Description is unduly narrowed by the EIR, so too is the environmental impacts analysis unduly narrowed and inadequate. (see discussion in section D below).

The EIR should provide the public and the Commission with the full scope of environmental effects of SONGS' future operations consistent with the Commission's review of the economics of those future operations.

With regard to the steam generators' transportation (both old and refabricated), the Port of Long Beach operations transferring the RSGs from heavy-load ships to barge for travel to the Del Mar Boat Basin are not described, reported or mitigated. Since this is a non-attainment area with a statutory "no net increase" in air emissions, whose Pier J, S and T facility expansions themselves are under challenge with DEIRs currently withdrawn, many crucial questions remain unanswered in this integral part of the RSG transport (ES-5).

Original Steam Generator Transportation and Disposal is not described, reported or mitigated. Although "the disposal location has not been specified at this time, but one likely destination would be Envirocare of Utah, Inc. at Clive, Utah." (B.3.4.r, page B-34), "SCE prefers immediate offsite disposal". Since this is their preference, the many crucial questions that remain unanswered for the method of transport, alternative destinations, routes, and final disposition and disposal of the OSG for this integral part of the Project must be evaluated in the DEIR. Minimally, the transport to Clive and Envirocare site evaluation and the alternative of permanent on-site disposal transport must be reported (SCE, 2004i – Response 55) and, if necessary, mitigations recommended (ES-6 and B.1.3, B.3.4.5, page B-2 to 35).

C. ALTERNATIVES ANALYSIS AND COMPARISON

1) Feasible Alternatives

The alternatives analysis is a core component of an EIR. *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 400. CEQA requires that an EIR analyze a reasonable range of alternatives. This EIR fails to do so.

CEQA requires that the alternatives analysis discuss those alternatives to the project which are capable of avoiding or substantially lessening any significant environmental effects of the Project, even if those alternatives would impede to some degree the attainment of the project objective, or would be more costly. CEQA Guidelines § 15126.6(b). This EIR does not comply with this requirement.

All of the Alternatives screened and examined in the EIR are variations **of** the SG replacement project. What is needed are alternatives **to** the SG replacement project. Earth Corps pointed out in its NOP scoping comments that 1) conservation 2) Renewable Energy Portfolio 3) distributed generation, and 4) upgraded gas fired generators should be examined, and submitted examples of each. These alternatives do not seem to have been sufficiently examined in the EIR's feasible alternatives section.

The EIR recognizes that one of the project objectives is to ensure continued supply of low cost power. (C-3). But it fails to consider even one alternative that includes various combinations of energy efficiency, renewable power, distributed generation sources, and clean conventional power sources, whether these sources are supplied by SCE, other power producers, or a mixture of the two. While the EIR gives short-shrift to replacement generation in the No Project Alternative, this is not sufficient. Instead, the EIR should consider alternative power sources as at least one of its feasible Alternatives in its analysis. Another feasible Alternative that the EIR should consider is the use of the SONGS site for installation of non-nuclear generation resources.

The Commission's resource procurement proceeding (R.04-04-003) provides an excellent, timely opportunity to explore feasible alternatives to the SONGS SGR Project. The State's recently enacted Energy Action Plan, which the Commission is largely

responsible for creating, provides a suitable policy framework for this exploration. That Plan establishes a "loading order" that is to guide the Commission's and the utilities' consideration of adding resources to meet expected resource needs: first, energy efficiency; second, renewables and distributed generation; third, clean fossil fuel generation; and fourth, transmission and distribution system upgrades.

The EIR fails to conduct its alternatives analysis within the context of the State's Energy Action Plan. The EIR should be revised to do so.

Finally, the EIR should identify an Environmentally Superior Alternative as required by CEQA (Guidelines § 15126.6(e)(2)), based on a revised alternatives analysis as discussed above.

With regard to the transportation portion of the Project, the four bridges needed to cross the Santa Margarita, Aliso Creek, Los Flores Creek and Las Pulgas Road for all except the Beach Route are not evaluated at C.4.2.1 to determine if they can safely accommodate the arbitrary criteria assumed at B.3.2.1, page B-23. Because the load bearing capability of these bridges have been the subject of some unresolved controversy, and because the preliminary evaluation by CalTrans (C-18) is not included, a full evaluation must be included in the EIR in order to determine any potential significant impacts to these bridges, and additionally determine the feasibility of these alternative transportation routes.

2) <u>No Project Alternative</u>

The EIR makes unsubstantiated claims that are contrary to accepted facts. For example, it states "Under the no project alternative, energy conservation would offset only a small fraction of the energy supply lost by the shutdown of SONGS" (C-39) when

in fact the energy conservation goals set by the Commission will have already reduced the SCE service area energy demand far more than the baseplate production capability of SONGS, not considering the low SONGS capacity factor, or the very low cost per watt saved versus cost per watt produced by SONGS.

Likewise, Distributed Generation is dismissed, "DG does not provide a means for SCE to offset a substantial portion of the energy lost by the shutdown of SONGS," (C-39), when it clearly offers nearly every SCE **ratepayer** the ability to generate alternative power. The real question that the EIR should address is whether the subsidized cost of DG to the ratepayer will be less than the subsidized cost of SONGS generated power. The evaluation and answer to this question is crucial to the Commission's decision in the ratemaking proceeding for this Project.

