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SUBJECT: Forwards response to 931004 ltr & provides scope of Unit 3 ECT insp prior to commencing insp.

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Arizona Public Service Company
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102-02730-JML/RAB/JRP
November 17, 1993

JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

U. S. Nuclear Regulatory Commission
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Washington, D. C. 20555

Reference: Letter dated October 4, 1993, from B. H. Faulkenberry, Regional Administrator, Region V, USNRC, to W. F. Conway, Executive Vice President, Nuclear, APS

Dear Sirs:

Subject: **Palo Verde Nuclear Generating Station (PVNGS)**
Unit 3
Docket No. STN 50-530
Unit 3 Steam Generator Tube Inspection Plan
File: 93-056-026

By letter dated October 4, 1993 (Reference), the NRC required that Arizona Public Service Company (APS) provide the scope of the Unit 3 Eddy Current Testing (ECT) inspection prior to commencing the inspection. The enclosure to this letter contains the initial inspection scope, the basis for the initial scope, and the criteria for expansion.

Should you have any questions, please contact Richard A. Bernier at (602) 393-5882.

Sincerely,

James M. Levine

JML/RAB/JRP/rv
Enclosure

cc: W. F. Conway
B. H. Faulkenberry
B. E. Holian
J. A. Sloan

A001

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, J. M. Levine, represent that I am Vice President Nuclear Production, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority to do so, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true and correct.

J. M. Levine

Sworn To Before Me This 17th Day Of November, 1993.

Notary Public

My Commission Expires

May 16, 1994

ENCLOSURE

UNIT 3

STEAM GENERATOR TUBE INSPECTION PLAN

UNIT 3 STEAM GENERATOR TUBE INSPECTION PLAN

The Unit 3 Steam Generators will be inspected in the mid-cycle outage (U3M4) for tube defects using Eddy Current Testing (ECT) technology as opposed to ultrasonic or other NDE methods. The initial inspection scope, the basis for initial scope, and criteria for scope expansion are described below:

Initial Scope

- Approximately 3800 tubes in the analytical arc as defined by the Unit 2 Steam Generator Tube Rupture Analysis Report will be inspected full length with bobbin coil.
- 20% Tubesheet Hot (TSH) will be inspected with Motorized Rotating Pancake Coil (MRPC)
- Batwing 1 (BW1) to the first vertical support will be inspected with MRPC (Approximately 200 tubes in the highest susceptible area of the arc).
- 08H to the first vertical support will be inspected with MRPC (Tubes identified from U3R3 ECT data with unresolved ECT signatures).

Basis for Initial Scope and Criteria for Expansion

The tube pull results from U2R4 inspection indicated that the bobbin probe is an effective method of scanning for critical axial indications of the type seen in Unit 2. The detectability studies conducted in Unit 2 indicate that the bobbin coil technique provides a detectability threshold of approximately 50% throughwall in straight runs of tubing. Since the period of operation from the end of the mid-cycle outage to the next refueling outage is approximately four months, it is not deemed necessary to perform extensive MRPC inspection for the marginal increase in detection sensitivity.

The MRPC sample program of 200 tubes will be performed to confirm the expected sensitivity of the bobbin coil probe in the bend region (BW1 to the first vertical support). Mock-up testing of square bends using Electro-Discharge Machining (EDM) slots indicates a bobbin threshold of approximately 60% throughwall in the bend region. Expansion of MRPC to the full 1800 tube arc program conducted in Unit 1 will be performed if a No Bobbin Indication (NBI) axial crack is detected which is predicted to exceed Regulatory Guide (RG) 1.121 limits.

The mid-cycle inspection is not a surveillance inspection as defined in PVNGS Technical Specifications. However, the criteria for expansion must be adequate to ensure marginal tubes are identified while recognizing that a full surveillance test inspection will be performed in U3R4, approximately four months after the mid-cycle outage. Therefore, the following expansion criteria are established:

- A buffer zone of five tubes without axial crack indications will be maintained from the edge of the bobbin inspected area.
- MRPC will be conducted to resolve "I" code indications (NQI, DTI, SVI, and DSI).[1]
- Any circumferential crack at the hotleg tubesheet triggers a 100% MRPC of the hotleg tubesheet area of the affected steam generator.
- The Unit 1 arc program of 1800 tubes will be examined by MRPC from the 08H to the vertical support region if an NBI axial crack is detected which is predicted to exceed the RG 1.121 limits.

Tubes will not be pulled from Unit 3 Steam Generators during U3M4 unless a new unexplained failure mechanism is identified by ECT inspection or tube samples are necessary to show compliance with RG 1.121.

No visual examination of Unit 3 Steam Generators secondary side will be conducted in U3M4 as the six inch handholes will not be installed until the next refueling outage.

Conam will be the vendor used to conduct ECT in the U3M4 outage. There will be no experimental alternate inspection technologies used during U3M4.

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1 NQI - Non-Quantifiable Indication; DSI - Distorted Support Signal with Indication; DTI - Distorted Top of Tubesheet with Indication; SVI - Single Volumetric Indication.