

From: McKinley, Raymond
Sent: Tuesday, February 24, 2015 12:58 PM
To: mary.lampert@comcast.net
Subject: RE: Comments and questions regarding Pilgrim's delay in restart - tube plugs falling out.
Attachments: 02.23.15 QUESTIONS NRC TUBE PLUGS DELAYING RESTART.pdf

Mary,

The Annual Assessment Meeting will most likely occur on March 18. A public meeting notice will be forthcoming soon. We also plan to discuss the results of the 95002 Supplemental Inspection during that meeting. The Special Inspection that was launched following winter storm Juno is still in progress. That report will be issued within 45 days from the exit meeting, so we will not be in a position to discuss the findings of that inspection at the March meeting. We can answer some questions relative to the facts surrounding winter storms Juno and Neptune, but we will not be able to discuss any pre-decisional findings.

To your attached questions:

Were some tubes in the condenser plugged because they had failed and were leaking?

Yes, some tubes were previously plugged due to previously identified leaks.

a. When did the tubes start to leak?

The previously plugged tubes began to leak again following the planned shutdown for winter storm Neptune.

b. Why were they plugged and not replaced?

Tube plugging is the most common repair used in the industry. Condensers are constructed with more tubes than needed to allow any leaking tubes to be plugged. Eventually, condenser efficiency is impacted which results in lost generation revenue for the licensee. At or near that point, licensees will either re-sleeve the tubes or replace the condenser water boxes.

c. Did NRC approve that fix?

This is non-safety related equipment repair, and NRC approval is not required. However, as stated above, this is a normal repair used in industry.

d. What is the industry history of outcomes of plugging tubes versus replacement?

Plugging is very effective. However, plugs can and do fall out or become loose. The decision to repair or replace is a licensee decision.

2. Why did the plugs come out- sounds like poor maintenance is that correct?

Thermal and hydraulic cycling associated with shutdowns and startups were most likely the cause. There is no reason to suspect poor maintenance.

a. Is there a guidance or protocol calling for inspection of plugs prior to startup?

Licensees will typically inspect water boxes during a refueling outage but not for mid-cycle outages unless they perform water box work. They did not perform water box work during the Juno or Neptune outages, so there was no reason to perform a water box inspection.

b. Were the tube plugs inspected before the recent plant started up?

No, see previous answer.

c. What is the maintenance schedule and how does it match Entergy's performance?

NRC does not regulate condenser maintenance activities. Licensee's typically perform condenser maintenance during refueling outages or during online maintenance windows. It is in their own best interests to perform condenser maintenance to avoid unplanned down

powers / outages from an economic perspective as well as to protect their capital investment. In addition, NRC does have a Performance Indicator which tracks unplanned down powers, so such issues can draw regulatory scrutiny. Pilgrim's unplanned down power Performance Indicator is solidly in the GREEN range, so it has not been a problem to this point.

d. If there was an inspection, was it done right?

NRC does not inspect licensee condenser water box inspections.

e. Supposedly there is a map of the tube sheet that shows what tubes are supposed to be plugged

i. Was the map accurate?

ii. Did the maintenance crew read the map correctly?

As stated above, NRC does not inspect this activity. However, when leaks were identified following the winter storm Neptune startup, the licensee used their tube sheet maps to make sure plugs were still there and tight. They replaced missing plugs and tightened or replaced any loose plugs.

3. Did any salt get into the reactor?

The licensee monitors the condenser hotwell and condensate demineralizer discharge for conductivity and chlorides. They detected rising chlorides and conductivity in both locations during the startup which drove them to take corrective action.

a. What tests were performed to assure that salt did not get into the reactor?

See previous answer.

b. If any salt did get into the reactor, what protocol should, and will be, followed?

The licensee follows Electric Power Research Institute (EPRI) guidance, and their procedures drive them to take timely and appropriate action based on the severity of the chemistry conditions. In this case, the action was to hold at reduced power until the issue was corrected. Severe chloride or conductivity excursions can require an immediate shutdown, but the chemistry levels were manageable in this case. The problem was identified and corrected and chemistry levels returned to normal. The licensee will continue to monitor reactor water chemistry and take appropriate action in accordance with the EPRI guidance and plant procedures. Our inspectors will follow up to ensure that the licensee follows their reactor water chemistry procedures.

Sincerely,

Ray McKinley
Chief, Division of Reactor Projects Branch 5
U.S. NRC Region I

From: Mary Lampert [<mailto:mary.lampert@comcast.net>]

Sent: Monday, February 23, 2015 10:43 AM

To: McKinley, Raymond

Cc: michal freedhoff; Dave Lochbaum

Subject: comments and questions regarding Pilgrim's delay in restart - tube plugs falling out.

Hello Ray:

Attached please find some comments and questions regarding Pilgrim's delay in restart - tube plugs falling out.

Also do you have a date for NRC's March public meeting in Plymouth; and will the NRC's evaluation of its recent inspection be available before the meeting so that comments may be better informed?

Thanks and enjoy the day.

Mary