The benefits of the No Project Alternative, requested for evaluation by Earth Corps at the NOP hearing (iterated at ES-12, Alternatives) include: recovery of access to and recreational use of the shoreline, unique scenic barrancas, and blufftop staging areas and eventual return of the OCA to the San Onofre State Park, as well recovery of marine habitat. Most of these benefits of the No Project Alternative appear to be lacking in the EIR.

D. ENVIRONMENTAL ANALYSIS

The EIR impermissibly defers evaluations of environmental impacts to future surveys and studies. The EIR summarily identifies, but does not quantify, adverse environmental impacts. This is not only contrary to CEQA, it leaves the Commission without the reliable factual data necessary to form the basis and justification for approval or disapproval of the Project.

1) **Environmental Baseline**

The EIR applies an inappropriate and inaccurate baseline. The EIR states,

> "Included in the environmental baseline conditions are the existing NRC operating licenses for Units 2 and 3 that allow the facility to operate until 2022... The baseline, therefore, includes any potential environmental effects of operating the nuclear power plant through the end of the NRC licenses, including the time period between when the OSGs would be expected to reach the NRC-mandated plugging limit at early as 2009, if not replaced with the Proposed Project, and the end of the NRC operating licenses in 2022."

(D.1-1 to D.1-2).

The EIR's baseline is inappropriate and inaccurate for two reasons. First, the regulatory licenses, such as the NRC license, are not part of the "physical environmental conditions in the vicinity of the project." CEQA Guidelines § 15125. Nor are they an "environmental resource rare or unique to the region." Id. The EIR cannot avoid examining the impacts of future operations which is the direct result and purpose of the Project by treating the NRC license as part of the "baseline." Second, CEQA Guideline § 15125 requires that the EIR establish a baseline based on the "physical environmental conditions" as they exist at the time of the NOP, and §15126.2(a) requires the EIR examine the "changes in the existing physical conditions" caused by the Project. At the time of the NOP, the baseline included deteriorating steam generators that are not estimated to last beyond 2009 and 2010, respectively, which means that the Plant will not operate beyond those years. Therefore, for purposes of environmental impact assessment arising from the Project, the EIR must consider and analyze all environmental impacts that could result from operating the plant from 2009 and 2010 through 2021 and 2022, respectively. This would include environmental impacts such biological, air, and seismic

impacts, etc., as well as impacts related to the generation of additional nuclear waste. It should also include an analysis of risk of operations in that time period.

With regard to marine biology and water quality impacts, the EIR describes in abbreviated fashion the baseline state of the ocean, but offers no differential estimate of the expected changes with regard to the proposed Project versus the No Project alternative. This deficiency must be corrected in the Final EIR.

2) **The Project's Consistency With Existing Plans and Standards**

While the EIR includes a discussion of applicable regulations, plans and standards under each environmental impact section (see e.g., D.3-45), it is unclear from the EIR whether the Project complies with all of those applicable regulations, plans and standards described. The EIR should include a discussion of any inconsistencies between the proposed project and applicable general plans and regional plans, as required by CEQA Guidelines §15125(d). (*See also, Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo*, (1985) 172 Cal.App.3d 151, 175.)

The EIR should also apply the applicable regulations, plans and standards identified to the evaluations of impact significance.

D.2 AIR QUALITY

The EIR does not recommend Best Available Technology (BAT) to mitigate particulate and diesel exhausts, such as available ultra low sulfur diesel fuels and Diesel Particulate Filters (DPFs). Nor does the EIR's No Project Alternative document the cessation of the fugitive and deliberate release of radionucliides that is allowed under SCE's license, if the Project were not approved. Nor does the EIR quantify, report and

mitigate by capture and storage the fugitive radioactive gases released by the opening of containment and exposure of radioactive elements.

At D.2.5, the DEIR contemplates replacement by "new generation or transmission facilities", where the more CEQA appropriate report would be analysis of the Commission's programmatic policy for replacement with Conservation, Solar generation, Renewable Energy Portfolio, Distributed Generation and other alternatives. (D.2.6 Mitigation A.1b must include DPFs).

D.3 BIOLOGICAL IMPACTS

In numerous places the EIR states, "All beach area within the transport route is regularly used as a military road." (e.g., D.3-32). This is not true, and the EIR does not provide any data or maps to support this statement. In fact, the military only *crosses* the beach in a few areas, primarily at Reds Beach. The military does not haul large loads all the way up the beach from Del Mar Boat Basin ("DMBB") to north of Las Flores Creek.

The EIR baseline is inadequate in that many flora and fauna listed by the State as rare or threatened or protected as raptors or migratory species and present along the transportation route, in the barrancas, on the beach, in the Santa Margarita River, estuary, boat basin and nearshore waters, and at risk by the eight RSG transporter trips, are not even mentioned in the baseline, much less contain any risk analysis or mitigation measures to lessen impacts thereto.

The fact that these listed flora and fauna are disturbed or "taken" by military operations is beside the point. Besides, the Marines have a whole unit dedicated to the protection of these resources, propagation and replacement of accidental or unavoidable loss and general habitat enhancement. The Marines Unit is dedicated to the avoidance of

adverse impacts, while SCE'S Environmental Unit appears to have dedicated itself to the avoidance of Regulation.

In pointed example, SCE has not yet even begun the mitigation required (300 acres of wetland and 300 acres of kelpbed), for Units 2 & 3 impingement and entrainment occurring from startup in 1984 until 1988 as ordered by California Coastal Commission ("CCC") in 1990. (*See* CCC Coastal Development Permit for construction of Units 2 & 3).

