

## Conference Call – Containment Liner Corrosion

Thursday, July 16, 2009 2:00pm

### Participants

#### FENOC

Cliff Custer	Mark Manoleras	Dave Grabski	John Thomas
Jim Hester	Tony Dometrovich	Glenn Ritz	Dennis Weakland
Larry Hinkle			

#### NRC

Emmanuel Sayoc	Billy Rogers	Dave Wrona	Kamal Manoly
Bennett Brady	Bryce Lehman	Lisa Regner	

### Discussion

NRC (ES) (Question 1.) Where was the containment liner hole found (meaning was it a "high susceptible area")?

FENOC (JT) The hole was at elevation 746, southeast area. Prior to discovery of the hole, there was no indication that any specific area may or may not have been more susceptible to degradation. The locations for future inspection are under evaluation by the IWE coordinator based on information from this event and other available operating experience.

NRC (ES) No indication that this location was a high-susceptibility area.

FENOC (JT) Correct.

NRC (ES) Now considering this area / elevation as susceptible for further testing?

FENOC (JT) We are evaluating all aspects but have not made a determination as to what types of parameters might constitute a high susceptibility area. We are evaluating it under our Corrective Action Program.

NRC (BR) We want to make sure we understand your commitment (as docketed in the SER). We want to focus on the selection process for the 75 sample locations. We are trying to recollect exactly what was said during the ACRS and if that lined up with the commitment. Somehow we got the term "smart sample" being used and wonder how that lines up with the commitment in the SER.

FENOC (JT) The commitment we provided in letter L-09-139 states that supplemental volumetric examinations will be performed on the Unit 1 containment liner prior to the period of extended operation. Seventy five (one foot square) sample locations will be examined. If degradation is identified, the degraded area(s) will be evaluated and follow-up examinations will be performed to ensure the continued reliability of the containment liner.

There is more detail in RAI response (in that letter). That information was also the subject of a conference call on June 4, 2009 which is discussed in the SER (page 3-110) which states, "the applicant further explained that the sample locations would not be completely random, but would be based on past operating experience."

We believe this is conservative compared to totally random selection.

NRC (BR) The methodology in the EPRI document, does that provide any guidance on sample selection?

FENOC (JT) Chapter 4 of that EPRI TR document describes the statistical approach to determine a sample size. It was originally prepared to support a Calvert Cliffs One Time Inspection program sample size, but the statistical method applies to any of these scenarios where a confidence level is to be established. . It is now

frequently cited reference for license renewal, which is why we cited it in this situation.

NRC (BR) When you get down to choosing a sample location, the guidance tells you to choose random locations but you are selecting specific locations.

FENOC (JT) The EPRI document does not discuss that. It references statistical texts. It assumes that the sample locations are representative of the population as a whole. We believe that focusing on areas of higher probability is more conservative than just picking numbers out of a hat.

NRC (BR) The actual defect that was caused by the wood. Would that be in an area that would be included in sample, or excluded (less acceptable and would not fall within your criteria)?

FENOC (DG) I am the ISI program owner. We are currently developing the plan for our sample locations. Based on what we found, we are going to look in similar locations. The same elevations, or other elevations that may have FME. Secondly, we will expand the sampling to cover areas of the liner that were recoated, per the description in the SER.

NRC (BR) (Question 4.) Was the removed piece of wood miscellaneous debris or was it used as a concrete former during construction? If it was a part of a concrete former, is there a potential for additional wood elsewhere in the concrete?

FENOC (JT) Not a former.

NRC (BR) To the best of your knowledge, there is no known wood.

FENOC (JT) True. There is no wood that we know of.

NRC (BR) So that wood was completely miscellaneous.

NRC (KM) If that wood was completely random, does that not lead us to believe that it could be anywhere, and not just in areas that you've defined?

FENOC (JT) To clarify the nature of the wood that was found, and whether it was miscellaneous, it was not a former. Our root cause analysis determined that it may have been a temporary spacer that was put in place between the liner and the non-structural rebar. It should have been removed but, obviously, this one piece was not.

NRC (KM) But these locations could be anywhere else. We want to be able to iron out any concerns that could be many occurrences of this.

