

January 22, 2014

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

**Subject: Reply to a Notice of Violation; EA 13-083
San Onofre Nuclear Generating Station, Docket No. 50-362**

- References:
- (1) Letter from Mr. Mark L. Dapas (U.S. NRC) to Mr. Tom Palmisano (SCE), dated December 23, 2013, San Onofre Nuclear Generating Station - Final Significance Determination of White Finding and Notice of Violation, EA 13-083
 - (2) Letter from Mr. Peter T. Dietrich (SCE) to Mr. Steven A. Reynolds (U.S. NRC), dated October 21, 2013, Response to Preliminary White Finding Relating to Steam Generator Tube Leak, San Onofre Nuclear Generating Station Unit 3
 - (3) Letter from Mr. Michael Cheek (U.S. NRC) to Mr. Ikuo Otake (Mitsubishi Heavy Industries, Ltd), dated September 20, 2013, Nuclear Regulatory Commission Inspection Report No. 99901030/3013-201, Notice of Nonconformance

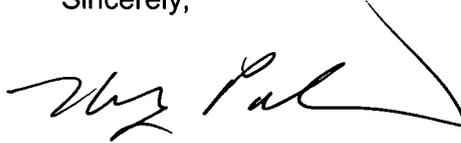
Dear Sir/Madam:

In Reference 1, the Nuclear Regulatory Commission (NRC) provides its final disposition of the preliminary White finding and associated apparent violation relating to the steam generator tube leak that occurred on January 31, 2012 in one of the steam generators in Unit 3 of the San Onofre Nuclear Generating Station (SONGS). Reference 1 also attaches a Notice of Violation with respect to this issue, and requires Southern California Edison (SCE) to reply to that Notice of Violation, including a written explanation for the evaluated extent of conditions associated with the violation. In addition, if SCE determines that any reason for this violation may apply to work activities during decommissioning and dry cask storage, including oversight of contractor activities, SCE's reply is to include: (1) the corrective steps that have been taken and the results achieved, (2) the corrective steps that will be taken, and (3) the date when all associated corrective actions will have been implemented.

The attachment to this letter provides SCE's reply to the Notice of Violation.

Should you have any questions regarding this reply, please do not hesitate to contact me or Mr. Richard St. Onge, Manager of Regulatory Affairs and Emergency Preparedness at (949) 368-6240.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard St. Onge". The signature is fluid and cursive, with a large, sweeping flourish at the end.

cc: M. L. Dapas, Regional Administrator, NRC Region IV
D. Broaddus, NRC Project Manager, SONGS Units 2 and 3
C. Gratten, NRC Project Manager, SONGS Units 2 and 3
G.G. Warnick, NRC Senior Resident Inspector, SONGS Units 2 and 3
R.E. Lantz, Branch Chief, Division of Reactor Projects, NRC Region IV

ATTACHMENT
Reply to Notice of Violation, EA 13-083
San Onofre Nuclear Generating Station, Unit 3
Docket No. 50-362

This Attachment provides Southern California Edison's (SCE's) reply to the Notice of Violation issued by the NRC on December 23, 2013, EA 13-083. This violation was based upon the failure to check or verify certain flow-induced vibration and thermal-hydraulic designs for the SONGS replacement steam generators (RSGs), in violation of 10 CFR Part 50, Appendix B, Criterion III. The Notice of Violation requires that SCE provide a written explanation of the evaluated extent of conditions. In particular, if SCE determines that any reason for this violation may apply to work activities during decommissioning and dry cask storage, including oversight of contractor activities, then for each such reason, SCE's reply should include: (1) the corrective steps that have been taken and the results achieved, (2) the corrective steps that will be taken, and (3) the date when all associated corrective actions will have been implemented.