Neither has SCE embarked on the required restoration and return to the San Onofre State Park of the "temporary use construction staging area" or of the protection of the magnificent Inset Barrancas pledged as another Condition of Permit cited above.

SCE's history proves that the Commission should not depend upon a promise by SCE to perform mitigation after Project approval and construction, regardless of how enforceable the plain order of a permit's condition might be.

The EIR states that other listed species known to occur en route, e.g., the southern Steelhead, known to run up the Santa Margarita River, are said to be "unlikely" to occur in Santa Margarita "Creek", one of the five largest rivers and watersheds in southern California (D.3-36). The Baseline biological data appear to be replete with errors for virtually every species.

One of the gravest long term, but ignored, impacts of eight NSG carrier trips, is the soil compaction resulting from heavy, repeated loads on the loose unconsolidated soils at the bottom of Skull Canyon, the dune sands along the beach above the line of higher high water and in the California Least Tern (and Snowy Plover) nesting area, and in the other Barrancas. For example, roots of delicate plants endemic to these areas

cannot penetrate compacted soils. Sand verbena host an endemic ant of just the right size to feed a critical stage in the growth of the endangered Coastal Horned Lizard, Phrynosoma cornatum; hence, the multiple NSG carrier trips could starve out the few juvenile "horny toads" left.

Bluff route impacts on the threatened coastal sage scrub community by direct loss from constructed and widened roadway and consequent soil compaction preventing recruitment and recovery, would inevitably adversely impact listed and endangered obligatory residents, such as the coastal Cactus Wren, California Gnatcatcher and lesser but listed species (D.5-5). Proposed studies do not constitute Mitigation, making the EIR inadequate.

In its NOP scoping comments, Earth Corps requested that the extensive, well documented and peer reviewed Marine Review Committee BACI Studies be used to quantify the marine impacts resulting from the continued operation of SONGS if the Project is approved, since those studies document with extraordinarily high statistical reliability the enormous adverse marine impacts caused by the SONGS once-through cooling system. "This is like introducing a massive predator into the near shore waters" said Dr. James Ingrahm at the NRC licensing hearing. It does not appear that the EIR reviewed and applied these studies to its analysis of marine impacts, either in the impact section or in the No Project alternatives section.

The EIR states that "no work on the sea floor would occur." (B-11.) The only support for this conclusion is an SCE data response which makes the conclusory statement without any supporting evidence. Apparently, no study has been conducted to determine whether in fact the size and weight of the barges containing the new steam

generators will require dredging of the Del Mar Boat Basin (DMBB). The EIR contains no data as to the depth of the DMBB. This is especially problematic given the recent storms which washed significant amounts of sediment into the DMBB from the Santa Margarita River. This issues need to be analyzed in the EIR in order to determine whether the transportation segment of the Project will cause significant environmental impacts to the Ocean floor. Accepting SCE's conclusion without requiring studies and data to back it up violates CEQA. "Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly inaccurate or erroneous... is not substantial evidence. Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." (CEQA § 21082.2, subd. (c); Guidelines § 15384)

CEQA requires an EIR to thoroughly investigate environmental conditions. (Guidelines § 15144, ["an agency must use its best efforts to find out and disclose all that it reasonably can"]; *Berkeley Keep Jets Over the Bay Committee v. Board of Port Com'rs* (2001) 91 Cal.App. 1344, 1370.) Here, the Commission has merely accepted the proponent's conclusory statement without any requiring the necessary investigation or providing supporting documentation or data.[1]

Further, the EIR states, "Barges would enter the Camp Pendleton Del Mar Boat Basin and be moored at an existing bulkhead on the northwestern corner of the boat

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[1] Indeed, the DMBB received heavy sediment loads resulting in a sand bar blocking access due to the heavy storms during the last heavy rain season. However, the EIR fails to consider or evaluate the draft of the barges bearing the RSGs, the current depth of the Basin, the constituents and quality of the Basin sediments, and whether dredging might be required (D.3-2).

The Santa Margarita River was raging at flood stages far beyond the 6 inch maximum depth for much of the 2004/5 winter. But the EIR fails to provide a history of those Santa Margarita River flows which would preclude the use of the Preferred Beach Route during the winter season.

basin.... SCE believes that this type of activity is consistent with MCBCP's current use of the boat basin, which includes shipments of large military equipment... and that the area is already suited to accommodate the steam generators... "(B-11). SCE's "belief" is not enough to satisfy the requirements that the EIR be an informative document and that the lead agency use its best efforts to investigate and identify all potentially significant impacts. The EIR should be revised to include information about whether the steam generators' delivery by barge is in fact consistent with MCBCP's current use of the boat basin. The EIR should identify whether or not military equipment delivered to the DMBB is similar in size and weight as the new steam generators. This will help inform the public and decisionmakers about the likely impact to marine habitat that delivery of the steam generators will have.

The EIR should also discuss the potential likelihood of the applicant to obtain a § 404 Permit under the Federal Clean Water Act from the U.S. Army Corps of Engineers for impacts to waters of the U.S., either resulting from the river crossing or boat basin dredging.

