UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 12, 2012

The Honorable Jane Egly
Mayor of Laguna Beach
505 Forest Avenue
Laguna Beach, CA 92651

Dear Mayor Egly:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am responding to your letter to Chairman Gregory B. Jaczko, dated February 14, 2012, in which you conveyed concerns from the Laguna Beach City Council and local citizens on the safety of the San Onofre Nuclear Generating Station (SONGS).

Your letter expressed the City Council's concern about the emergency plan for SONGS. You also cited local citizens' concerns on the safety of SONGS from seismic activity, tsunamis, and plant aging, which were raised during a City Council hearing held on February 7, 2012. You further stated that the City Council shares the concerns of U.S. Senators Barbara Boxer and Dianne Feinstein and the City of San Clemente about SONGS. You asked the NRC to review carefully the safety of the SONGS facility as part of the license renewal process. Further, you stated that the NRC needs to take an active role in establishing an appropriate site for the safe storage of spent fuel rods.

For planning purposes, the Commission has defined a plume exposure pathway emergency planning zone (EPZ) as an area of approximately 10 miles in radius and an ingestion pathway EPZ as an area of approximately 50 miles in radius around each nuclear power plant. EPZ size and configuration may vary in relation to local emergency response needs and capabilities as affected by such conditions as demography, topography, land characteristics, access routes, and jurisdictional boundaries.

Over the years, the staff has conducted several studies that have informed our evaluation of the adequacy of this approach. The results of these studies have been published as NRC NUREG documents. The studies support the NRC's basis for concluding that the existing emergency preparedness framework and regulations provide reasonable assurance of adequate protection of public health and safety in the event of a radiological emergency at a U.S. nuclear power plant.

Since the events of March 2011 at Fukushima-Dai'ichi, the NRC staff has continued to evaluate and act on lessons learned from the accident to ensure that appropriate safety enhancements are implemented. In March 2011, the NRC established a senior level agency near-term task force (NTTF) to conduct a methodical and systematic review of NRC processes and regulations to determine whether the agency should make additional improvements to our regulatory system. The NTTF submitted its report and recommendations to the Commission in July 2011. In October 2011, the staff provided its proposed plan of action and prioritization of the NTTF recommendations, which included the identification of recommendations related to lessons learned from the Fukushima-Dai'ichi event beyond those identified in the NTTF report. Among the additional issues identified by the staff as having a nexus to the Fukushima event was the

basis of the EPZ size. The NRC staff recommended that this issue be reviewed as a longer-term activity to determine whether any enhancements to existing strategies are warranted. In December 2011, the Commission approved the staff's prioritization of those recommendations without significant schedule modification.

The agency has been proceeding to address all "Tier 1" recommendations, which are those the staff determined should be started without unnecessary delay. We anticipate being able to begin work on the next set, or "Tier 2" recommendations after we collect information from the actions underway and resources devoted to those activities become available. In July 2012, the NRC staff will provide the Commission with a plan for addressing the remaining longer-term activities, designated as "Tier 3." This will include the staff's evaluation of the EPZ size issue.

On March 12, 2012, the NRC issued the initial set of several anticipated new regulatory requirements for the nation's operating reactors based on lessons learned from the nuclear accident at the Fukushima Dai'ichi plant. The NRC issued three Orders requiring nuclear power plants to implement safety enhancements related to: (1) mitigation strategies to respond to extreme natural events resulting in the loss of electric power at plants, (2) ensuring reliable hardened containment vents (applicable to only boiling water reactors with Mark 1 or Mark 2 containments), and (3) enhancing spent fuel pool instrumentation. All operating nuclear power plants are required to promptly begin implementation of the safety enhancements and complete implementation within two refueling outages, or by December 31, 2016, whichever comes first. In addition, the NRC issued a formal request for information, requesting all operating reactor licensees to reevaluate seismic and flooding hazards (including tsunami hazards) at their sites using present-day methods and information, to conduct walkdowns of their facilities to ensure protection against the hazards in their current design basis, and to reevaluate their emergency communications systems and staffing levels. The NRC will evaluate the responses to the request for information in determining the need for plant modifications or further enhancements to address seismic and flooding hazards, and emergency communications.

