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LR-N05-0005

PSEG Nuclear LLC

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING APPROVAL TO EXTEND THE RISK-INFORMED INSERVICE INSPECTION PROGRAM SALEM NUCLEAR GENERATING STATION, UNIT NO. 2 FACILITY OPERATING LICENSE NO. DPR-75 DOCKET NO. 50-311

Reference: 1. LR-N04-0230, Extension of Risk-Informed Inservice Inspection Applicability Salem Generating Station Unit 2, dated July 12, 2004.

2. NRC Request for Additional Information Regarding Approval to Extend the Risk-Informed Inservice Inspection Program, dated December 14, 2004.

By letter dated July 12, 2004, PSEG Nuclear LLC (PSEG) requested an extension of the Risk-Informed Inservice Inspection (RI-ISI) Program for Salem Unit 2 to include the third 10-year interval. NRC letter dated December 14, 2004, requested additional information. Attachment 1 contains PSEG's response to the request for additional information.

If you have any questions or require additional information, please contact Mr. Michael Mosier at (856) 339-5434.

Sincerely,

Christina L. Perino
Director – Licensing and Nuclear Safety

Attachment

A047

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REQUEST FOR ADDITIONAL INFORMATION

REGARDING APPROVAL TO EXTEND

THE RISK-INFORMED INSERVICE INSPECTION PROGRAM

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

DOCKET NO. 50-311

By letter dated July 12, 2004, PSEG Nuclear LLC (PSEG), the licensee for the Salem Generation Station (SGS), Unit No. 2, requested approval to continue the use of its alternative risk-informed inservice inspection (RI-ISI) program for the SGS, Unit No. 2 inservice inspection (ISI) program. The proposed RI-ISI program at SGS is limited to certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Class 1 and 2 welds.

The SGS RI-ISI program was developed in accordance with Electric Power Research Institute (EPRI) Topical Report TR-112657, Revision B-A, using the Nuclear Energy Institute's template methodology. The Nuclear Regulatory Commission (NRC) has been reviewing the application and has determined that the following information is required in order to complete our review.

Question 1

Discuss and provide information on any welds that were selected for inspection in the RI-ISI program, approved by the NRC staff in Reference 1, that have been removed from the population of welds that will be inspected during the third ten-year ISI interval.

Response:

Salem Unit 2 code of record is ASME XI 1998 Edition, up through and including 2000 Addenda per 10CFR50.55a (g). In anticipation of the start of the Salem Unit 2 third ten-year ISI interval, Salem Unit 2 included RI-ISI Program considerations for updating to the ASME XI 1998 Edition, up through and including 2000 Addenda when the RI-ISI Program was initially prepared during the second ten-year interval.

Changes, modifications, addition or removal of Class 1 or 2 RI-ISI piping welds from the population of welds previously approved by the NRC staff in Reference 1 is conducted in accordance with industry published

guidance (NEI 04-05, Living Program Guidance To Maintain Risk-Informed Inservice Inspection Programs For Nuclear Plant Piping Systems) and PSEG Nuclear procedure SH.RA-AP.ZZ-0005(Q), "Risk Informed Inservice Inspection Program for Class 1 and 2 and Break Exclusion Region (MEB 3-1) Piping Welds". As of January 5, 2005, PSEG Nuclear has not needed to make any major RI-ISI Program changes as a result of plant modifications or removed any Class 1 or 2 RI-ISI piping welds from the population of welds previously approved by the NRC staff in Reference 1.

During the second ten-year interval, third period, second outage (2R13 refueling outage, Fall 2003) it was necessary to exchange approximately nine (9) Class 1 or 2 RI-ISI piping welds for similar welds due to accessibility issues associated with component support clamps interfering with welds NDE exams. The welds chosen for examination were classified alike (e.g., same risk matrix classification), using the same treatment criteria (examination methods and volumes) as those originally selected using Reference 1. These exchanged locations are scheduled for re-examination again during this third ten-year interval (Attachment 1, Appendix A).

Question 2

Discuss and provide information on any welds that were not selected for inspection in the RI-ISI program, approved by the NRC staff in Reference 1, that have been added to the population of welds that will be inspected during the third ten-year interval.

Response:

See response to Question 1.

Question 3

Explain any methods of inspection changes for any welds in the licensee's RI-ISI program since its approval by the NRC staff in Reference 1.

Response:

Salem Unit 2 is committed to using ASME XI 1998 Edition, up through and including 2000 Addenda per 10CFR50.55a (g). In anticipation of the start of the Salem Unit 2 third ten-year ISI interval, Salem Unit 2 included RI-ISI Program considerations for updating to the ASME XI 1998 Edition, up

through and including 2000 Addenda when the RI-ISI Program was initially prepared during the second ten-year interval. As of January 5, 2005, Salem Unit 2 has not needed to make any changes or modifications or removed any Class 1 and 2 RI-ISI piping welds nondestructive examination (NDE) methods for those items previously approved by the NRC staff in Reference 1. Salem Unit 2 conducts ultrasonic testing of Class 1 and 2 RI-ISI piping welds using satisfactorily demonstrated Performance Demonstration Initiative (PDI) Program state of the art exam techniques and methodology to the extent practical. Surface examinations (PT) for RI-ISI are required to be performed on piping locations identified as susceptible to external chloride stress corrosion cracking (ECSCC).