D.5 GEOLOGY, SOILS, and PALENTOLOGY

With regard to the environmental setting, the EIR is dismissive of the glaring hazards on "the gently sloping coastal plain in the project area." The EIR makes no mention of the active Christianitos Fault lying **directly under Unit 3** and whose surface rupture forms the southern border of the SONGS boundary with the San Onofre State Park where the top profile is clearly visible and easily observed from the beach. Although this rupture and vertical thrust of ten to thirty feet occurred some 20,000 years ago in the Recent Pleistocene as determined by the overlying sediments, it clearly has the capability

of repeating this event, as measured creep builds stress along the fault line to the point of structural failure. Measurements of seismic activity on this Thrust Fault has been published in the last decade. The Christianitos Fault intersects with the southern reach of the Santa Monica-Baja fault system, (also called the Rose Canyon fault) to the south and the Inglewood-Newport fault to the north, just three miles offshore. Second in length only to the San Andreas fault system, it is called the Hosgri fault where it lies a similar three miles offshore the Diablo Canyon Nuclear Power Plant (see testimony of Jay Namson). Many expert evaluations of this system have set its' capability in excess of Reichter 7.0. Other experts have testified that motion along this section of the Santa Monica-Baja fault system could trigger thrust motion along the Christianitos fault under SONGS. The EIR is silent about these geophysical structures, instead states "No known active faults immediately underlie the areas of Proposed Project activities; therefore, the potential for fault surface rupture along the proposed transportation route and at the SONGS site is low" (D.5-6). This is inaccurate and erroneous. While the probability of a seismic event occurring during the transportation of the NSGs is low, the probability of such event during the operational life of SONGS resulting from the Project, has not been considered..

There is a potential high probability that such a seismic event will occur during the time that the spent fuel and high level radioactive waste is stored onsite in dry cask storage, including the extra waste generated by the extended plant operation enabled by the Project. A seismic event equal to the twenty foot vertical thrust of the geologically recent past is inevitable prior to the radioactive waste generated by this project has

decayed to safe levels (D.5-6). Proposed studies and monitoring of seismic events do not constitute mitigation.

"Ground shaking (that) could compromise the integrity of the OSG Storage Facility" (Impact G-6, page D.5-20) is not the primary concern from Earth Corps' perspective. Earth Corps is concerned with any ground shaking effect on the reactor itself, its containment structure, and onsite spent fuel pools and dry cask high level waste storage. Such considerations are not addressed in the EIR. The promise to "prepare an updated Safety Analysis Report" (D.5-20) does not constitute mitigation. Indeed, such a Report has been promised, mandated and conditioned by various permits for decades, but has yet to be accomplished.

Landslide Hazards, although not directly threatening the SONGS reactors and facility itself like seismic hazards do, are similarly dismissed as inconsequential "due to the gentle slope of the Project area" (D.5-7). But nearly all of the preferred beach routes (Fig. B-6a and B-6b) lie directly beneath the unstable San Mateo sandstone bluffs, which are undercut by wave action, and which periodically slump into the sea below. The probability of such event occurring during NSG transport and the consequences to NSG, transporter, personnel and the environment, as indeed recently occurred at Blacks' Beach to the south, where the same San Mateo formation failed, burying beachgoers beneath hundreds of tons of clastic flow, just cannot be dismissed. Such event would close the beach to any travel for an extended period. Should the NSG carrier be en route, it may be irretrievably isolated until carried out to sea by wave action. More probable is that the beach routes may become impassable before NSG arrival at the San Clemente dock. These risks and consequences must be evaluated. The EIR does indicate (D-5.7) that

bluff collapse might be precipitated by the transport of such heavy loads along the bluff top routes (Fig. B-6c and B-6d), but does not evaluate load versus structural strength and bearing capability of the underlying sandstone, nor contemplate the consequence of the NSG riding the slump into the sea. Such events must be considered and the consequences reported in the EIR. Proposed monitoring and studies, (G-1a, page D.5-18,) do not constitute mitigation, making the EIR inadequate.

D.12 SYSTEM AND TRANSPORTATION SAFETY

1) Spent Fuel Risk

The EIR makes reference to spent fuel risk only in terms of the baseline conditions. (D.12-6). However, as explained above, the EIR uses an inaccurate baseline because it assumes operation of SONGS Units 2 & 3 through the NRC licensing period, and not through the actual, on the ground situation: that SONGS Units 2 and 3 would have to be shut down in 2009-2010 but for the Project.

The impact analysis for Spent Fuel Risk should explicitly discuss the spent fuel risk impacts associated with operation of SONGS Units 2 & 3 from 2009/2010 through 2021/2022 in order to disclose to the public and decision-makers an accurate picture of environmental impacts resulting from the proposed Project.

The EIR states, "When SONGS was originally built, the spent fuel pools were designed to hold a limited number of fuel assemblies, accommodating the fuel used by Units 2 and 3 through roughly 2007... The Applicant applied to the NRC and received approval to re-rack the spent fuel storage pools and increase the density of spent fuel storage in the pool." (D.12-6). The EIR should disclose how long the pools will now be able to store spent fuel from Units 2 and 3.

