



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
OF
THE SECOND TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN, REVISION 1A
AND ASSOCIATED REQUESTS FOR RELIEF
FOR
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
SALEM GENERATING STATION, UNIT 2
DOCKET NUMBER: 50-311

1.0 INTRODUCTION

The Technical Specifications for Salem Generating Station, Unit 2, state that the inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i).

10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first ten-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for the Salem Generating Station, Unit 2, second ten-year ISI interval is the 1986 Edition, except that the extent of examination of Class 1 piping welds has been determined by the 1974 Edition with Addenda through Summer 1975 as permitted by 10 CFR 50.55a(b). The second 10-year interval for Unit 2 began May 10, 1992, and ends May 10, 2002.

Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not

endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

In a letter dated May 4, 1992, Public Service Electric and Gas Company submitted to the NRC its Second Ten-Year Interval Inservice Inspection Program Plan, Revisions 0 and associated requests for relief for the Salem Generating Station, Unit 2. During the staff's review of Revision 0 of the second ten-year ISI program plan, the licensee subsequently submitted Revisions 1 and 1A of its second ten-year inservice inspection program plan and associated requests for relief by letters dated December 28, 1994 and June 7, 1995, respectively. Although the staff reviewed Revisions 0 and 1, this review is based on the latest revision of the licensee's program plan. Additional information for Revision 0 was provided by the licensee in its letter dated December 28, 1994.

2.0 EVALUATION AND CONCLUSIONS

The staff, with technical assistance from its contractor, the Idaho National Engineering Laboratory (INEL), has evaluated the information provided by the licensee in support of its Second Ten-Year Interval Inservice Inspection Program Plan, Revision 0 through Revision 1A, and associated requests for relief for Salem Generating Station, Unit 2.

Based on the information submitted, the staff adopts the contractor's conclusions and recommendations presented in the Technical Evaluation Report (TER) attached. No deviations from regulatory requirements or commitments were identified in the *Salem Generating Station, Unit 2 Second Ten-Year Interval Inservice Inspection Program Plan, Revision 1A*, with the exception of Request for Relief No. RR-B1 (Part 1). Request for Relief No. RR-B1 (Part 1) is denied, because the licensee did not provide sufficient technical justification for a proposed alternative for the augmented reactor vessel examination as required by 10 CFR 50.55a(g)(6)(ii)(A). The licensee intends to comply with the augmented reactor vessel examination requirement in the year 2000.

In Request for Relief No. RR-B3, the licensee's request to use the requirements of Table IWB-2500-1, Examination Categories B-L-1 and B-M-2, Items B12.20 and B12.50, of the 1989 Edition is approved pursuant to 10 CFR 50.55a(g)(4)(iv) provided that all related requirements of the respective editions are met.

The proposed alternatives contained in Requests for Relief Nos. RR-B2 and RR-B4 should provide an acceptable level of quality and safety and are authorized pursuant to 10 CFR 50.55a(a)(3)(i) as requested, with the exception of Request for Relief No. RR-B2. Request for Relief No. RR-B2 is authorized provided there will be no more than ten years between inspections, except where the length of a ten-year interval is adjusted in accordance with IWA-2430.

In the case of Requests for Relief Nos. RR-B1 (Parts 2 through 11), and RR-C1 (Parts 1 through 4) the licensee has demonstrated that specific Code requirements are impractical and that granting relief will not endanger life, property, or the common defense and security and is otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. In addition, the staff has concluded that the proposed testing would provide reasonable assurance of operational readiness of the subject systems. Therefore, relief is granted for Requests for Relief Nos. RR-B1 (Parts 2 through 11), and RR-C1 (Parts 1 through 4) pursuant to 10 CFR 50.55a(g)(6)(i) as requested.

Request for Relief No. RR-F1 regarding VT-3, visual inspection of snubbers, was not reviewed by INEL and, therefore, is not discussed in the attached TER. In the letter dated May 4, 1992, the licensee requested relief from the requirements of ASME Code, Section XI, 1986 Edition for the Second Ten-Year ISI Program for snubbers.

Currently, the Salem ISI program is required to be performed, per the ASME Code, Section XI, Article IWF-5000, in accordance with the first addenda to ASME/ANSI OM-1987 Edition, Part 4, published in 1988 (OMA-1988, Part 4). Article IWF-2000 also requires VT-3 inservice visual examinations of mechanical and hydraulic snubbers. The number of snubbers at Salem 2 which are subject to these requirements is 135. The licensee stated that the alternative use of the visual examinations and functional testing programs on Code Class 1, 2, and 3 snubbers, in accordance with Salem Technical Specifications (TSs), would provide an acceptable level of quality and safety, pursuant to 10 CFR 50.55a(a)(3)(i).