FENOC (CC) If you look at the photo that was provided during the ACRS meeting of the containment liner under construction, you will see those pieces of wood at the top of the liner that were used as spacers.

NRC (ES) You are saying that the spacers would be at the top of the liner and that would be a place to look?

FENOC (MM) We are still developing the list of locations at which we are going to look. We are looking at internal and external OE, and look at things that are specific to our containment such as bulges or areas that had to be repaired. We will look at all those things to determine what we believe will be a very representative sample. They will be random within that smart sample.

NRC (BR) Let's go back to the spacers. They were all removed, correct?

FENOC (CC) Yes, all were to be removed, per the construction procedure. There was not a specific QA sign-off, one for one for the wood spacers. It is possible that one of the spacers fell from a location and that would be why the final walk-around did not identify there was a piece of wood left.

NRC (BR) I think we have a good understanding of that now. There is no expectation of other wood inside the structure. It was used for building purposes and then removed. The basis of our question is this... there appear to be two conflicting ideas... with a random sample there is a link to the confidence level, a statistical basis, the one that you've asserted (95/95)... we think that if you go beyond the

random and start using a biased sample for a non-specific mechanism, you are actually less conservative at that point. That why we are trying to determine if the wood was in an expected location, or not. Based on this conversation it was not. Therefore, looking at specific areas would be less conservative. But clearly you may not be able to make the statistical link between that and the confidence level. That's what we are struggling with, actually two ideas. Having said that, you committed to something that we have obviously accepted, since the SER is issued. If there was a good practice where you did the minimum random sample which would give you the confidence level, plus additionally you did UT testing of additional places beyond the commitment, that certainly would be conservative plus. Does that make sense?

- FENOC (JT) Let me give you some background or context. The commitment we made is letter L-09-139 was to do 75 one-square-foot sample locations and not to establish a specific confidences level. Confidence level is not mentioned in the SER. It was mentioned in the RAI as background for a place (number of samples) to stop sampling.
- NRC (BR) Yes, but it is docketed information.
- FENOC (CC) Are you suggesting the commitment, as it stands, is inadequate?
- NRC (BR) We don't want to use that terminology. We want to frame it like this, all information that we have in front of us (including the RAI response) doesn't line up. We have confidence level and we have biased locations. We need to work this out on our end. We are struggling with this at the moment.
- NRC (KM) The number of locations does not change. We hope you understand that.
- FENOC (MM) Our goal was to use industry and internal OE to find most the susceptible locations. We believe that this is the conservative approach. If we do a random sample we may omit some areas we really wanted to go after.
- NRC (KM) If you use specific locations you imply that you know where the locations are. We have established that you do not. These are unknown, random locations.
- NRC (BR) Dave Wrona stepped out, but wanted us to make this point to you. We appreciate from a practical point of view, the benefit of using susceptible locations. The issue is statistics and confidence level, then it has to be a random sample, and not a biased sample. We are trying to line up all the different things that have been said in all the various venues. We may not come to any resolution today. Is that reasonable?
- FENOC (CC) Acknowledged. As we understand, your message is that if we use an informed sample size, confidence level is lower.
- NRC (BB) If you don't use random samples you cannot make any statement about the confidence level. You cannot put a number to it, or state whether you are more confident or less confident.
- FENOC (CC) To reiterate, if we use an informed information we cannot assess a confidence level.
- FENOC (MM) The SER reads as follows, "During the conference call, the applicant explained that the sample locations have not been decided yet, but will focus on areas most likely to experience similar degradation, such as locations at similar elevations, or areas that have required recoating in the past. The applicant further explained that the sample locations would not be completely random, but would be based on past operating experience." That seems to be what you are restating here.
- NRC (BR) We are aware of that. If you don't know what the suspect areas are (because it was caused by the piece of wood, and no other mechanism) it is a random event.
- FENOC (CC) The contest is not 75 samples, the contest is attaching a confidence level to the 75 samples. From what you are stating there is misalignment between the

NRC (ES)

Commitment, the RAI, the SER and ACRS statements. We need to think about this further. Can we continue this discussion later, perhaps tomorrow?  
I'll have to see who's available. We'll discuss, offline, when the follow-up call can occur. In summary, the misalignment here is the use of a confidence level but not having random samples.

End of Call

Action items – None