2) Facility Security and Terrorism Issues

The EIR is deficient in its analysis of risks associated with large-scale radiological release resulting from a successful terrorist attack against a nuclear facility. The EIR implies that the NRC's new design basis threat (DBT) is sufficient to defend against a terrorist attack. (D.12-11). Evidence suggests that this is not so. For example, Dr. Gordon Thompson, an expert on nuclear security issues, provided written testimony discussing in detail various types of attacks against nuclear facilities and evaluated the effectiveness of existing and probable security measures required by the NRC in thwarting and/or mitigating the effects of such attacks. Dr. Thompson concluded that the current NRC DBT is insufficient to address the full range of likely threats from terrorist attacks. (See Appendix A; Dr. Gordon Thompson's testimony). Furthermore, the EIR does not discuss what sorts of attacks could be orchestrated against SONGS, nor the types of security measures that the NRC is likely to have required. The classified nature of security plans does not preclude the EIR from evaluating ongoing security risks associated with operating a nuclear facility. Furthermore, it can be fairly easily deduced what security measures the NRC has required. (See Appendix A; Gordon Thompson's testimony at pp 12-16).

The EIR also incorrectly states, "Terrorist attacks by fire or explosion would be analogous to external natural events, [such as earthquakes, tornadoes, floods, and hurricanes], and their implications for damage and release of radioactivity," and that since SONGS has been designed to protect against such external natural events, there is no substantial risk for radiological release resulting from a terrorist attack. (D.12-11). But there is no evidence to support this statement. In fact, Dr. Thompson's testimony

supports a contrary conclusion. (Appendix A at pp. 17-18). For example, Dr. Thompson discusses a U.S. Government study that describes the ability of a shaped-charge explosive device to breach a containment structure, and that such a device could be easily deployed using a small civilian aircraft. These aircraft are commercially available in the United States, and are not regulated. (Id., pp. 20-22).

The EIR also should have analyzed whether or not an attack designed to release a large amount of radioactive material would necessarily involve external strikes against the facility, or might also occur from a vantage point inside the facility (i.e., if attackers were able to infiltrate the plant). As just one example of the former, in his written testimony, Dr. Joram Hopenfeld describes the vulnerability of the secondary loop, which is not protected by the containment structure, to terrorist attack. (Appendix B, pp.12-15)

The EIR acknowledges none of the above potentials, and in so doing, significantly understates the risk of catastrophe associated with a terrorist attack.

The EIR further discounts the potential threats posted by terrorist attacks based on a report issued by EPRI indicating that the containment structure of a reactor would not be breached by the impact of a wide body commercial aircraft. (D. 12-11). The EIR fails to consider that such an aircraft is but one of many different means that could be used in acts of terrorism against a nuclear power plant. (See *infra*).

3) **Aging Components**

The EIR states, "Equipment and infrastructure aging at SONGS is also an issue, reflected by the need to replace the steam generators. All equipment at SONGS has a limited useful service life, with reliability being a concern as equipment ages... continued operation of SONGS would result in an increased probability of component failure and

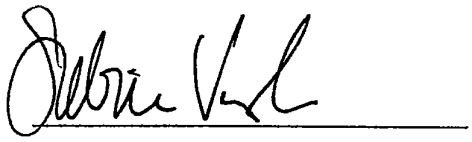
an accidental release." (D.12-27). The EIR's evaluation of aging equipment-related failures and associated catastrophic risk is deficient. The EIR should at least attempt to describe and quantify the comparative probability that component failure will occur as a result of aging equipment with and without the Project.

E. CONCLUSION

The EIR fails to comply with CEQA and therefore fails to provide an adequate basis upon which this Commission can approve or disapprove the proposed Project. Accordingly, the EIR must be redrafted to correct the above-referenced deficiencies, and re-circulated for public review and comment.

Dated: May 31, 2005

Respectfully Submitted,



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Attachments (via U.S. Mail)

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NAS study to urge NRC to step up spent fuel pool protections

House appropriators have instructed NRC to take a hard look at the advice of an independent panel of experts that is preparing a report widely expected to recommend the agency and industry do more to protect spent fuel pools at commercial reactor sites.

The congressionally mandated study by a National Academy of Sciences (NAS) panel was to be completed within six months of receiving funding, and the NAS panel expects to meet the deadline, said staffers with the National Academies Board on Radioactive Waste Management (BRWM). The project got under way in early January.

BRWM staffers said the report should be out this week and that the panel is in the process of setting up meetings to brief lawmakers and agencies on the report. The report will not be released publicly but an unclassified summary is anticipated to be issued before the end of the year, said BRWM study director Kevin Crowley. He said the panel hopes to release its recommendations—stripped of any sensitive details—in the summary. But that decision will be made by those examining what can be declassified, he said.

The House appropriators said in a June 18 report (House Rpt. 108-554) that the NAS report would likely suggest NRC take "immediate steps" to upgrade spent fuel pool safety and security and that NRC conduct further analyses of pool vulnerabilities, with particular focus on certain types of terrorist attacks. The report also is expected to recommend NRC direct "changes in some operational procedures" to improve communications and mitigative actions if there is an attack.

The appropriators requested NRC "take the recommendations in the final NAS report seriously and to take actions to address these recommendations at the earliest possible date." They would give NRC 90 days to report back on the actions it plans to take.

NRC Response

NRC has repeatedly said the agency has taken additional measures since the Sept. 11, 2001 attacks to shore up security at nuclear plants. Chairman Nils Diaz and other agency and industry officials also have called spent fuel pools "well engineered" and "robust" structures that have features that could blunt the impact of an outside force in an attack.

