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NEWS

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San Onofre Restart Plan Not Impacted by Recent Review of Manufacturer's Testing by Nuclear Regulatory Commission

ROSEMEAD, Calif. (Dec. 18, 2012) — The Mitsubishi Heavy Industry testing under review by the Nuclear Regulatory Commission (NRC) was not consulted or relied upon in developing Southern California Edison's (SCE) proposed restart plan for Unit 2 – a plan which includes preventive tube-plugging and operating the unit at 70 percent power for a five-month period.

SCE's international team of experts conducted more than 170,000 inspections to understand the tube wear problem, and confirmed the effectiveness of the corrective actions we have identified to solve the tube wear problem. This work included three independent operational assessments of tube wear issues conducted by Areva Inc, North America, Westinghouse Electric Company LLC and Intertek/Aptech, none of whom based their review and recommendations on Mitsubishi's testing. This was confirmed Tuesday by an NRC administrator at an NRC public meeting in Rockville, Md.

SCE submitted technical information to the NRC on Oct. 3 in support of a proposed restart of Unit 2, which is safely offline. The unit will not be restarted until all plans have been approved by the NRC. The Unit 3 restart was not included in that regulatory filing and remains shut down.

Unit 2 was taken out of service Jan. 9 for a planned outage. Unit 3 was safely taken offline Jan. 31 after station operators detected a leak in a steam generator tube.

More information is available at www.edison.com/songsupdate and at www.SONGScommunity.com. San Onofre is jointly owned by SCE (78.21 percent), San Diego Gas & Electric (20 percent) and the city of Riverside (1.79 percent).

About Southern California Edison

An Edison International (NYSE:EIX) company, Southern California Edison is one of the nation's largest electric utilities, serving a population of nearly 14 million via 4.9 million customer accounts in a 50,000-square-mile service area within Central, Coastal and Southern California.

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Southern California Edison Comments on MHI Evaluation of San Onofre Nuclear Plant Steam Generators

ROSEMEAD, Calif., March 8, 2013 — An evaluation by Mitsubishi Heavy Industries (MHI) made public today cites ineffective tube supports, dry steam and high steam flow velocity as causes of excessive wear in the steam generators MHI supplied to Southern California Edison's (SCE) San Onofre Nuclear Generating Station.

SCE previously disclosed these same causes based on its own investigation, and the Nuclear Regulatory Commission's (NRC) [augmented inspection team report](#) last July found that MHI's use of faulty computer modeling in the design process caused MHI engineers to inadequately predict the dryness of the steam, measured by void fraction, in the replacement steam generators.

MHI repeatedly reassured SCE of the efficacy of the design. During the design phase of the project, MHI advised SCE that, based on its own review and analysis, the maximum void fraction that MHI expected to occur was acceptable, did not require additional design changes or measures, and that the replacement steam generators would perform as warranted.

"SCE's own oversight of MHI's design review complied with industry standards and best practices," said Pete Dietrich, SCE senior vice president and chief nuclear officer. "SCE would never, and did not, install steam generators that it believed would impact public safety or impair reliability."

In fact, MHI states in its root cause report (page 41), that its analysis of conditions in the steam generator during the design phase (which calculated void fraction and steam flow velocity) concluded that the thermal hydraulic conditions in the San Onofre steam generators were acceptable, and specifically that there was no need to reduce void fraction.¹

Additionally, SCE never rejected a proposed design change to address void fraction based on its impact on compliance with [10 CFR 50.59](#).

"At no time was SCE informed that the maximum void fraction or flow velocities estimated by MHI could contribute to the failure of steam generator tubes," said Dietrich. "At the time, the design was considered sound."

SCE is disappointed that MHI decided on its own to redact some information in its evaluation about the flaws in the computer codes. However, the NRC publicly disclosed the computer code flaws three months before MHI completed its evaluation. In addition, the corrective actions and other statements included in the

¹ MHI Root Cause Analysis, page 41: T/H condition "was judged acceptable by FIV analysis" and "T/H analysis (FIT-III) did not indicate the necessity to reduce the high steam quality (void fraction)."

evaluation make it evident that there were problems with the computer modeling that failed to predict conditions that led to the tube-to-tube wear.

SCE has proposed operating Unit 2 at 70 percent to decrease velocity and decrease steam dryness to increase damping, thus preventing the conditions that led to excessive wear. The proposed restart plan was validated using a different computer model and has been reviewed by independent experts.