According to Salem TSs, at least once per 18 months during shutdown, a representative sample of 10% of the total of each type of snubber in use in the plant shall be functionally tested. For each type of snubber that does not meet the functional test acceptance criteria of TS Section 4.7.9d or Section 4.7.9e, an additional 10% of that type of snubber shall be functionally tested. The representative sample shall include the various configurations, operating environments and the range of size and capacity of snubbers. Furthermore, at least 25% of the snubbers in the representative sample shall include snubbers from the following three categories:

1. The first snubber away from each reactor vessel nozzle.
2. Snubbers within 5 feet of heavy equipment (valve, pump, turbine, motor, etc.).
3. Snubbers within 10 feet of the discharge from a safety relief valve.

In addition to the regular sample, snubbers which failed the previous functional test shall be retested during the next test period. If a spare snubber has been installed in place of a failed snubber, then both the failed snubber (if it is repaired and installed in another location) and the spare snubber shall be retested. Test results of these snubbers shall not be part of the sample expansion.

The licensee stated in the above submittal that the current Salem TS specifies adequate programs for visual examination and functional testing for all safety-related hydraulic and mechanical snubbers. In the areas of examination scheduling, which adopts the guideline of Generic Letter 90-09, re-examinations, and functional testing requirements where the TS approach differs from that of the OMa-1988, Part 4, the licensee stated that the TS programs would result in an increase in the overall level of plant quality and safety. The TS program scope encompasses all Code Class 1, 2, and 3 snubbers, since the majority of the safety-related snubbers at Salem 2 are also Code Class. The licensee, therefore, requested that visual examination and functional testing per ASME Code Section XI requirements, for the Code Class snubbers, be performed consistent with the alternative TS programs.

The licensee further stated that the mechanical and hydraulic snubbers at Salem 2 were constructed and installed in accordance with the requirements of the Salem Updated Final Safety Analysis Report. Documentation of fabrication and installation examinations is maintained at the plant site. Subsequent to the plant going into operation, these snubbers have been and continue to be visually inspected and functionally tested in accordance with the Salem TSs.

The staff has reviewed the licensee's submittal and considered that the TS requirements of snubber visual examination and testing programs as proposed by the licensee meet the intent of Code-required OMa-1988, Part 4 and will provide sufficient assurance of component integrity. The staff, therefore, finds that the TS provides an acceptable level of quality and safety for visual examination and functional testing of Code Class 1, 2, and 3 snubbers for Salem 2. Thus, the alternative in Relief No. RR-F1 is authorized pursuant to 10 CFR 50.55a(a)(3)(i).

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Date: October 23, 1995

TABLE 1
SUMMARY OF RELIEF REQUESTS

Relief Request Number	System or Component	Exam Category	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
RR-B1 (Part 1)	Reactor Pressure Vessel	B-A B-D	B1.11 B1.12	NA	NA	NA	Denial
RR-B1 (Part 2)	Reactor Pressure Vessel	B-A	B1.21 B1.22	Circumferential Head Welds: 2-RPV-3443, 2-RPVCH-64-46B Meridional Head Welds: 2-RPV-1443-B, 2-RPV-1443-C, 2-RPV-1443-D, 2-RPV-1443-E, 2-RPV-1443-F, 2-RPVCH-14-46A, 2-RPVCH-14-46B, 2-RPVCH-14-46C, 2-RPVCH-14-46D, 2-RPVCH-14-46E, 2-RPVCH-14-46F	Volumetric	Volumetric exam to the maximum extent practical	Granted
RR-B1 (Part 3)	Reactor Pressure Vessel	B-A	B1.30	Shell-to-flange Weld 2-RPV-7442	Volumetric	Volumetric exam to the maximum extent practical	Granted
RR-B1 (Part 4)	Reactor Pressure Vessel	B-D	B3.90	Nozzle-to-shell Welds 29-RCN-1230, 29-RCN-1240, 29-RCN-1220, 29-RCN-1210	Volumetric	Volumetric exam to the maximum extent practical	Granted
RR-B1 (Part 5)	Pressurizer	B-F	B5.40	Nozzle-to-safe end Welds 5-PR-1205-1 and 4-PR-1200-1	Volumetric and Surface	Volumetric exam to the maximum extent practical	Granted
RR-B1 (Part 6)	Steam Generator	B-D	B1.140	Nozzle inner radius sections: 31-STG-1240-IRS, 31-STG-1230-IRS, 31-STG-1220-IRS, 31-STG-1210-IRS, 29-STG-1240-IRS, 29-STG-1230-IRS, 29-STG-1220-IRS, 29-STG-1210-IRS	Volumetric	Volumetric exam to the maximum extent practical	Granted
RR-B1 (Part 7)	Class 1 Systems	B-F	B5.130	Pipe Welds 31-RC-1240-1, 31-RC-1230-1, 31-RC-1220-1, 31-RC-1210-1, 29-RC-1240-5, 29-RC-1230-5, 29-RC-1220-5, 29-RC-1210-5	Volumetric and Surface	Volumetric exam to the maximum extent practical	Granted