NRC said in a "fact sheet" issued last August in a response to a spent fuel pool hazards paper published last year in the Princeton University's Science & Global Security journal that the agency has addressed pool safety and security. Its fact sheet notes that NRC had directed licensees to develop strategies for maintaining and restoring spent fuel pool cooling "using existing or available resources" if the cooling is lost or disrupted. Also,

there have been improvements to "protective strategies for ground attacks on spent fuel pools."

Diaz was on business travel last week and unavailable for comment on the potential impacts of the impending NAS report. His chief of staff, Richard Croteau, said the agency will evaluate the recommendations when it gets the report and decide whether it agrees with them.

Commissioner Edward McGaffigan said last week that the commission has not yet seen the recommendations. But he speculated they might incorporate suggestions that were made by NRC staff and the Advisory Committee on Reactor Safeguards but never implemented. "My fear is that they may be playing back [suggestions] from the staff," he said. McGaffigan said some of the staff recommendations proposed last year "ended up on the cutting room floor." He characterized them as including some "easy, low-cost ideas," or "low-tech" approaches that would "buy extra time to keep the pool cool if there's a drain-down."

McGaffigan said the agency has been deeply involved in various aspects of upgrades at nuclear facilities and that the spent fuel pool recommendations were shelved to address more risk significant issues. "We blew it by not getting a couple of these things out," he said.

McGaffigan said he did not believe that the NAS report would go as far as endorsing the major recommendations in last year's spent fuel pool hazards paper by eight coauthors. The paper, "Reducing the Hazards from Stored Spent Power Reactor Fuel in the United States," called for densely packed pools to be returned to their original open-frame storage and to move spent fuel that has been in storage for more than five years from the pool into dry casks.

The paper, frequently referred to as the "Alvarez Report" after coauthor Robert Alvarez, estimates that transfer could be done over 10 years at a cost of between $3.5 and $7 billion. NRC said that estimate could be "low by a least a factor of two."

New spent fuel pool paper

Three of the paper's authors have published a new paper revising the estimated economic loss and cancer deaths resulting from a spent fuel fire, based on population density data from five reactor sites and relying on a consequence model also used by NRC. The paper, "Damages from a Major Release of 137Cs into the Atmosphere of the United States," was published this month in a double issue of Science & Global Security.

The 2003 paper calculated that for releases between 3.5 and 35 mega curies (MCi) of cesium-137 (137Cs) caused by a spent fuel pool fire, the land damaged would total between $50 and $700-billion and cancer deaths could range between 50,000 and 250,000 for those who stayed on contaminated land.

In the study, authors Jan Beyea, Ed Lyman, and Frank Von Hippel calculated the five-reactor site average consequences to be $100 billion and estimated 2,000 cancer deaths for a 3.5-MCi release, and $400-billion in damages and 6,000 cancer deaths for a 35-MCi release.

The study is available at http://www.princeton.edu/~globsec/people/fvhippel_spentfuel.html).

NAS recommendations applauded

When contacted last week, Lyman had not seen the NAS report but said it appeared that the panel was "not taking NRC's word [on the safety of the pools] at face value."

Alvarez, another of the authors of the controversial 2003 spent fuel paper and formerly a DOE senior advisor in President Bill Clinton's administration, said he also does not know what NAS plans to recommend because it "has been careful not to share any information with me." He surmised the panel might be interested in having NRC direct licensees to reconfigure how fresh fuel is place in the pool and possibly require the installation of sprinkler systems. "My hunch is only based on the kinds of things that are being [openly] kicked about," he said.

Alvarez said he feels "gratified" the NAS panel believes there are additional measures that can be taken to protect spent fuel pools. "We have to start to treat the pools not as an afterthought," he said, "not leave it up to industry," to determine mitigation actions.

But even if reactor operators began to spread out fresh fuel cores, distributi9ng the fuel between hotter and cooler spent fuel in the pool, that's not enough to protect against fires or damage from a deliberate attack, Alvarez said. He said he did not believe the panel would go as far as his colleagues' suggestion to reduce spent fuel pool inventories. Still, he said, "I tend to think they are moving on the right track." Alvarez said it appears the NAS panel "did not believe NRC's 'Don't Worry, Be Happy" arguments.

Panel study

The NAS panel on the spent fuel security project has been chaired by Louis Lanzerotti, a geophysics and electromagnetic wave expert who consults for Bell Laboratories and Lucent Technologies. There are 14 others on the panel with expertise in a range of scientific disciplines and on security and weaponry issues.

The panel has mostly worked behind closed doors, although it has held several open sessions. Over the past six months, it has met with NRC officials, cask vendors, authors of the spent fuel pool hazards paper, and many others. The panel took a first-hand look at the Dresden and Braidwood facilities in Illinois as representative BWR and PWR plants, respectively, and visited Argonne National Laboratory for data gathering. A subcommittee took a trip to Germany to look at a spent fuel storage facility and a cask

assembly facility, and to talk with German officials about how they manage their country's nuclear waste, said BRWM's Crowley.

Peter Stockton, senior investigator at the Project on Government Oversight (POGO), gave a presentation last month to the NAS panel laying out how terrorist could orchestrate an attack on a spent fuel pool and stressing that both BWR and PWR pools are vulnerable. He asserted that experts believe it could take less than a minute for terrorist to make their way from the outside fence into the pool.

