Ziev, Tracey

From: Conte, Richard RC1
Sent: Friday, May 07, 2010 4:10 PM
To: Burritt, Arthur; Ennis, Rick; Lupold, Timothy; Manoly, Kamal; OHara, Timothy; Patnaik, Prakash; Schroeder, Daniel; Schulten, Carl; Tsao, John
Cc: DeFrancisco, Anne; Balian, Harry; Bowman, Eric; Brown, Michael; Cahill, Christopher; Chernoff, Harold; Gardocki, Stanley; Gray, Harold; Hardies, Robert; Hoffman, Keith; Holston, William; Modes, Michael; Pelton, David; Robinson, Jay; Sanders, Carleen; Schmidt, Wayne; Thorp, John; Taylor, Robert
Subject: Salem Unit 2/1 AFW Pipe Degradation
Attachments: SL1 AFW Degradation Telecon of 04-28-2010.doc

We need another Conference to discuss developments since the April 28 telecon. See attached file for summary and actions along with residual actions. I am looking for Monday pm since Region I is in a counterparts meeting for Tues thru Thursday, can do Thursday pm. I am off Friday.

Some of you may have gotten emails today on entering the TS LCO related to structural integrity and how well it does or does not mesh with rule and code per 10 CFR 50.55a. These residual issues are right after the problem summary in the attached file. During the call we can summarize discuss point and counterpoint.

1. Does the licensee need a code relief request to cover:
    a. Time from now to the outage in 2011 IAW 10 CFR 50.55a (g) (5) (iii) as impractical to perform?
    b. Cover the first two periods of the current 10 year interval IAW 10 CFR 50.55a (g) (5) (iii) impractical to perform (they could have done it during there outages) or (iv), post ISI interval review?

2. Should staff inform PSEG they are violating TS LCO on structural integrity regardless of how ambiguously it is written. Do we really understand the consequence of this action.

3. For this case, do the rule/code requirements stand alone and what are they – evaluation of suitability for service in light of not doing the pressure drop test for Unit 2.

I hope to have a conference bridge all afternoon. Hopefully key players as noted in addressee list can communicate their availabiltiy in the pm preferrably 300pm but I am open to 1 2 or 3pm. If you want to be considered as a key player let me know.

C/145

Summary of Telecon Internal to NRC staff 4/28/10

Attendees (please sent email to correct list if wrong):

Cahill, Christopher; Gray, Harold; Hardies, Robert; Lupold, Timothy; Harry; Modes, Michael; OHara, Timothy; Ennis, Rick; Tsao, John; Manoly, Kamal; Patnaik, Prakash; Bowman, Eric; Schulten, Carl

This summary also includes additional reviews and questions after the call.

Problem Summary:

As a result of implementation the PSEG buried pipe program, significant degradation of the No. 14 and 12 Auxiliary Feedwater Piping was identified – the yard section was replaced and the FHB section was abandoned in place with new piping routed above grade inside the FHB with code compliant pressure testing in each of the sections. Based on inspector questioning, PSEG wrote an internal notification reporting that the ASME code required pressure drop test for buried Class 3 piping (an inservice inspection) had never been done (IWA-5244 test). PSEG then entered a number of TS LCO for AFW and structural integrity (???? – trying to confirm) and the section 4.0 of the TS and starting developing an operability determination for Unit 2 current operations and for Unit 1 from an historical viewpoint.

More specifically, PSEG has developed an operability review for Unit 2 based on information in response to the noted unit 1 degradation on the corresponding headers in Unit 2 Nos. 24 and 21. They are also developing a past operability review for Unit 1 which includes finite element analysis in order to assess the structural integrity of the AFW piping and a technical evaluation to support a revised minimum wall thickness based on a revised pressure rating in order to support the historical view. Along with this the current design rating for both units is 1950 psi the basis of which remains unknown.

For Unit 1, the apparent cause is little to no coating application of the yard section of buried piping. An extent of condition was developed as a part of a root cause report that will not be finalized until the end of May 2010. Unit 2 is operating and has similar piping but the difference appears to be in the use of a better coating application based on 1994 information in the yard area and 2010 information based on a dig inside Unit 2 FHB to expose the upper header No. 24 and assess the coating and take some UT measurements.

Issues Subsequent to the April 28, 2010 conference call internal to NRC:

1. Does the licensee need a code relief request to cover:
    a. Time from now to the outage in 2011 IAW 10 CFR 50.55a (g) (5) (iii) as impractical to perform?
    b. Cover the first two periods of the current 10 year interval IAW 10 CFR 50.55a (g) (5) (iii) impractical to perform (they could have done it during there outages) or (iv), post ISI interval review?

2. Should staff inform PSEG they are violating TS LCO on structural integrity regardless of how ambiguously it is written. Do we really understand the consequence of this action.

3. For this case, do the rule/code requirements stand alone and what are they – evaluation of suitability for service in light of not doing the pressure drop test for Unit 2.

Open Issues as discussed on April 28, 2010 conference call internal to NRC:

1. Staff view of Unit 1 yard section FEA and its applicability to Unit 2 – see below Unit 1 Operability Determination.

2. Staff view of analysis for reduced design pressure form 1950 to 1275 psi for Unit 1 past historical look – Lupold to get back to us, they claim they never saw it.

