

IPRenewal NPEmails

From: Green, Kimberly
Sent: Tuesday, July 21, 2009 6:37 PM
To: STROUD, MICHAEL D
Subject: Questions for Consideration/Discussion
Attachments: IP Buried Piping Questions.doc

Mike,

Attached are questions for Entergy's consideration and discussion during tomorrow's telephone conference call.

Please let me know if you have any questions regarding the call.

Kim

Hearing Identifier: IndianPointUnits2and3NonPublic_EX
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Mail Envelope Properties (Kimberly.Green@nrc.gov20090721183600)

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From: Green, Kimberly

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Recipients:
"STROUD, MICHAEL D" <MSTROUD@entergy.com>
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INDIAN POINT LICENSE RENEWAL APPLICATION
QUESTIONS REGARDING BURIED PIPING AND TANKS INSPECTION

Questions Regarding Buried Piping and Coatings:

1. For each system within the scope of license renewal that contains buried piping, provide the following type of information:

- General description of the buried piping (e.g., CST supply line, CST return line)
- Diameter
- Thickness
- Pipe material
- Coating material (if any)
- Surrounding conditions
- Length including how much is buried/exposed
- Access
- If cathodic protection is installed
- ASME Classification
- Safety classification
- If any segment of the pipe is buried under a structure
- Other features that would be important to know (i.e., are there flanges, welds, pipe supports that would impact the inspection)

2. Provide detailed functional and system descriptions of each of the above buried pipe, including its operating conditions and whether the pipe is used during normal operation. If the pipe fails to deliver the coolant, discuss the consequences (i.e., failure mode analysis). Discuss whether there are alternative sources that can deliver the coolant if the pipe leaks.

3. For each of the above pipe systems provide the inspection history since commercial operation. The inspection history should include the year of the inspection, the inspection method (e.g., visual, penetrant testing, ultrasonic testing), and results. For each inspection, discuss whether the pipe was excavated for inspection; discuss what areas of the pipe were inspected (inside surface, outside surface, coating); identify the specific parameters that were inspected (e.g., pipe wall thickness or coating condition); and discuss the length of the pipe that was inspected.

4. Discuss all potential degradation mechanisms for the buried pipes (failure mode assessment). Discuss all possible preventive measures or actions that would mitigate or eliminate each degradation mechanism.

5. For buried piping within the scope of license renewal, describe the different types of coatings used and their service life. Identify all potential degradation mechanisms for each type of coating. For each degradation mechanism, discuss actions that can prevent or mitigate the degradation.

6. A contributing cause of the CST return pipe leak was the large size of rocks in the backfill which damaged the coating on the outside surface of the buried pipe. (a) Since pipe coatings

can also be damaged during excavation of pipes, describe what measures Entergy plans to take to ensure that, when piping is excavated during maintenance or for inspection, the excavation process and the backfill will not cause coating degradation. (b) Another contributing cause identified was that the affected area was located close to the water table and the soil surrounding the pipe was moist. Discuss whether other buried pipes are located in a wet environment. If so, discuss what measures will be taken to ensure that the wet environment is not causing piping degradation.

7. For each of the safety-related buried pipe within the scope of license renewal, discuss the size of the through wall flaw (hole) that would cause the system not to perform its intended function. Discuss whether a leakage detection system is installed in the pipe systems to alert the operator if leakage occurs. If there is not a leakage detection system installed, is installation of such a system feasible?

8. Discuss whether the Buried Piping and Tanks Inspection Program considers the safety significance of the piping system or its potential for carrying radioactive fluid when proposing inspection frequency and techniques to be used.

9. In October 2008, Entergy excavated two locations (sections) of the CST supply and return piping, and performed visual and UT to measure pipe wall thickness. Discuss the results of that inspection with regard to wall thinning and coating condition. Did any of the inspected pipe locations include the degraded location of the February 2009 incident?

(a) Discuss actions and inspection strategy that would provide reasonable assurance that the structural integrity of the safety related buried pipes will be maintained to the end of 60 years.

(b) For each of the proposed actions and strategy, discuss its effectiveness and how it will help to maintain the structural integrity of the buried pipes to the end of 60 years. The corrective actions and strategies should be comprehensive, including possible system modifications, improved operator actions, installing leakage detection systems, periodic inspections, improved inspection technologies (e.g., in-situ inspections without excavating pipes), cathodic protection system, and revised excavation/backfill procedures.

Questions Regarding Proposed Alternatives:

1. What is Entergy's plan to examine the buried pipe both prior to entering the period of extended operation and future plans for periodic examinations?

2. With regard to the NDE method proposed, please provide specific information related to:

- Examination method
- Vendor(s)
- Equipment

3. Has EPRI evaluated the technology? Have procedures been developed specifically for the application to the pipes of interest? Have qualifications/demonstrations been completed for the examination method/equipment/procedures/personnel? If not, are there plans to complete, at minimum, a demonstration of the technology.

4. Does Entergy propose to use guided wave ultrasonic testing (UT)?

5. Guided wave UT is a specialized technique requiring specialized training for personnel. Please describe the specialized training that personnel implementing this technique would be required to complete.
6. Guided wave UT is a screening tool that detects changes in cross sectional area. If wall loss is detected, what corrective actions will be taken? What are the criteria for taking action? Also, can this technique detect cracks? How small? What type (fatigue, SCC, etc)?
7. What are the limitations of the technique? What is the impact of pipe coatings (specifically, address the impact of the type(s) of coatings on the piping at Indian Point)? What is the length of pipe that can be inspected in "one shot"? Is there a pipe thickness limitation for the technique?
8. Has this technology been used in other nuclear plants? If so, how was it used? What applications? Has it been used at fossil plants? If so, how?