POGO spokeswoman Beth Daley said her organization is concerned about the safety of commercial spent fuel pools because NRC's design basis threat—which contains the postulated number of adversaries and the types of weapons they would use—does not reflect the current threat environment.—Jenny Weil, Washington

DEC-09

My copy

[New York State Seal]

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January 24, 2005

Honorable Annette Vietti-Cook
Secretary
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Docket No. PRM-73-12:
In the Matter of Proposed Amendments to 10 C.F.R. 73 -
Upgrading the Design Basis Threat Regulations for
Protection Against Terrorist Attacks on Nuclear Reactors

Dear Secretary Vietti-Cook:

Attached please find for filing the Comments of ELIOT SPITZER, Attorney General of the State of New York, LISA MADIGAN, Attorney General of the State of Illinois, RICHARD BLUMENTHAL, Attorney General of the State of Connecticut, TERRY GODDARD, Attorney General of the State of Arizona, BILL LOCKYER, Attorney General of the State of California, PEG LAUTENSCHLAGER, Attorney General of the State of Wisconsin, and MIKE BEEBE, Attorney General of the State of Arkansas, in Support of Upgrading the Standard for Defending Nuclear Power Plants Against Terrorist Attack.

Thank you for your attention and consideration.

Very truly yours,

L.S.
Charlie Donaldson
Assistant Attorney General
Telecommunications and Energy Bureau

Before the

UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
PROPOSED AMENDMENTS TO 10 C.F.R. 73 -	)	
Upgrading the Design Basis Threat Regulations	)	**Docket No. PRM-73-12**
for Protection Against	)	
Terrorist Attacks on Nuclear Reactors	)	
	)	

COMMENTS OF
ELIOT SPITZER, ATTORNEY GENERAL OF THE STATE OF NEW YORK,
LISA MADIGAN, ATTORNEY GENERAL OF THE STATE OF ILLINOIS,
RICHARD BLUMENTHAL, ATTORNEY GENERAL OF THE
STATE OF CONNECTICUT,
TERRY GODDARD, ATTORNEY GENERAL OF THE STATE OF ARIZONA,
BILL LOCKYER, ATTORNEY GENERAL OF THE STATE OF CALIFORNIA,
PEG LAUTENSCHLAGER, ATTORNEY GENERAL OF THE
STATE OF WISCONSIN, AND
MIKE BEEBE, ATTORNEY GENERAL OF THE STATE OF ARKANSAS,
IN SUPPORT OF UPGRADING THE STANDARD
FOR DEFENDING NUCLEAR POWER PLANTS AGAINST TERRORIST ATTACK

Summary

ELIOT SPITZER, Attorney General of the State of New York, LISA MADIGAN, Attorney General of the State of Illinois, RICHARD BLUMENTHAL, Attorney General of the State of Connecticut, TERRY GODDARD, Attorney General of the State of Arizona, BILL LOCKYER, Attorney General of the State of California, PEG LAUTENSCHLAGER, Attorney General of the State of Wisconsin, and MIKE BEEBE, Attorney General of the State of Arkansas, submit these comments in support of upgrading the defenses of nuclear power plants against terrorist attack. Despite the tragically demonstrated ability of terrorists to attack by air, water or land, to mobilize significant numbers, and to use a wide variety of weapons, the

standard defining the threat against which owners must protect nuclear power plants remains essentially what it was in the 1970's - a land attack by no more than four men. The Nuclear Regulatory Commission ("NRC") sets the standards for nuclear power plant defenses, including the "design basis threat" that such defenses must be able to repel. The NRC should upgrade the design basis threat to reflect the realities of 2005, beginning with an immediate recognition of what we all learned on September 11, 2001 ("9/11") and earlier - terrorists may attack by air or water and in numbers greater than four.

I. INTRODUCTION

The United States has over one hundred active and retired nuclear power plants containing thousands of tons of highly radioactive and toxic fuel, waste and equipment. Some of these facilities are close to major population centers where tens of millions of people live. Any significant release of radiation from such nuclear power plants could cause unimaginable human injury and economic loss.

The Atomic Energy Act of 1954[1] assigns the NRC responsibility for ensuring the safety of our nuclear power plants, including the protection of these facilities from sabotage by terrorists.

The NRC does not itself safeguard nuclear power plants, but rather sets the safety standards that nuclear plant owners must meet. These standards include those for plant security against terrorist attack.[2] A major component of the security standards is the "design basis threat," the designation of the nature, number and scale of terrorist attacks a plant owner must be capable

[1] 42 U.S.C. §§2011 *et seq.*, as amended.

[2] 10 CFR Part 73 - Physical Protection of Plants and Material.

of defeating.[3]

The design basis threat that nuclear plant owners must prepare against dates back to the 1970's.[4] While the design basis threat adopted 25 years ago may have been appropriate at the time, it clearly does not reflect today's reality. Although the NRC has issued a series of confidential "Orders Modifying Licenses" that reportedly make undisclosed changes to security at individual plants,[5] the only publicly announced change to nuclear plant security is the addition of truck bombs to the design basis threat, a change made 17 months after the February 1993 vehicle intrusion at Three Mile Island and terrorist truck bomb attack on the World Trade Center.[6]

II. THE RULEMAKING PETITION

The Committee to Bridge the Gap ("CBG"), a private advocacy group, has filed a petition for rulemaking ("CBG Petition") with the NRC asking that the design basis threat be updated to take into account the methods and numbers terrorists have actually used.[7] As the CBG points out, the current design basis threat requires nuclear power plant owners to withstand nothing larger

[3] 10 CFR §73.1 - Purpose and Scope.