To date, Southern California Edison (SCE) Company has not submitted an application to the NRC for renewal of the operating licenses for SONGS, Units 2 and 3. However, we are aware that the company has filed information with the California Public Utilities Commission indicating that it intends to do so. If SCE submits a license renewal application for SONGS to the NRC, we will perform our review of that application consistent with existing NRC requirements and procedures. The NRC's regulations for license renewal are listed under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." Under 10 CFR Part 54, licensees are required to manage the age-related degradation of passive systems, structures, and components to ensure they will fulfill their safety-related functions as specified in the current licensing basis and will continue to do so into the period of extended operation. Independent of whether the licensee submits a renewal application, the NRC has multiple processes in place to evaluate the adequacy of current plant operations and licensing bases, such as the Reactor Oversight Process, which includes the NRC Inspection Program, the Operating Experience Review program, and the Generic Issues Program.

United States policies governing the permanent disposal of spent nuclear fuel (also identified as high-level waste or HLW) are defined by the Nuclear Waste Policy Act of 1982, as amended (NWPA). The NWPA specifies that HLW will be disposed of underground, in a deep geologic repository, and that Yucca Mountain, Nevada, will be the single candidate site for characterization as a potential geologic repository. Under the NWPA, the U.S. Department of Energy (DOE) is responsible for designing, constructing, operating, and decommissioning a permanent disposal facility for HLW, and the NRC is responsible for the licensing and regulation of the repository.

On June 3, 2008, the DOE submitted a license application to the NRC, seeking authorization to construct a deep geologic repository for disposal of high-level radioactive waste at Yucca Mountain, Nevada. However, action on DOE's application was brought to an orderly conclusion as of September 30, 2011. Although action on DOE's application is currently suspended, the NRC's non-sensitive Yucca Mountain-related documents, including three technical evaluation reports, are being preserved and made available to the public as part of the NRC staff's activities to retain the accumulated knowledge and experience gained as a result of its Yucca Mountain-related activities.

In reference to onsite storage, the NRC has determined that spent nuclear fuel can be stored safely at nuclear power plant sites. The regulations in 10 CFR Section 51.23, "Temporary Storage of Spent Fuel After Cessation of Reactor Operation–Generic Determination of No Significant Environmental Impact," state, in part:

> The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 60 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor in a combination of storage in its spent fuel storage basin and at either onsite or offsite independent spent fuel storage installations.

SONGS currently stores spent nuclear fuel on the plant site, in an onsite independent spent fuel storage installation (also known as "dry cask storage"), and in the spent fuel pools in Units 2 and 3. The designs of the spent fuel storage structures and facilities have been reviewed and approved with due consideration of the unique characteristics of the SONGS site, including the design basis seismic ground motion. The spent fuel storage structures will be reevaluated, as needed, based on the results of ongoing seismic reviews and other lessons learned in response to the Fukushima events.

Additional information on NRC actions in response to the events in Japan may be found on the NRC's public Web site at http://www.nrc.gov/japan/japan-info.html.

You may be aware that Senator Boxer wrote to Chairman Jaczko on February 8, 2012, requesting that the NRC address several recent issues at SONGS. A copy of the Chairman's response to Senator Boxer, dated March 13, 2012, is enclosed for your information.

Thank you for your letter and for your interest in these matters.

Sincerely,

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Docket Nos. 50-361 and 50-362

Enclosure:
As stated

ENCLOSURE

Chairman Jaczko's letter to Senator Barbara Boxer
dated March 13, 2012

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

CHAIRMAN

March 13, 2012

The Honorable Barbara Boxer
Chairman, Committee on Environment
and Public Works
United States Senate
Washington, D.C. 20510

Dear Madam Chairman:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am responding to your letter of February 8, 2012, regarding recent events at the San Onofre Nuclear Generating Station (SONGS). The specific concerns you cited related to the Unit 2 and Unit 3 steam generators, a worker fall during refueling, and an ammonia leak.

The NRC requires licensees to implement a steam generator inspection program to ensure tube integrity. In accordance with this program, a 100 percent inspection of all steam generator tubes was conducted (approximately 10,000 tubes per steam generator), during a scheduled refueling outage at Unit 2 that began on January 10, 2012. Wear (tube thinning) was observed at various locations along the tube lengths, similar to what has been observed in steam generators that are similar to those at SONGS. A limited number of unexpected wear indications were observed at a particular support structure that is unique to steam generators fabricated by Mitsubishi. These wear indications were large enough to warrant additional testing, which was performed and confirmed the structural integrity of the tubes.