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Relief Request Number	System or Component	Exam Category	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
RR-B1 (Part 8)	Class 1 Systems	B-J	B9.11 B9.12	Pipe Welds 31-RC-1230-4LU-1, 31-RC-1230-4LU-0, 31-RC-1230-4, 31-RC-1220-4LU-1, 31-RC-1220-4LU-0, 31-RC-1220-4, 8-SJ-1245-1	Volumetric and Surface	Volumetric exam to the maximum extent practical	Granted
RR-B1 (Part 9)	Class 1 Systems	B-J	B9.31	Branch connection Welds: 27.5-RC-1230-1BC-5, 27.5-RC-1210-1BC-3, 27.5-RC-1210-1BC-4	Volumetric and Surface	Volumetric exam to the maximum extent practical	Granted
RR-B1 (Part 10)	Class 1 Systems	B-K-1	B10.10 B10.20	Integral Attachment Welds: 8-SJ-1262-6PS-1 thru 7, 8-SJ-1262-6PS-8 thru 11, 8-SJ-1252- 9PS-4 thru 7, 4-SJ-1294-8PL-1 thru 4, 4-SJ-1282-23PL-1 thru 4, 4-SJ-1272-23PL-1 thru 4, 22-PMP- LUGS 1, 2, 3, and 21-PMP-LUGS 1, 2, 3	Volumetric and Surface	Volumetric exam to the maximum extent practical	Granted
RR-B1 (Part 11)	Pumps	B-G-1	B6.180	Pump Bolts 23-PMP-BOLTS 1-24, 22-PMP-BOLTS 1-24, 21-PMP-BOLTS 1-24	Volumetric	Examine accessible bolts	Granted
RR-B2	Reactor Pressure Vessel	B-D	B3.90 B3.100	Scheduling of nozzle-to-shell welds and nozzle inner radius sections	Volumetric	Defer examinations to last period	Authorized Conditionally
RR-B3	Pumps and Valves	B-L-2 B-M-2	B12.20 B12.50	Pump and valve internal surfaces	VT-3 Visual Examination	Perform Code-required exam when the component is opened for maintenance	Approved for Use
RR-B4	Reactor Pressure Vessel	B-G-1	B6.10	Closure head nuts	Surface	Perform VT-1 visual examination	Authorized
RR-C1 (Part 1)	Class 2 Systems	C-A	C1.10 C1.20	Pressure vessel shell Welds 2-CVCT-2, 2-RCF-1, 21-RHRHEX-1, 21-RHRHEX-2	Volumetric	Volumetric exam to the maximum extent practical	Granted
RR-C1 (Part 2)	Class 2 Systems	C-B	C2.21	Pressure vessel nozzle-to-shell Weld 21-RHRHEX-OUT	Volumetric and Surface	Volumetric exam to the maximum extent practical	Granted

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Relief Request Number	System or Component	Exam Category	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
RR-C1 (Part 3)	Class 2 Systems	C-C	C3.10, C3.20, C3.30	Attachment Welds 2-CVCT-2VS-1 & 2, 2-CVCT-2VS-3, 4, 5, 6, 7 & 8, RHE-1VS-1 & 2, 2-RHE-5VS-1 & 2, 2-RHE-9VS-1 & 2, 14-BF-2241-2PS-2, 14-BF-2231-6P-1 thru 4, 14-BF-2231-9PS, 14-BF-2211-17PS, 14-BF-2231-18PS, 14-BF-2211-3PS-2, 14-BF-2221-14PS-2, 14-BF-2211-3PS-1, 16-BF-2211-3PL-9 thru 12, 14-BF-2211, 14-BF-2211-14PS, 34-MS-2241-3, 32-MS-2241-1PS-1, 32-MS-2241-1PS-2, 34-MS-2241-242PL, 32-MS-2231-1PS-1, 32-MS-2221-1PS-1, 32-MS-2211-1PS-1, 30-MS-2241-8PL-1 & 2, 30-MS-2231-8PL-1 & 2, 30-MS-2221-7PL-1 & 2, 30-MS-2211-8PL-1 & 2, 6-MS-2231, 2-MSAA-111, 6-MS-2231-21PS, 12-RH-2252-5PL-1 thru 6, (Nos. 2, 3, 4, and 5), 12-RH-2252-38PS-1 & 2, 12-RH-2252-38PS-3	Surface	Surface exam to the maximum extent practical	Granted
RR-C1 (Part 4)	Class 2 Systems	C-F-1 C-F-2	C5.11 C5.21 C5.51	Pipe Welds 14-BF-2211-2, 12-PR-2201-1, 14-RH-2212-1, 14-SJ-2224-1, 12-RH-2252-38, 4-CV-2257-1, 3-CV-2257-7	Volumetric and Surface	Volumetric and surface exam to the maximum extent practical	Granted
RR-F1	Snubbers	IWF-5300	NA	Snubbers	VT-3 Visual Examination	TS visual and functional test	Granted