Additional Information on Westinghouse Standard Reactor Coolant Pump Seals

At the end of the meeting, a member of the public requested information regarding which plants currently use the standard Westinghouse reactor coolant pump (RCP) seal design. The request was a follow-up to the NRC staff's slide and discussion about new information on these seals. A vendor's testing and supporting information (the details of which are proprietary) indicate that (1) following a loss of seal cooling, the seal leakage will slowly increase due to hydrothermal corrosion of the No. 1 seal face; (2) the rate of increase is temperature dependent; and (3) the increase stops below a threshold temperature. If the condition is not addressed, the leakage rate can exceed previously accepted values. There are various ways licensees could address the issue, and the Pressurized Water Reactor Owners Group (PWROG) is developing guidance for licensees to use.

During the meeting, the NRC staff stated that licensees can address the issue in accordance with the existing processes for dispositioning new operating experience. These processes are designed to systematically assess the plant design, licensing basis, and impacts of the issue on plant programs (such as mitigating strategies and fire protection).

There are several plants that currently use at least one of the standard Westinghouse-design seals. However, the staff notes that some of these plants plan to replace the Westinghouse standard seal design with a different seal or to add the Westinghouse SHIELD seal feature, either of which would address the issue. The plants that the NRC staff expects will continue to use the standard Westinghouse-design seals after compliance with NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," at least for some period of time, are:

Watts Bar 1 and 2	Shearon Harris	R.E. Ginna
North Anna 1 and 2	Millstone 3	Catawba 1 and 2
McGuire 1 and 2	Sequoyah 1 and 2	Indian Point 2 and 3
South Texas Project 1 and 2	Salem 1 and 2	

The potential impact is plant specific for a number of reasons. For those plants that will continue to use the standard Westinghouse-design seals, some additional factors that affect the potential impact are:

- Some plants perform a sufficient cooldown following a loss of seal cooling such that RCP seal leakage is expected to remain below previously accepted values.
- Some plants have seal injection systems that function in certain scenarios to keep the RCP seals cool following a loss of normal seal cooling systems, thus eliminating the issue for these scenarios.
- Some plants have high makeup capabilities such that they can accommodate higher leakage rates.

Thus, there are numerous ways licensees can address the issue. The NRC staff is working with the PWROG as they develop new guidance for licensees. The NRC staff is also discussing this issue with the affected licensees during its review of mitigating strategies.

Attachment