

**Responses to Questions from Senator Dianne Feinstein
Letter Dated May 17, 2012**

How will NRC decide whether SONGS is safe to restart? Please include a description of the specific inspections, testing, and technical reviews that will inform your decision.

The NRC has two overarching criteria with respect to the safety of the steam generators to support plant restart: 1) reasonable assurance that actions taken by SONGS will prevent further tube-to-tube degradation due to fluid elastic instability (FEI), and 2) that tube integrity will be maintained during the next operating cycle. This decision will be made based on SONGS fully evaluating the causes of the steam generator tube degradation and implementing appropriate and conservative corrective actions to provide reasonable assurance that further unexpected degradation will not occur. The NRC will authorize restart only after it has concluded that the SONGS Units 2 and 3 can be operated without undue risk to the public health and safety, and to the environment.

In accordance with the Confirmatory Action Letter (CAL), dated March 27, 2012, SONGS must perform a number of actions, including: 1) identify the causes of the tube wear and take corrective actions to prevent loss of tube integrity, 2) implement a mid-cycle shutdown and conduct inspections, 3) plug all tubes with excessive wear indications, as well as perform preventive plugging or take other corrective actions to address retainer bar-related tube wear, and 4) provide reasonable assurance that the unit will operate safely.

Using its established inspection procedure for followup on CALs, the NRC is fully assessing actions taken by SONGS. The NRC plans to do extensive reviews of SONGS' and Mitsubishi Heavy Industries' (MHI's) root-cause evaluations, new thermal-hydraulic and vibration modeling, design modifications and repair activities done on the steam generators, and regulatory evaluations of plant changes, as well as other independent inspection activities. The NRC also has observed portions of the tube testing activities and the plugging and stabilization of tubes.

Will you rely primarily on computer simulations to decide whether SONGS will be allowed to restart? If so, please justify why you believe the computer codes would use valid assumptions and properly account for the unique design features of the SONGS steam generators, in light of the apparent inaccuracy of codes used to date.

The NRC will rely on completion of extensive corrective actions by the licensee and independent inspection efforts by the NRC to decide whether SONGS will be allowed to restart. While we will not rely primarily on computer simulations, we do believe that thermal/hydraulic and vibration models will need to be used to assess the probability of the FEI-induced vibration being shifted to other parts of the steam generators. The licensee has indicated that, in place of the MHI thermal hydraulic model, the model going forward will be a version of the EPRI ATHOS model that has been widely used in the industry since the mid 1980s.

How will you determine whether tube plugging or making other repairs would ensure that SONGS can be operated without harming the public or the environment?

In order to authorize restart, the NRC will need to have reasonable assurance that actions taken by SONGS will prevent further tube-to-tube degradation due to vibration and that tube integrity will be maintained during the next operating period. As discussed in the response to the first question above, NRC will review SONGS' root-cause evaluation, their corrective actions, and their inspections to determine the effectiveness of actions taken to prevent further tube-to-tube wear.

If NRC authorizes SONGS to restart, what steps, if any, will you take to monitor the SONGS steam generators to ensure that tube wear does not continue?

The NRC will only authorize restart once the licensee has completed the actions required by the March 2012 Confirmatory Action Letter, and the NRC is satisfied that the facility can be safely operated. SONGS has equipment and procedures in place to monitor for reactor coolant system leakage. The operators routinely (at least once per day) calculate reactor coolant system leakage, and there are radiation detectors in place that monitor for radioactivity in the steam (this is how the leak on Unit 3 was detected on January 31). The NRC will continue to monitor the safety of the facility as part of its reactor oversight process. The resident inspectors who are stationed at SONGS will provide routine oversight of the licensee's activities to monitor the condition of the steam generators. In addition, the NRC will monitor a mid-cycle shutdown as committed in the Confirmatory Action Letter to inspect the steam generator tubes.