UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 24, 2015

Mr. Eric A. Larson, Site Vice President
FirstEnergy Nuclear Operating Company
Beaver Valley Power Station
Mail Stop A-BV-SEB1
P.O. Box 4, Route 168
Shippingport, PA 15077

SUBJECT: SUMMARY OF OCTOBER 13, 2015, CONFERENCE CALL WITH FIRSTENERGY NUCLEAR OPERATING COMPANY REGARDING THE FALL 2015 STEAM GENERATOR INSPECTIONS AT BEAVER VALLEY POWER STATION, UNIT 2 (CAC NO. MF6630)

Dear Mr. Larson:

On October 13, 2015, the U.S. Nuclear Regulatory Commission (NRC) staff participated in a conference call with representatives of FirstEnergy Nuclear Operating Company (the licensee) regarding the ongoing steam generator inspection activities at the Beaver Valley Power Station, Unit 2. A list of the participants is provided (Enclosure 1). A list of questions discussed during the call is provided in the conference call summary (Enclosure 2).

Based on the information provided by the licensee, the NRC staff did not identify any issues that warranted immediate followup action. However, the NRC staff asked to be notified in the event that any unusual conditions were detected during the remainder of the outage, including whether any in-situ tests were performed.

If you have any questions regarding this matter, I may be reached at (301) 415-7128 or Taylor.Lamb@nrc.gov.

Sincerely,

Taylor A. Lamb, Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-412

Enclosures:
1. List of Participants
2. Conference Call Summary

cc w/enclosures: Distribution via Listserv

LIST OF PARTICIPANTS

OCTOBER 13, 2015, CONFERENCE CALL

WITH FIRSTENERGY NUCLEAR OPERATING COMPANY

BEAVER VALLEY POWER STATION, UNIT 2

FALL 2015 STEAM GENERATOR INSPECTIONS

NUCLEAR REGULATORY COMMISSION

Andrew Johnson
Ken Karwoski
Alan Huynh
Taylor Lamb

FIRSTENERGY NUCLEAR OPERATING COMPANY

Gary Alberti
John Ostrowski
William Cullen
Lauren Zalesny
Phil Lashley

Enclosure 1

CONFERENCE CALL SUMMARY

REGARDING BEAVER VALLEY POWER STATION, UNIT 2

FALL 2015 STEAM GENERATOR INSPECTIONS

DOCKET NO. 50-412

On October 13, 2015, the staff of the Steam Generator Tube Integrity and Chemical Engineering Branch of the Division of Engineering, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission (NRC), participated in a conference call with FirstEnergy Nuclear Operating Company (the licensee) regarding the ongoing steam generator (SG) tube inspection activities at the Beaver Valley Power Station, Unit 2 (BVPS-2). The licensee provided draft information for the outage call in response to the NRC staff's August 27, 2015, letter (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15236A089) and then subsequently updated the information after the call. The updated information provided by the licensee is located in ADAMS Accession No. ML15294A329.

BVPS-2 is a three-loop plant with Westinghouse Model 51M SGs. Each SG contains 3,376 mill-annealed Alloy 600 tubes with a nominal outside diameter of 0.875 inches and a nominal wall thickness of 0.050 inches. The tubes are supported by a number of carbon steel tube support plates and Alloy 600 anti-vibration bars. The tubes were roll expanded for the full depth of the tubesheet. The entire length of tube interior within the tubesheet was shot-peened on both the hot-leg and cold-leg side of the SG prior to operation. In addition, the U-bend region of the small radius tubes were in-situ stress relieved prior to operation.

In addition to the depth-based tube repair criteria, the licensee is also authorized to apply the voltage-based tube repair criteria for predominantly axially-oriented outside diameter stress corrosion cracking (ODSCC) at the tube support plate elevations. In addition, the licensee is authorized to leave flaws within the tubesheet region in service, provided they satisfy the F* repair criterion.

