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SUBJECT: Submits commitments made in response to NUREG-0619, re "BWR
 Feedwater Nozzle & CR Drive Return Line Nozzle Cracking."
 WNP-2 Feedwater Nozzle insp rept for R-12 maintenance &
 refueling outage attached.

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P.O. Box 968 • Richland, Washington 99352-0968

January 2, 1998
GO2-98-001

Docket No. 50-397

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Gentlemen:

Subject: **WNP-2, OPERATING LICENSE NPF-21
FEEDWATER NOZZLE INSPECTION REPORT
R-12 MAINTENANCE AND REFUELING OUTAGE**

The WNP-2 Feedwater Nozzle Inspection Report for the R-12 Maintenance and Refueling Outage is attached. This report is submitted pursuant to commitments made in response to NUREG-0619, "BWR Feedwater Nozzle and Control Rod Drive Return Line Nozzle Cracking."

Should you have any questions or desire additional information pertaining to this report, please call me or P.J. Inserra at (509) 377-4147.

Respectfully,


R.R. Bemis

Vice President, Nuclear Operations
Mail Drop PE23

Attachment

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WNP-2 FEEDWATER NOZZLE INSPECTION REPORT R-12 MAINTENANCE AND REFUELING OUTAGE

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I. Introduction

This report is submitted pursuant to the Supply System response to NUREG-0619, where we committed to perform ultrasonic examinations of at least one of the six feedwater nozzle inner radii, bore and safe-end regions from the reactor outside diameter each refueling outage.¹

The report covers the period from May 16, 1996 to June 30, 1997 and includes reactor vessel feedwater nozzle inspections performed during the WNP-2 R-12 Maintenance and Refueling Outage (Spring 1997).

As with all previous examinations, no unacceptable indications were found during this inspection period.

II. Report Details

These report details are formatted in accordance with the reporting guidance of Section 4.4.3.1(2) of NUREG-0619.

- (a) Number of startup/shutdown cycles since the previous inspection, and total number of cycles.

There were two startup/shutdown cycles from the date of the previous feedwater nozzle inner radius examination (Spring 1996) to when the plant was shutdown in March 1997 for the R-12 Maintenance and Refueling Outage.

The total number of reactor feedwater thermal cycles, due to startups and shutdowns since initial heatup in April 1984, is 61.

- (b) Summary of methods used and results of previous inspections.

The Supply System has developed an angle beam shear wave technique that is unique to the WNP-2 feedwater nozzle design. The technique was qualified on the WNP-2 feedwater mock-up, which is a feedwater nozzle from the terminated Douglas Point Unit 1 reactor vessel. The inner radius, Zone 1, of the nozzle is scanned using a 70-degree angle transducer. The inner radius, Zone 2, and bore region, Zone 3, are scanned using a 25-degree angle transducer.

¹ Letter G02-82-036, dated January 13, 1982, GD Bouchey (SS) to A Schwencer (NRC), "WNP-2 Response to NUREG-0619."

WNP-2 FEEDWATER NOZZLE INSPECTION REPORT R-12 MAINTENANCE AND REFUELING OUTAGE

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The ultrasonic testing (UT) procedure used for the examinations is Supply System NDE&I Instruction QCI 6-4 "Ultrasonic Examination of Feedwater Nozzle Inner Radii." Any changes to this procedure that affect UT scanning techniques are verified on the feedwater nozzle mock-up.

Calibration data for reactor feedwater nozzle inner radius examinations have also been predetermined using the WNP-2 feedwater nozzle mock-up. This allows the examiner to use the reactor vessel calibration block representing the shell course containing the feedwater nozzle for calibration.

Indications that exceed 25 percent full-screen-height are recorded. Indications that exceed 50 percent full-screen-height are evaluated.

No unacceptable indications were detected from these feedwater nozzle inner radius examinations.

- (c) Changes in feedwater system or operating procedures that will affect feedwater flow or temperature.

There were no changes to the system or method of operation that could potentially increase the tendency for nozzle cracking.

- (d) Inspection results.

During the R-12 Maintenance and Refueling Outage, ultrasonic examination of one reactor feedwater nozzle inner radius, bore and nozzle-to-safe-end weld at azimuth 30 from the vessel outside diameter was performed.

The examinations were performed by Supply System and General Electric examiners. These examiners were certified to either Level II or Level III UT.

As with all previous feedwater nozzle inner radius examinations, no unacceptable indications were found.

- (e) Leakage monitoring.

We do not have on-line leakage monitoring for the reactor feedwater sparger.

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- (f) Information regarding all UT crack-like indications and any subsequent liquid penetrant information.

No crack-like indications were observed.

III. Next Scheduled Examination

The next examination is scheduled for the R-13 Maintenance and Refueling Outage (Spring 1998).

IV. References

1. NUREG-0619, "BWR Feedwater Nozzle and Control Rod Drive Return Line Nozzle Cracking."
2. Letter GO2-82-036, dated January 13, 1982, GD Bouchey (SS) to A Schwencer (NRC), "WNP-2 Response to NUREG-0619."
3. WNP-2 FSAR, Section 5.2.4, "Inservice Inspection and Testing of the Reactor Coolant Pressure Boundary."
4. WNP-2 FSAR, Section 5.2.4.10.2, "Inservice Examination."
5. WNP-2 FSAR, Section 5.2.4.10.4, "Recording and Reporting Standards."