Changes, modifications or removal of Class 1 or 2 RI-ISI piping welds from the population of welds previously approved by the NRC staff in Reference 1 is conducted in accordance with industry published guidance (NEI 04-05, Living Program Guidance To Maintain Risk-Informed Inservice Inspection Programs For Nuclear Plant Piping Systems) and PSEG Nuclear procedure SH.RA-AP.ZZ-0005(Q), "Risk Informed Inservice Inspection Program for Class 1 and 2 and Break Exclusion Region (MEB 3-1) Piping Welds".

Question 4

Given recent and ongoing industry events involving welds that contain filler metal Alloy 82/182, provide a description of any welds, covered under the RI-ISI program that contain Alloy 82/182 filler metal. In addition, indicate the level of inspection the Alloy 82/182 filler metal receive under the SGS RI-ISI Program. If these welds do not receive a surface examination and 100% volumetric examination, please justify the inspection methods used.

Response:

PSEG Nuclear is committed to supporting the NEI Materials Initiative (NEI 03-08) and as such, has established a process (NC.ER-DG.ZZ-0308(Z)) for providing the framework for implementing NEI 03-08; "Guideline for the Management of Materials Issues". A key element of the PSEG desktop guide is to ensure that "Mandatory" and "Needed" actions, as defined in the NEI Strategic Plan, dated May 2004, are captured in the appropriate procedures, tracking systems or self-assessment programs. Additionally, the process ensures that evaluations of "Mandatory" and "Needed" actions are documented in accordance with the Corrective Action Program.

Salem Unit 2 expects to comply with the Material Reliability Program's Primary System Piping Butt Weld Inspection and Evaluation Guideline (MRP-139) forthcoming stated "Mandatory" and "Needed" actions, when it becomes officially published.

Salem Unit 2 complies with EPRI final report dated December 1999, TR-112657 Rev. B-A, "Revised Risk Informed Inservice Inspection Evaluation Procedure", that requires VT-2 visual examination. Salem Unit 2 complies with MRP Letter 2004-05, dated April 2, 2004, that contained a "Needed" action for the performance of a bare metal direct visual inspection of all Alloy 82/182 pressure boundary butt weld locations that normally operate at greater than 350-degrees F in the primary system within the next two refueling outages. PSEG has committed to performing these inspections without exception.

During 2R13 (Fall 2003) Salem Unit 2 conducted ultrasonic and liquid penetrant exams of the eight (8) total hot and cold leg nozzle to safe-end welds. In addition, an augmented EVT-1 visual examination was also conducted of the inner diameter. The completed NDE exams of these welds found no evidence of component degradation.

Changes, modifications or removal of Class 1 or 2 RI-ISI piping welds from the population of welds previously approved by the NRC staff in Reference 1 is conducted in accordance with industry published guidance (NEI 04-05, Living Program Guidance To Maintain Risk-Informed Inservice Inspection Programs For Nuclear Plant Piping Systems) and PSEG Nuclear procedure SH.RA-AP.ZZ-0005(Q), "Risk Informed Inservice Inspection Program for Class 1 and 2 and Break Exclusion Region (MEB 3-1) Piping Welds".

Question 5

Based on Section 4 of Reference 2, you stated that, as a minimum, risk ranking of piping segments will be reviewed and adjusted on an ASME Code period basis. Please provide a discussion on the potential change in risk between the RI-ISI program proposed for implementation in the third ISI interval and the ASME Section XI requirements from which relief was granted in Reference 1. Furthermore, if inspections were discontinued or relocated between the second and third intervals' RI-ISI programs, provide an estimate of the change in risk. Finally, provide assurance that the total change in and system level change in risk estimates for the

proposed third ISI interval program are within the acceptance guidelines of Reference 3.

Response:

Changes, modifications or removal of Class 1 or 2 RI-ISI piping welds from the population of welds previously approved by the NRC staff in Reference 1 are conducted in accordance with industry published guidance (NEI 04-05, Living Program Guidance To Maintain Risk-Informed Inservice Inspection Programs For Nuclear Plant Piping Systems) and PSEG Nuclear procedure SH.RA-AP.ZZ-0005(Q), "Risk Informed Inservice Inspection Program for Class 1 and 2 and Break Exclusion Region (MEB 3-1) Piping Welds".

The exchange of approximately nine (9) Class 1 or 2 RI-ISI piping welds indicated in response to Questions 1 and 2, for other similar welds did not result in any potential change in risk between the RI-ISI program and ASME Section XI because the welds chosen for examination were classified alike using the same criteria as those originally selected using Reference 1. These same welds will be used for the third interval. Also, no inspections were discontinued or are being relocated from the second to the third interval. Therefore, no potential change in risk exists between the RI-ISI and the ASME Section XI program in the third ISI interval requirements from which relief was granted in Reference 1 (second interval).