The San Onofre nuclear plant is the largest source of baseload generation and voltage support in the region and is a critical asset in meeting California's summer electricity and clean energy needs. Both units at San Onofre are currently safely shut down. Unit 2 remains shut down since it was taken out of service Jan. 9, 2012, for a planned outage. Unit 3 was safely taken offline Jan. 31, 2012, after station operators detected a leak in a steam generator tube.

NRC approval is required before SCE can restart Unit 2. The repair, corrective action and restart plan for Unit 2, along with additional technical information to address questions from the NRC, are available to the public at www.SONGScommunity.com

More information, including videos that explain how a steam generator works and the role San Onofre plays in providing reliable electricity to the region, is available at www.edison.com/SONGSupdate and at www.SONGScommunity.com. San Onofre is jointly owned by SCE (78.21 percent), San Diego Gas & Electric (20 percent) and the city of Riverside (1.79 percent). Follow us on Twitter (www.twitter.com/SCE) and like us on Facebook (www.facebook.com/SCE).

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SCE Had No Knowledge of Safety Problems, Mitsubishi Heavy Industries Letter to NRC Confirms

ROSEMEAD, Calif., March 13, 2013 — A [letter from Mitsubishi Heavy Industries](#) (MHI) to the Nuclear Regulatory Commission (NRC) proves false the latest round of allegations from activists, Southern California Edison (SCE) said Tuesday. It also confirms that SCE believed the San Onofre nuclear plant's steam generators were safe when installed and that safety measures were not sacrificed for licensing reasons.

The letter, posted on the NRC's website, accompanied a redacted copy of the MHI Root Cause Evaluation which has been grossly distorted by the national anti-nuclear activist group, Friends of the Earth.

"The anti-nuclear activists have called the MHI report a 'bombshell' which couldn't be further from the truth," said Pete Dietrich, SCE senior vice president and chief nuclear officer. "In fact, the MHI letter explains that SCE and MHI rejected the proposed design changes referenced in the evaluation because those changes were either unnecessary, didn't achieve objectives or would have had adverse safety consequences.

"Our decisions were grounded in our commitment to safety. SCE did not, and would never install steam generators that it believed would impact public safety or impair reliability."

MHI repeatedly reassured SCE that based on their testing, the steam generators met safety requirements and would function for 20 years.

The MHI letter specifically confirms that at the time the replacement steam generators were designed, MHI and SCE believed that the "replacement steam generators had greater margin against U-bend tube vibration and wear than other similar steam generators." MHI warranted the steam generators for 20 years.

"As with all engineering evaluations, the MHI letter and report describe a technical evaluation process and need to be read in their entirety to understand the conclusions reached," said Dietrich. "The activists are taking portions of paragraphs and sentences out of context, and using them as the basis of their allegations that SCE knew of design defects when the generators were installed, but failed to make changes to avoid licensing requirements. That is untrue."

SCE has previously pointed to faulty computer code used by MHI as failing to predict conditions in the steam generators, along with other design defects. The NRC publicly disclosed the computer code flaws three months before MHI completed its evaluation.

SCE followed standard industry best practices in outlining general specifications for the equipment. These specifications requested MHI to design replacement steam generators that were as close as possible to the original steam generators in form, fit and function.

MHI never suggested to SCE that changes to the specification needed to be made, because their computer modeling didn't indicate such a modification was necessary or required.

"These industry-based specifications are intended to keep designs within known safety parameters and not let designers go out on their own, and inadvertently create new safety issues, like a construction contract that requires the contractor to stay within building codes," said Dietrich. "Suggesting, as Friends of the Earth does, that it is poor practice to have specifications requiring conformity to known safety standards is clearly wrong."

The Nuclear Energy Institute's Scott Peterson called the Friends of the Earth claims "ideological rhetoric from activists who move from plant to plant with the goal of shutting them down." He goes on to say: "Not providing proper context for these statements incorrectly changes the meaning and intent of engineering and industry practices cited in the report, and it misleads the public and policymakers."

Friends of the Earth has opposed the San Onofre reactors since the 1970s, ignoring 40 years of carbon-free electricity that the facility can provide to more than 1.4 million homes and businesses. The Friends of the Earth website boasts that they use "creative communications" to win their campaigns. "We would all be better off if these activists used accurate communications rather than creative ones," Peterson added.

SCE has proposed operating Unit 2 at 70 percent to decrease velocity and decrease steam dryness to increase damping, thus preventing the conditions that led to the excessive wear. The proposed restart plan was validated using a different computer model than originally used by MHI and has been reviewed by independent experts.

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