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From: Bernardo, Robert *NRM*
Sent: Monday, April 19, 2010 9:00 AM
To: Burritt, Arthur
Subject: Region I OpE Takeaways

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Art,

Here's what I think is the summary of where we stand on Salem 1 AFW buried piping and on EN 45848 (highlighted).

Update - Salem Unit 1 Outage – AFW (headers 12 and 14) buried piping Issues

Over the weekend, the licensee replaced a large amount of the shallow section of the Unit 1 buried AFW piping for headers 12 and 14 (headers 11 and 13 are not buried). During the replacement operations, they discovered piping in the area of a support that was at .077 inch wall thickness (minimum required is .200). It is thought that this indication was masked during the guided wave examination by the pipe support. As a result, the licensee is expanding the scope of the piping to be replaced to include extensive amounts of the deep buried piping. All of the deep buried piping for header 12 will be replaced, and all but about 30 feet of header 14 will be replaced. The piping not being replaced on header 14 will be fully characterized by the licensee. The piping to be replaced includes sections beneath the fuel handling building. Licensee is evaluating the impact to the outage schedule.

Operability reviews and structural integrity reviews are expected to be completed early this week. Region I is performing an MD 8.3 evaluation.

Here's what we had last week on this issue:

Based on UT results from the shallow section of the Unit 1 buried AFW piping for headers 12 and 14 (headers 11 and 13 are not buried), the licensee currently plans to replace a combined total of approximately 50' of piping on the shallow buried portion of these two headers (depth of approx 4 ft). The licensee is using a contractor to perform a finite element analysis to confirm the structural integrity of the rest of the shallow piping. These results will then be used to finalize the licensee's determination of past operability for the shallow piping and to identify the need for additional corrective actions related to any extent of condition on the operating unit, Unit 2.

To this point the licensee has confirmed reasonable assurance of operability for the Unit 2 AFW system based on historical information and photographs from 1994 that provided indication of intact pipe coating and the fact that Unit 2 is about 2 years younger than Unit 1. The licensee currently believes that the shallow section of piping on Unit 1 was not coated as specified by the design.

The operability evaluation for the shallow section of piping that will be based on the finite element analysis is expected to be completed early the week of 4/19.

On the deep section of piping for headers 12 and 14, the licensee has excavated a small portion of the down comer that leads to the deeper piping. They performed ultrasonic testing (UT) around the elbow at the top of this down comer (depth of approx 4 ft), which was completely submerged in groundwater.

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The minimum wall thickness measured in this area was ~0.226", which was greater than the minimum required wall thickness of 0.200". In addition the licensee performed a guided wave pipe inspection on a portion of the straight run of the deep section of piping (approximately 20 ft in length at a depth of approx. 17 ft). The results indicated less wall thinning on this section of piping than the guided wave results indicated for the shallow section of piping. The licensee also confirmed by visual observation that the deep section of AFW piping was coated in accordance with the design specification.

Based on the results of the UT around the elbow and the results of the guided wave in the 20 ft section of deep piping, the licensee plans no further excavation of the deep section of piping. The licensee's current plans are to recoat all of the piping exposed during excavation that will not be replaced, in both the shallow and deep sections, and then following the completion of pipe replacements for the significantly degraded exposed pipe sections, hydro the entire line, both the shallow and deep sections. The licensee will use these hydro results to support operability of the deep section of piping for the next operating cycle.

To facilitate completion of the operability determinations for both the shallow and deep section of piping, the licensee will also be reducing the design pressure of the AFW piping from a very conservative 1900 psig down to a more realistic 1275 psig through a plant modification package.

The Region has an ISI inspector onsite as part of normal baseline inspection activities and he is reviewing the licensee's analysis. Additional resources from headquarters are assisting as needed.

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