The total change in and system level change in risk for the third ISI interval program remain within the acceptance guidelines of EPRI TR-112657. This is based on 1) the total number of welds included for the third interval has not changed, 2) the substitution of welds in each system were classified alike using the same criteria for the replacement, and 3) no inspections were discontinued or are being relocated from the second to the third interval.

References

1. Letter from James W. Clifford, NRC, to Roy A. Anderson, PSEG, "Salem Nuclear Generating Station, Unit Nos. I and 2 - Risk-informed Inservice Inspection Program" (TAC Nos. MB7537 and MB7538), October 1, 2003.

2. Letter from John Carlin, PSEG, to NRC, "Request for Authorization to Use a Risk- Informed Inservice Inspection Alternative to the ASME Boiler and Pressure Vessel Code Section XI Requirements for Class 1 and 2 Piping, Salem Generating Station, Unit Nos. 1 and 2, Docket Nos. 50-272 and 50-311 ", dated January 21, 2003.

3. EPRI TR-112657, Revision B-A, *Revised Risk-Informed Inservice Inspection Evaluation Procedure,* Final Report, December 1999.

SALEM NUCLEAR POWER STATION, UNIT 2						
SECOND INTERVAL THIRD PERIOD SECOND OUTAGE (2R13)						
RI-ISI REVISION DATA REPORT BY SUMMARY NUMBER						
Sum #	COMPONENT I.D.	COMPONENT DESCRIPTION	CODE CLASS	CODE CAT.	CODE ITEM	REVISION
035600	3-CV-1231-10	PIPE TO ELBOW	1	R-A	R1.11-5	Added to outage to replace sum# 035400 due to accessibility issues.
035400	3-CV-1231-8	ELBOW TO PIPE	1	R-A	R1.11-5	Replaced with Sum# 035600 due to accessibility issues.
151100	14-RH-1211-9	ELBOW TO PIPE	1	R-A	R1.11-2	Added to outage to replace sum# 150400 due to accessibility issues.
150400	14-RH-1211-3	ELBOW TO PIPE	1	R-A	R1.11-2	Replaced with Sum# 151100 due to accessibility issues.
151400	14-RH-1211-12	ELBOW TO PIPE	1	R-A	R1.11-2	Added to outage to replace sum# 150600 due to accessibility issues.
150600	14-RH-1211-5	ELBOW TO PIPE	1	R-A	R1.11-2	Replaced with Sum# 151400 due to accessibility issues.
151600	14-RH-1211-13	PIPE TO ELBOW	1	R-A	R1.20-4	Added to outage to replace sum# 150800 due to accessibility issues.
150800	14-RH-1211-6	PIPE TO ELBOW	1	R-A	R1.20-4	Replaced with Sum# 151600 due to accessibility issues.
168650	8-SJ-1252-17	PIPE TO ELBOW	1	R-A	R1.20-4	Added to outage to replace sum# 165376 due to accessibility issues.
165376	8-SJ-1262-1A	PIPE TO PIPE	1	R-A	R1.20-4	Replaced with Sum# 168650 due to accessibility issues.
168700	8-SJ-1252-18	ELBOW TO PIPE	1	R-A	R1.20-4	Added to outage to replace sum# 165600 due to accessibility issues.
165600	8-SJ-1262-5	ELBOW TO PIPE	1	R-A	R1.20-4	Replaced with Sum# 168700 due to accessibility issues.

SALEM NUCLEAR POWER STATION, UNIT 2						
SECOND INTERVAL THIRD PERIOD SECOND OUTAGE (2R13)						
RI-ISI REVISION DATA REPORT BY SUMMARY NUMBER						
Sum #	COMPONENT ID	COMPONENT DESCRIPTION	CODE CLASS	CODE CAT #	CODE ITEM	REVISION
169100	8-SJ-1252-21	PIPE TO ELBOW	1	R-A	R1.20-4	Added to outage to replace sum# 165750 due to accessibility issues.
165750	8-SJ-1262-6	PIPE TO PIPE	1	R-A	R1.20-4	Replaced with Sum# 169100 due to accessibility issues.
700040	8-CS-2227-8	PIPE TO ELBOW	2	R-A	R1.20-4	Added to outage to replace sum# 700020 due to accessibility issues.
700020	8-CS-2227-6	PIPE TO ELBOW	2	R-A	R1.20-4	Replaced with Sum# 700040 due to accessibility issues.
705440	8-CS-2229-7	PIPE TO ELBOW	2	R-A	R1.20-4	Added to outage to replace sum# 705420 due to accessibility issues.
705420	8-CS-2229-5	PIPE TO ELBOW	2	R-A	R1.20-4	Replaced with Sum# 705440 due to accessibility issues.