

*Southern California Edison Company*

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December 3, 1993

RICHARD M. ROSENBLUM  
VICE PRESIDENT

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Kenneth E. Perkins, Jr.  
Director, Division of Reactor Safety and Projects  
U. S. Nuclear Regulatory Commission Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, CA 94596-5368

Dear Sir:

Subject: Docket Nos. 50-362  
Evaluation of Steam Generators  
San Onofre Nuclear Generating Station  
Unit 3

On November 30, 1993, Edison personnel provided Mr. C. VanDenburgh, et al., a tele-conference briefing on the status of our Unit 3 steam generator inspections. During that phone call, Edison committed to provide our engineering assessment relating to foreign objects in the Unit 3 steam generators. This letter transmits the enclosed engineering assessment. This assessment is based on the preliminary evaluation performed by ABB-CE; if there are any significant changes in the final evaluation we will inform the NRC.

It is our engineering judgement that the Unit 3 steam generators are fully qualified for Cycle 7 operation. During the Cycle 7 outage, we performed eddy-current testing of the steam generator tubes, plugged appropriate tubes, replaced some existing tube plugs (welded plugs and plug-in-plugs), and removed some foreign objects from the steam generators.

With regard to foreign objects that will remain in the steam generators following the Cycle 7 outage, it is Edison's conclusion based on the enclosed engineering assessment that the unit can safely operate until the next refueling outage. The most likely effect of the foreign objects (both those specifically identified and located and any that may have gone unidentified) is the potential for wear of adjacent steam generator tubes. Edison does not expect that there will be wear-induced leakage of a steam generator tube during Cycle 7. However, even in the event that leakage does develop, our assessment concludes that this leakage would be detected early and would remain stable during either normal or postulated accident conditions. Further, as stated below it would be our practice to shut down the unit well before reaching Technical Specification limits.

On December 1, the Onsite Review Committee met to review the assessment of the foreign objects and concluded it was acceptable to return to service with the foreign objects remaining in the Unit 3 steam generators.

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It has always been Edison's practice to minimize plant operation with known steam generator leakage. If leakage is experienced, this leakage is carefully monitored with the intention to shut down the unit as soon as we feel confident that we would be able to locate the source of the leak (on the order of 20 to 30 gallons per day). In some instances, depending on the behavior of the leakage experienced, this shutdown might be deferred due to Edison system conditions or to a near-term regularly scheduled outage. However, in any case we would always shut down well before the Technical Specification limits; i.e., shutdown will be evaluated if the leakage is on the order of 100 gallons per day as opposed to the Technical Specification limit of 720 gallons per day.

As you are aware, Edison has taken prompt actions in the past when tube leakage is detected. These actions include: immediately increasing leak monitoring, performing diagnostic assessments of the source of the leakage, and increasing operator attention to steam generator leak status. The response actions provide increased levels of attention to leakage at threshold values of 10 and 30 gallons per day. Should the rate of increase of the leak be confirmed to exceed 60 gallons per day in one hour, a rapid shutdown of the unit will occur without delay. Management participation in this decision to shut down is not expected nor required.

Finally, to capture our experience from this outage relative to foreign objects, we are initiating a Division Investigation Report. As indicated in the enclosed assessment, the most likely source of the foreign objects in the steam generators is from the feedwater inlet distribution box degradation identified during the Cycle 5 refueling outage in 1990. Although corrective actions and engineering assessments were performed at that time, it is appropriate to relook at those assessments in the light of the information gained during the current evaluations. We expect to complete this investigation by about March 15, 1994.

We will keep you informed of any further developments relative to our evaluations. If you would like any additional information, please let us know.

Sincerely,

*John T. Smith*  
*R. M. Rosenblum*

cc: B. H. Faulkenberry, Regional Administrator, NRC Region V  
NRC Senior Resident Inspector's Office, San Onofre Units 1, 2 & 3  
M. B. Fields, NRC Project Manager, San Onofre Units 2 and 3