Explanation of Evaluated Extent of Conditions

SCE has evaluated the extent of conditions associated with the violation to determine whether the reasons for this violation could reasonably apply to decommissioning or dry cask storage activities. As noted in the Reference 1, the violation was associated with a failure to verify the adequacy of the thermal-hydraulic and flow-induced vibration design of the Unit 3 replacement steam generators as required by 10 CFR Part 50, Appendix B, Criterion III. As noted in Reference 2, as authorized by 10 CFR Part 50, Appendix B, Criterion I, SCE hired Mitsubishi Heavy Industries (MHI) to prepare the SONGS replacement steam generator design, and to implement the quality assurance program for this equipment as required by 10 CFR Part 50, Appendix B. In particular, MHI was required to perform the verification and checking of the design of the replacement steam generators as required by 10 CFR Part 50, Appendix B, Criterion III using the MHI quality assurance program.

The differing roles of the vendor and licensee are recognized in NCA-3260 Section III of the ASME Boiler and Pressure Vessel Code, incorporated into NRC requirements under 10 CFR Section 50.55a, which states that while the purchaser is responsible for reviewing design reports, "The responsibility for the method of analysis and the accuracy of the Design Report remains with the Certificate Holder and the designer." (in this case MHI). As noted in Reference 2, as a purchaser and not the Certificate Holder or Designer, SCE itself did not have the expertise to perform – and never intended to perform – the verification activities it had contracted MHI to execute. As is standard practice in the nuclear power industry, this verification was performed by the vendor, MHI, using MHI's quality assurance program, and not SCE as the licensee.

As noted in References 1, 2 and 3, MHI failed to properly convert flow velocity output from its FIT-III computer code to the appropriate gap velocities for use as input to the FIVATS computer code used by MHI in calculating the potential for tube vibration. As noted in References 2 and

3, MHI also failed to appropriately verify that it had used the correct gap velocities, which it was required to do under the Design Specification for the replacement steam generators. SCE has determined that its oversight of MHI with respect to design and design verification activities was consistent with regulatory requirements and industry standards for vendor oversight, and did not cause these failures by MHI, which, as the NRC noted in Reference 3, had been embedded in the MHI designs for several previous MHI steam generators. In sum, this violation was the result of MHI's errors in modeling the thermal hydraulics and vibration in the RSGs, and its failure to properly verify that modeling and detect those errors.

The SONGS units are now permanently retired and are no longer operating. Accordingly, SCE has evaluated whether the reasons for this violation "error by the vendor in performing complex computer modeling, and failure to properly verify that computer modeling" may apply to equipment used to ensure nuclear safety during decommissioning and spent fuel storage, including dry cask storage, which are the remaining nuclear safety activities being performed at SONGS.

The design of the SONGS replacement steam generators required complex thermal hydraulic and vibration analyses that were performed using the expertise and computer models developed and implemented by the vendor, MHI. In contrast, the designs of equipment and facilities used for spent fuel storage and decommissioning are unlikely to be subject to the types of flaws as were embedded in MHI's computer modeling. The primary pieces of equipment used to ensure nuclear safety during decommissioning and spent fuel storage are the spent fuel pools, dry storage casks, and associated equipment. The spent fuel pools and associated equipment for fuel racking, cooling, movement, and monitoring have been designed, installed, and used for many years and have proven their functionality. Similarly, the casks and associated equipment have been designed, installed, and used for many years, and have likewise proven their functionality. No changes to the SONGS spent fuel pool, cask storage systems, or associated equipment are contemplated that would require the procurement of equipment involving a design that has not been already in use in the industry and which would involve the level of complexity and specialized expertise that was necessary for the design of the replacement steam generators.

Based upon these facts, SCE has concluded that the reasons for this violation would not reasonably apply to decommissioning and spent fuel storage activities, including dry cask storage.

Corrective Actions to Address Replacement Steam Generator Design Flaws

As an interim action, SCE maintained the SONGS units in a shutdown condition pending completion of actions to determine the mechanistic causes of the steam generator tube leak and implement corrective and compensatory actions. Since that time, the SONGS units have been permanently retired and defueled, and the steam generators are no longer in service. Accordingly, no further action is necessary to correct the flaws in the SONGS steam generator design.