Following completion of the steam generator tube testing, six tubes were plugged based on an established plugging criteria for removing tubes from service. Plugging is a method that prevents reactor water from entering a tube, thus removing it from service and stopping it from leaking to the non-radioactive portion of the steam generator. Precautionary plugging of 186 additional tubes where unexpected wear was identified also was completed

NRC specialist inspectors and an NRC steam generator expert have been observing licensee actions during this testing as part of our normal inspection program. They also will verify that the licensee's actions meet NRC regulations and review the licensee procedures to ensure the steam generators will perform their function safely through the next operating cycle.

Unit 3 had been operating for approximately one year following replacement of the steam generators when operators in the control room received alarms on January 31, 2012, indicating that reactor cooling water was leaking into one of the steam generator's secondary, or non-radioactive side. The leak was unexpected, and the licensee responded in accordance with its procedures to perform a rapid shutdown, as a precautionary measure. The estimated leak rate was 75 gallons per day, about half the rate that would require action by the licensee.

The first indications of the leak were radiation alarms from monitors that continuously sample a vent stack for the purpose of rapidly identifying steam generator tube leaks. The small amount of radioactivity that was released through this vent stack, confirmed by NRC inspectors, was much smaller than is allowed by NRC regulations.

SONGS operators brought the unit into cold shutdown on February 2, 2012, and began steam generator tube inspections on February 12, 2012. The inspection confirmed the location of the leak was limited to one tube. NRC staff is continuing to review the licensee's evaluation of the cause of the leaking tube and the licensee's inspection of 100 percent of the tubes in both steam generators. As in Unit 2, the steam generator tubes will be pressure tested to evaluate their integrity. The root cause of the tube leak has not yet been determined. For both Units 2 and 3, SONGS will evaluate the results of their inspections to determine the appropriate length of time before the next inspection. NRC approval is not required for the licensee to restart Units 2 and 3. NRC inspectors will perform an independent evaluation of the licensee's operational assessment report and preliminary cause evaluation prior to startup.

Regarding the contract worker who fell into the refueling cavity at Unit 2 during refueling activities, he was adjusting the position of a pole-mounted light used to illuminate the refueling cavity at Unit 2 when he lost his balance and fell into the reactor cavity. At the time of the incident, all of the reactor fuel had already been removed and was in the spent fuel pool. Since the cavity was completely flooded, it was only a one-foot fall, and the flotation vest the individual was wearing prevented him from submerging more than a few feet into the water. He did not suffer any injuries.

The licensee evaluated the individual's dose as a result of falling into the water. Although the water is filtered, it does contain low levels of radioactive contamination. The licensee found small amounts of contamination on the worker's skin, which was easily removed by soap and water. The licensee also used bioassay techniques (including urine testing) to estimate any internal contamination. The total dose to the individual was estimated at less than five millirem. The allowed dose for plant workers is 5,000 millirem per year.

Finally, as a result of an ammonia leak from a tank in the turbine building, on November 1, 2011, operators at SONGS declared an alert, in accordance with the plant's approved procedures. Operators exited the alert after approximately three hours, when the leak had been isolated and ammonia levels in the turbine building had reduced sufficiently to allow personnel access. Ammonia is used for maintaining the water chemistry in the secondary water (steam cycle side) of the power plant.

The cause of the leak was attributed to operators failing to promptly find and stop a slowly rising level in the ammonia tank, which eventually resulted in the tank overflowing. The ammonia was contained within a berm around the tank; however, the ammonia vapors quickly flowed into the turbine building, causing the building to be evacuated.

Since that time, the licensee has improved the procedure related to ammonia tank level problems and improved the general maintenance performed in the secondary parts of the plant. The ammonia spill was not large enough to affect individuals offsite.

In all of these cases, there has been extensive engagement by NRC staff with the licensee, and our inspection efforts have been closely coordinated. If the NRC determines that there are any generic issues of interest resulting from these events, we will not hesitate to share that information widely through our operating experience program.

Thank you for your interest in this matter. Please contact me or Ms. Rebecca Schmidt, Director of the Office of Congressional Affairs, at (301) 415-1776, if you have any questions or would like to discuss this further.

Sincerely,

***/RA/***

Gregory B. Jaczko

You may be aware that Senator Boxer wrote to Chairman Jaczko on February 8, 2012, requesting that the NRC address several recent issues at SONGS. A copy of the Chairman's response to Senator Boxer, dated March 13, 2012, is enclosed for your information.

Thank you for your letter and for your interest in these matters.

Sincerely,

***/RA/***

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Docket Nos. 50-361 and 50-362

Enclosure:
As stated

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