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Nuclear LLC

SEP 0 6 2002

LR-N02-0297

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

RESPONSE TO NRC BULLETIN 2002-02
REACTOR PRESSURE VESSEL HEAD AND VESSEL HEAD
PENETRATION NOZZLE INSPECTION PROGRAMS
SALEM GENERATING STATION UNITS 1 AND 2
FACILITY OPERATING LICENSES NOS. DPR-70 AND DPR-75
DOCKET NOS. 50-272 AND 50-311

On August 9, 2002 the NRC issued Bulletin 2002-02, "Reactor Pressure Vessel Head And Vessel Head Penetration Nozzle Inspection Programs," requiring PWR licensees to submit within 30 days of the date of this bulletin, (1) a summary discussion of the supplemental inspections to be implemented in their programs or (2) if no changes are to be implemented with respect to their programs, justification for reliance on visual examinations as the primary method to detect degradation.

The required 30-day response is included as Attachment 1 to this letter. Commitments contained in this letter include (1) performance of a 100% bare metal visual examination of the top of the heads for both Salem Unit 1 and Unit 2 during the next refueling outages, and (2) providing results of those examinations within 30 days after plant restart.

Should you have any questions regarding this response, please contact Mr. Michael Mosier at (856) 339-5434.

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I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 6, 2002

Sincerely,

John Carlin
Vice President Nuclear Reliability

/MGM

Attachment

C: Mr. H. J. Miller, Administrator - Region i
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1. Within 30 days of the date of this bulletin:

Requested Information:

A. PWR addressees who plan to supplement their inspection programs with non-visual NDE methods are requested to provide a summary discussion of the supplemental inspections to be implemented. The summary discussion should include EDY, methods, scope, coverage, frequencies, qualification requirements, and acceptance criteria.

PSEG Response:

PSEG Nuclear LLC (PSEG) has evaluated the current status of Salem 1 and 2 with respect to Effective Degradation Years (EDY). Salem 1 is predicted to be equal to 11.9 EDY at the next refueling outage (1R15), currently scheduled for October 2002. Salem 2 is predicted to be equal to 10.3 EDY at the next refueling outage (2R13) currently scheduled for October 2003. This places both Salem 1 and 2 in the category of greater than or equal to 8 EDY and less than or equal to 12 EDY as shown on the example table in this Bulletin.

The EDY for Salem Units 1 and 2 were reported in MRP-48 (Reference 1). As of February 28, 2001 the EDY reported in MRP-48 were 10.6 and 8.3 respectively. Using the same methodology used in MRP-48, the EDY for Salem Units 1 and 2 were calculated at 1R15 and 2R13. The results are given above. The primary inputs used to calculate EDY are (1) EFPY accumulated during operation at each distinct reactor head temperature, and (2) those distinct reactor head temperatures.

In MRP-48, electric power production output data was used to calculate EFPY. In this response to the bulletin, core thermal power data was used to determine EFPY. Core thermal power data is considered to give a more accurate and conservative value when assessing reactor vessel aging than electric output. Actual core thermal power data were used up to August 18, 2002 and projected data, assuming 100 percent power output, was used to project to 1R15 and 2R13. The calculated EDY utilizes Westinghouse calculated head temperatures for each cycle for Salem Units 1 and 2 as shown on Table 1 below. Those calculations used PSEG-supplied operating data to determine actual head temperatures experienced in the plant. MRP-48 used the maximum head temperature since initial plant operation.

Table 1
Cycle Specific Head Temperatures

Salem Unit 1	
Cycle 1 to 8	594.8°F
Cycle 9 to 6-27-01 (Uprate)	594.2°F
6-27-01 to 1R15 (10-12-02)	594.7°F
Salem Unit 2	
Cycle 1 to 5	592.9°F
Cycle 6 to 6-5-01 (Uprate)	593.6°F
6-5-01 to 2R13 (10-11-03)	594.1°F

Based on the results of the EDY calculation (Reference 2) and consistent with the Bulletins example matrix, PSEG plans to perform a 100% bare metal visual (BMV) inspection of the Salem Unit 1 and 2 Reactor Pressure Vessel (RPV) heads during 1R15 and 2R13, respectively. PSEG is committed to understanding the Davis Besse phenomenon. We are currently evaluating and actively participating in industry efforts to address Reactor Pressure Vessel (RPV) head degradation issues. PSEG anticipates conducting future inspections consistent with that proposed in the Bulletin example matrix; however, due to the shifting understanding of the phenomenon, technical advances in examination technique, and possible rulemaking changes, we will formally communicate detailed changes in inspection program methodology, if any, for outages beyond 1R15 and 2R13, at a later date.

The BMV inspections will be performed by qualified examiner(s). All vessel head penetration CRDM nozzles will be examined within the capability of detecting and discriminating small amounts of boric acid deposits from CRDM nozzle leaks, such as were identified at Oconee Unit 2 (ONS2) and Unit 3 (ONS3) and other units. The inspections are expected to provide reasonable confidence that primary water stress corrosion cracking (PWSCC) degradation would be identified prior to posing an undue risk. The BMV examinations of Salem Units 1 and 2 RPV heads are not expected to be compromised by the presence of insulation, existing deposits on the RPV head, or other factors that could interfere with the detection of leakage.

If boric acid deposits are detected, based on the top-of-reactor head BMV examination, and the source of the boric acid deposits is determined to be the CRDM nozzle(s) and/or J-groove weld(s) under the reactor head, PSEG,

using available technology, will characterize the degradation and perform a supplemental inspection in accordance with the program delineated in the example matrix for Units in the greater than 12 EDY category. Appropriate repair methods will be utilized depending on crack location.

A report will be submitted within 30 days after restart of the Unit.

References

1. PWR Materials Reliability Program Response to NRC Bulletin 2001-01 (MRP-48), EPRI, Palo Alto, CA: 2001. 1006284.

2. Salem Calculation, S-C-RC-MDC-1928, Rev. 0, "Determination of Effective Degradation Years (EDY) at RFO 1R15 (Salem Unit 1) and 2R13 (Salem Unit 2).