[4] *See, e.g.*, 44 Fed. Reg. 68,168 (1979).

[5] *See, e.g.*, NRC Order EA 03-086, published at 68 Fed. Reg. 24,517 (2003).

[6] 59 Fed. Reg. 38,889 - 38,900 (1994).

[7] Committee to Bridge the Gap, July 23, 2004 Petition For Rulemaking, noticed for comment at 69 Fed. Reg. 64,690 - 64,692 (2004).

than an attack by four individuals armed with hand-held automatic weapons and a bomb than can fit on a four-wheel drive land vehicle.[8]

The CBG urges the NRC to update the design basis threat to require nuclear plant owners to prepare to repel threats by air, water or land by a group comparable in size to the 19 al Qaeda operatives who carried out the 9/11 attacks, employing more than one unit and using any suitable weapon, vehicle and means of sabotage.[9] In particular, the CBG urges the NRC to expand the scope of the threat to include the possibility of an attack with a fully-loaded jumbo jet.[10]

The NRC has invited public comment on the CBG petition through Monday, January 24, 2005.[11]

III. COMMENT

The NRC must upgrade the design basis threat to require nuclear power plant owners to defend against attacks that terrorists can realistically be expected to be able to carry out. Determining the full scope of such threats will require the advice of experts on terrorism and security, an opportunity for public comment and careful consideration. At a minimum, the upgraded design basis threat should require defenses against attacks by air, water or land, and by groups at least as large as that involved in the 9/11 attacks.

The fact that no terrorists have yet attacked a nuclear power plant is no reason to believe that such an attack is either impossible or unlikely. Terrorists' capacity to carry out such attacks

[8] 10 CFR §73.1(a)(1); CBG Petition pp. 6 - 13.

[9] CBG Petition pp. 23 - 24.

[10] *Ibid.*

[11] 69 Fed. Reg. 64,690 (2004).

has been demonstrated. The interest of terrorists in attacking nuclear power plants is also a matter of record. As the CBG has pointed out, the National Commission on Terrorist Attacks Upon the United States reported that Khalid Sheikh Mohammed, the admitted mastermind of the 9/11 attacks, described his original plan as:

> A total of ten aircraft to be hijacked, nine of which would crash into targets on both coasts - they included those eventually hit on September 11 plus CIA and FBI headquarters, *nuclear power plants*, and the tallest buildings in California and the state of Washington.[12]

(emphasis added)

We should not take comfort in the fact that on 9/11 no nuclear power plants were attacked. The 9/11 Commission Report noted that the plotters considered targeting particular nuclear power plants that they observed while training for the 9/11 attacks, but that they incorrectly assumed that nuclear power plants had significant air defenses and lacked sufficient symbolic value.[13] The next group of terrorists may recognize these errors and decide to make damage a priority.

All of our nuclear power plants can be reached by air. Several of them, including some close to major population centers, are on the seacoast,[14] along major navigable waterways,[15] or

[12] National Commission on Terrorist Attacks Upon the United States, The 9/11 Commission Report, p. 154 (July 22, 2004).

[13] *Id.* at 245.

[14] *E.g.*, Millstone on Long Island Sound near New London, Connecticut; Diablo Canyon on the Pacific near San Luis Obispo, California.

[15] *E.g.*, Indian Point on the Hudson River near New York City; Zion on Lake Michigan near Zion, Illinois.

next to rivers usable by small craft.[16] The updated design basis threat should therefore take into consideration potential terrorist attacks through any avenue.

V. THE NEED FOR AN UPDATED DESIGN BASIS THREAT IS URGENT

Over four years ago terrorists demonstrated in their attack on the USS Cole that they are capable of approaching by water. Over three years ago terrorists showed that they could use large coordinated groups and attack through the air. Given the demonstrated advances in the sophistication of our terrorist adversaries, simple prudence dictates that we require nuclear power plant owners to upgrade defenses to protect the public from possible attacks with truly catastrophic consequences.

VI. CONFIDENTIALITY OF THE DESIGN BASIS THREAT

Upgrading the design basis threat necessarily involves the question of safeguarding key elements of the design basis threat. Yet, certain basic elements of an upgraded design basis threat could be disclosed to reassure the public without compromising security. For example, the maximum number of attackers a nuclear plant owner must prepare to repel is sensitive information. In contrast, stating that owners must be prepared to repel an attack by a minimum of 19 individuals would tell terrorists nothing about the size of the force they would have to field to have any realistic chance of penetrating a plant's defenses, but would show the public that the NRC is adjusting the requirements for nuclear power plant protection to meet today's elevated threats.

[16] *E.g.*, Vermont Yankee on the Connecticut River near Vernon, Vermont.

We urge the NRC to take all due care to safeguard key elements of new design basis regulations, but to provide sufficient detail to confirm to the public that the design basis threat now accurately reflects the challenge posed in defending nuclear power plants from terrorist attack in today's world.

V. CONCLUSION

For the reasons set out above, the undersigned respectfully urge the NRC to amend 10 CFR §73.1(a)(1) to require nuclear power plant owners to prepare to repel air, water or land assaults by a group at least as large as the 19 terrorists who acted on 9/11, attacking at more than one point at the same time and using any appropriate weapons, means of sabotage and vehicles.

Respectfully submitted,

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