3. Adequacy on the use of the Unit 2 TS section 4.0.1 and 4.0.3 and 4.0.5 – see below on Unit 2 Operability Determination

4. Adequacy of Unit 2 Operability Determination

    a. There are no immediate safety issues.

    b. Licensee reviewing for explicit statement on the evaluation for suitability in this case structural integrity per sections IWA 4160, 4170, and 4180 of their code version.

    c. Staff needed to better understand condition of Unit 2 FHB deep section as to coated or not and adequacy of intact portion with wetted sand conditions with no past pressure drop test – licensee information limited from 2010.

    d. Staff needed to better understand condition of Unit 2 buried yard section with no past pressure drop test – licensee information limited from 1994.

    e. In light of the limited information above, we will need to look at the PSEG final Operability Evaluation for the U2 AFW buried piping or other document related to suitability for service. Licensee information is limited to an inference that coating was applied to Unit 2 unlike Unit 1 and Unit 2 is in better shape. Region I SRA support the PSEG risk assessment of only a slight increase in risk until the IWA-5244 test is done at the next U2 RFO (spring 2011).

    f. PSEG entered TS 4.0.3 on missed surveillance and this resulted in the above noted risk assessment:

        i. Staff informed PSEG of TIA at Pilgrim dated December 31, 2008 (ml083660174), a missed surveillance is different from a surveillance never done. With a missed surveillance, one has a basis or starting point for satisfactory conditions assuming the test past. If the test was never done then what is the basis for satisfactory conditions (can't go on the hunch that it may pass – see Ennis email of 4/26/10 which sparked the conference call.

    g. PSEG entered TS 4.01 and 4.0.5 on failure to conduct a surveillance test and this resulted in entering AFW LCO and ??? possibly the 3.4.11.1 LCO on structural integrity for code class 3 components. This then resulted in operability determinations:

        i. Based on a past TIA at Clinton (2010-001 dated April 19, 2010 (ml101100101)), there is separation of code ISI/IST from Surveillance testing. Salem Unit 1 and 2 TS 4.0.5 seems to define surveillance as ASME code ISI

for components and IST for Pumps and Valves. Based on past practice and current TSB position, the code ISI requirements should be separated from TS requirements. Per rule in 10CFr 50.55a section f and g, any conflicts between code and TS must result in a TS amendment request. The licensee has an amendment request as of Sept. 23, 2009, but based on recent review it is not clear how the structural integrity LCO is being addressed (10 CFR 50.55a f and g sections f (5) (ii) and g (5) (ii)).

ii. The issue of technical specification, ASME vs. surveillance, was resolved with the Tech Spec Branch on the line. ASME is invoked "in isolation" of the tech spec and does not connect to surveillance requirement regardless of how stated in the LCO for maintaining structural integrity is written in accordance with ISI requirement per related TS surveillance requirement.

5. Unit 2 Risk Assessment done per TS 4.0.3 – SRA Cahill reported being satisfied with the risk assessment done by PSEG. The risk assessment has information value and it supports a determination of a slight increase in risk (CCDP) waiting for the next refueling outage for Unit 2 for a more thorough inspection of coating and pressure drop test be done on the Nos. 24 and 22 AFW headers.

6. Adequacy of Unit 1 Operability Determination

   a. Staff needs to understand condition of FHB deep section as to coated or not and adequacy of intact portion with wetted sand conditions) – licensee information limited - historical issue on significance for NRC identified finding of failure to conduct ISI (pressure drop test) per code.

   b. Tsao comments on FEA were addressed:

      i. Page 4, last paragraph. The licensee stated that the worst wall thickness is 0.077 inch. Confirm that the minimum allowable pipe wall thickness is 0.190 inch as shown on page 5, second paragraph.

      ii. The stress analysis needs to include detailed pipe wall thickness measurements in all 5 subject AFW pipes so that the reviewer can understand the extent of the wall thinning

   c. Based on review with Kamal Manoly, we are going to engage the licensee technical staff on four residual questions since the FEA (see also Tsao questions in Attachment 2) appears to be a final document (answers may be addressed in the Unit 1 operability determination).

      i. Was the seismic input considered in the structural integrity analysis?

         For the U1 structural integrity evaluation what is the contribution of seismic induced stresses? This is to establish the magnitude of the seismic stresses in comparison to the pressure induced stresses. It is expected that the pressure induced stresses will be the dominant stress source.

      ii. What was the basis for the averaging of loads on the piping analysis?

For the U1 finite element analysis, confirm that the area of compensation for the missing material at the deepest pit (0.077") was within the Code calculation requirements.

iii. What documented evidence can be supplied to show a coating of what type was applied to the Unit 2 AFW piping? These are still unknowns.

iv. What does the supplier of the coating suggest is the life of the coating? How long was the coating expected to be effective? This is still unknown.

d. With respect to d above, the results where conveyed to DRP BC who agreed with the stated position and agreed to assist in setting up a staff-to-staff discussion on the above points with PSEG. DRS BC communicated the above issues on Friday 4/30/10. A telecom with Kamal Manoly occurred on Monday May 3 to address the c.i and c.ii issues? At the out-brief for Wednesday May 5, items c.iii and c.iv were discussed with the licensee as an issue associated with difficulty in retrieving design or as installed information – they acknowledged the issue.

e. Headquarters review of tech eval on reduced pressure rating from 1950 to 1275.