The following abbreviations are used in the document provided by the licensee:

- 2R18 = Unit 2 Refueling Outage 18
- $3\Delta P_{normop}$ = Three times the normal operating differential pressure
- +Pt = Plus Point Probe
- AVB = Anti-vibration Bars
- BLG = Bulge
- CIRC = Circumferential
- DSI = Distorted Tube Support Plate Signal with Possible Indication
- DNG = Ding
- EPRI = Electric Power Research Institute
- ETSS = Examination Technique Specification Sheet
- FOSAR = Foreign Object Search and Retrieval
- GL = Generic Letter
- HF = High Frequency

- ISPT = In-situ Pressure Test
- MAX = Maximum
- MBM = Manufacturing Burnish Mark
- MR = Mid-range
- ODSCC = Outside Diameter Stress Corrosion Cracking
- OXP = (Tubesheet) Over-expansion
- RPC = Rotating Pancake Coil
- PLP = Possible Loose Part
- PWSCC = Primary Water Stress Corrosion Cracking
- SCC = Stress Corrosion Cracking
- SG = Steam Generator
- TSP = Tube Support Plate
- TTS = Top of Tubesheet
- TW = Through Wall
- V = Volts
- Vvm = Maximum Vertical Voltage

Additional information discussed during the conference call and not included in the document provided by the licensee is summarized below.

- Regarding the information provided in Table 4-2 for the response to question 4, the licensee clarified that 100 percent of the 94 installed sleeves were inspected, and no indications were found.

- In its response to question 5, the licensee clarified that the maximum +Point™ voltage and maximum length values provided (for axial and circumferential outside diameter stress corrosion cracking) may not be from the same indication.

- The licensee clarified that its ding cracking exam used a one-volt reporting criterion. There were no dings with cracking indications found by bobbin inspection that were confirmed by +Point™, and there were no non-quantifiable indications found.

- After one indication of primary water stress corrosion cracking (PWSCC) was found in the U-bend region of a tube in SG C, the licensee expanded the scope of inspection to 100 percent of the tubes in rows 3 through 10 of SG C. The tube with the PWSCC indication was last inspected in 2011, and upon review, a small precursor indication could be identified in the 2011 inspection data. Scope expansion into SGs A and B was not required because of the small arc length of the indication, due to operating experience with these types of indications (at the Diablo Canyon Nuclear Power Plant, Salem Nuclear Generating Station, and Comanche Peak Steam Electric Station), and because indications in this region of the U-bend are inherently self-limiting, due to the stress profile in the tube in this area.

- The foreign object search and retrieval inspection were complete in all SGs at the time of the call. The licensee clarified that the total number of foreign objects found was eight, one of which was metallic.

- The licensee clarified that the circumferential outside diameter stress corrosion crack indication (found at the hot-leg top-of-tubesheet in SG B and discussed under response to question 7) was proof tested on October 12, 2015, and showed no leakage at any of the test pressures. A rotating probe exam was performed after the proof test and the indication showed no change.

- The licensee noted that during refueling outage 10, 100 percent of rows 3 through 10 were inspected with a +Point™ probe.

- A primary channel head visual inspection was completed in response to the operating experience discussed in Nuclear Safety Advisory Letter 12-1. All welds within the primary channel head associated with the divider plate on both the hot-leg and cold-leg sides of the SGs were inspected, and no degradation was found.

- The current inspection period only has three outages, whereas the previous inspection period had four outages. To ensure 100 percent of the U-bends in rows 3 through 10 are inspected during the current inspection period, the licensee planned to perform inspections of 25 percent, 42 percent, and 33 percent of these U-bends during the three outages.

The NRC staff did not identify any issues that required followup action at this time. However, the NRC staff asked to be notified in the event that any unusual conditions were detected during the remainder of the outage.

November 24, 2015

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Based on the information provided by the licensee, the NRC staff did not identify any issues that warranted immediate followup action. However, the NRC staff asked to be notified in the event that any unusual conditions were detected during the remainder of the outage, including whether any in-situ tests were performed.

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Sincerely,

/RA/

Taylor A. Lamb, Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
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ADAMS Accession No.: ML15320A391 *by memo

OFFICE	NRR/LPLI-2/PM	NRR/LPLI-2/LA	DSS/ESGB/BC*	NRR/LPL1-2/BC	NRR/LPL1-2/PM
NAME	TLamb	LRonewicz	GKulesa (PKlein for)	DBroaddus	TLamb
DATE	11/18/15	11/17/15	11/9/15	11/24/15	11/24/15

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