

February 12, 2003

MEMORANDUM TO: John A. Nakoski, Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Stephen R. Monarque, Project Manager, Section 1
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Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF JANUARY 15, 2003, CONFERENCE CALL WITH
VIRGINIA ELECTRIC AND POWER COMPANY TO DISCUSS THE
UNIDENTIFIED LEAKAGE AT NORTH ANNA POWER STATION,
UNIT 1

On January 15, 2003, the U.S. Nuclear Regulatory Commission (NRC) staff held a telephone conference call with Virginia Electric and Power Company (VEPCO) to obtain additional information regarding the source of unidentified reactor coolant system leakage occurring at North Anna Power Station, Unit 1. As a result of VEPCO's previous responses to NRC Bulletin 2002-02, "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzle Inspection Programs," the NRC staff wanted to investigate the source of this leakage and determine if there was any impact on the condition of the reactor vessel head.

During the call, VEPCO informed the NRC staff that it had discovered the cause of the unidentified reactor coolant leakage. Two leaking primary grade water system valves were providing an uncontrolled flow into the reactor coolant pump seal leakoff standpipe. This resulted in increased flow from the standpipe to the primary drain transfer tank, which is used, in part, to calculate the volume of identified and unidentified reactor coolant system leakage. As a result of this uncontrolled flow to the primary drain transfer tank, VEPCO had observed changes to unidentified and identified leak rates. In an effort to reduce the unidentified leak rate, VEPCO conducted operational testing of the primary grade water system. When the primary grade water system was removed from service, the unidentified leak rate increased to 0.066 gpm. After the primary grade water system was placed back into service, the unidentified leak rate decreased to 0.023 gpm. VEPCO stated that during this time there was no change to the total leak rate of 0.12 gpm, which is a summation of the identified and unidentified leak rates. VEPCO intends to repair these two valves during the spring 2003 refueling outage.

The NRC staff and VEPCO then discussed the NRC staff's questions that related to this matter.

NRC Staff Question 1

What, if any, are the safety implications from the change in unidentified leak rate?

VEPCO's Response

This leak did not present any safety implications. The cause of the change to the unidentified leakage has been determined to be the leaking valves from the primary water grade system, which added makeup water to the primary drain transfer tank. While this leakage has resulted in changes to the identified and unidentified leak rates, there has been no change to the total leak rate of 0.12 gpm for the reactor coolant system. The primary water grade system leakage is not accumulating on or contributing to the degradation of the reactor vessel head.

NRC Staff Question 2

What is the detection sensitivity of the equipment used to monitor unidentified leakage?

VEPCO's Response

VEPCO indicated that 0.2 gpm was the limit of detection sensitivity for unidentified leakage.

NRC Staff Question 3

How does the increase in unidentified leakage fit within the context of your justification for continued operation dated October 18, 2002?

VEPCO's Response

VEPCO indicated that the present leakage was consistent within the statistical values used to calculate the 0.2 gpm action level stated in the October 18, 2002, submittal and that the total leak rate has not deviated from the 0.12 gpm value.

NRC Staff Question 4

Have there been increases in the radiation, humidity, or sump levels within the containment? If so, what is the change in each and what are the implications of these changes?

VEPCO's Response

VEPCO indicated there have been no increases in the radiation, humidity, or sump levels.

NRC Staff Question 5

Have you determined the source of the increase in unidentified leakage? What is the basis for your determination?

VEPCO's Response

VEPCO informed the NRC staff that two leaking primary grade water system valves were providing an uncontrolled flow into the reactor coolant pump seal leakoff standpipe. This resulted in increased flow from the standpipe to the primary drain transfer tank. As a result of the increased flow to the primary drain transfer tank, which is used to calculate the identified

and unidentified reactor coolant system leakage, VEPCO conducted operational testing of the primary grade water system. When the primary grade water system was isolated from the standpipe, the unidentified leak rate was 0.066 gpm. After primary grade water system was not isolated from the standpipe, the unidentified leak rate decreased to 0.023 gpm.

NRC Staff Question 6

Has boric acid or iron oxide been detected by the filter paper or process radiation monitors?

VEPCO's Response

VEPCO stated there have been no such indications found on these items.

NRC Staff Question 7

What are your plans if the leakage continues to increase?

VEPCO's Response

VEPCO stated that if the unidentified leak rate doubled, VEPCO management will be notified and plant-specific procedures would be implemented. If the unidentified leakage exceeds 0.2 gpm, then the action levels described in the October 18, 2002, submittal would be implemented. These actions would include containment entry to conduct inspection and performing an engineering evaluation of the leak rate.

NRC Staff Question 8

Does this leakage have any impact upon your decision as to when you will start your next outage?

VEPCO's Response

No, VEPCO will start the outage in the spring of 2003.

Conclusion

Based upon the information that VEPCO has provided to the NRC staff, the staff concludes that this source of unidentified leakage did not originate from the reactor vessel head penetration nozzles and is not contributing to the degradation of the reactor vessel head. The changes in unidentified leakage were attributed to changes to the identified leakage, which is partly based upon the volume of reactor coolant collected in the primary drain transfer tank. At no time was there any change to the total leak rate, which is the sum of the identified and unidentified leak rates. After the conference call had concluded, VEPCO was able to achieve an unidentified leak rate of zero by performing additional operational changes to the seal flow system.

Docket No. 50-338

Attachment: List of Conference Call Participants

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CONFERENCE CALL ON JANUARY 15, 2003

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ATTACHMENT