

Conte, Richard

From: OHara, Timothy *RT*
Sent: Wednesday, June 30, 2010 4:14 PM
To: Bearde, Diane
Cc: Conte, Richard; Cook, William
Subject: Salem Unit 1 ISI Feeder
Attachments: Salem1-(2010003)(OHara)(ISI-Rpt)(TI-172)(04-10)(6-28-2010).doc

Hello Diane,

Attached is the completed Salem Unit 1 ISI Feeder. I have reviewed and concur. Can you print this and get Bill Cook and Rich Conte to review? This needs to go to Projects next week for inclusion in the second quarter residents report.

I'll be working at home tomorrow so call or email with any questions. Thanks.

Tim OHara

cell (b)(6)

D-110



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

MEMORANDUM TO: Arthur L. Burritt, Chief
Projects Branch 3
Division of Reactor Projects

THRU: Richard J. Conte, Chief
Engineering Branch 1
Division of Reactor Safety

FROM: Timothy L. OHara, Reactor Inspector
Engineering Branch 1
Division of Reactor Safety

SUBJECT: INSERVICE INSPECTION ACTIVITIES INSPECTION FEEDER
FOR SALEM UNIT 1, INSPECTION REPORT 05000272/2010003

The enclosed feeder contains input for the subject report resulting from inspection of Inservice Inspection (ISI) activities during the period from April 5, 2010 to June 28, 2010, at Salem Unit 1. The inspection was conducted using Inspection Procedure 71111.08, Inservice Inspection Activities and Temporary Instruction (TI) 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds. The results of this inspection were presented to Mr. Ed Eilola, Salem Plant Manager, at an exit meeting on June 28, 2010.

Cover Letter Input

No input.

Enclosure: Feeder for Salem Unit 1, Inspection Report No. 05000272/2010003

A. Burritt

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cc w/Enclosure: (VIA E-MAIL)

A. Burritt, DRP

L. Cline, DRP

D. Schroeder, DRP, SRI - Salem Unit 1

T. O'Hara, DRS

R. Hardies, NRR

DRS Files

SUNSI Review Complete: TLO (Reviewer's Initials)

Non-Public Designation Category: MD 3.4 Non-Public A.7

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SUMMARY OF FINDINGS

Reactor Safety

Cornerstone: Mitigating Systems

- Green. The inspector identified a non-cited violation (NCV) of very low safety significance (Green) for the PSEG failure to perform Auxiliary Feedwater System (AFW) discharge piping pressure tests on buried piping components as required by 10 CFR 50.55a(g)(4) and the referenced American Society of Mechanical Engineers Code (ASME), Section XI, paragraph IWA-5244 for Salem Unit 1 and Salem Unit 2. The required tests are intended to demonstrate the structural integrity of the buried piping portions of the system. The affected buried piping is not inspected via other non-destructive examination (NDE) techniques. The affected piping is safety related, ASME Class 3, Seismic Class 1 piping. This performance deficiency is more than minor because the condition affected the Equipment Performance attribute (availability and reliability) of the mitigating systems cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage).
- Green. PSEG identified a condition which is a non-cited violation (NCV) of very low safety significance (Green) for PSEG's failure to protect the Unit 1 buried AFW system piping with an effective protective coating system. This condition is a violation of 10 CFR 50, Appendix B, Criterion III, Design Control. This performance deficiency resulted in significant corrosion (significantly below minimum wall thickness) on a large portion of the buried AFW system piping on Salem Unit 1. This issue is more than minor because, if left uncorrected, could lead to a more significant condition, i.e. failure of the risk significant AFW piping. The affected piping is safety related, ASME Class 3, Seismic Class 1 piping. This violation is being documented in Section 4OA7 because the issue is directly related to an agency-wide concern on buried piping.

REPORT DETAILS

1R08 Inservice Inspection (ISI) (7111108 - 1 Sample)

a. Inspection Scope

The inspector observed a selected sample of nondestructive examination (NDE) activities in process. Also, the inspector reviewed the records of selected additional samples of completed NDE and repair/replacement activities. The sample selection was based on the inspection procedure objectives and risk priority of those components and systems where degradation would result in a significant increase in risk of core damage. The observations and documentation reviews were performed to verify that the activities inspected were performed in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requirements.

The inspector observed the performance of a visual inspection (VT) of the Unit 1 Reactor Vessel Closure Head (RVCH) and the installed upper head penetrations. The visual inspection was performed with an approved procedure by qualified technicians and was accurately documented. Also, the inspector reviewed the data sheets for the penetrant tests completed on 3 of the penetration welds of the RVCH.

The inspector reviewed records of ultrasonic testing (UT), visual testing (VT), penetrant testing (PT) and magnetic particle testing (MT) NDE processes. PSEG did not perform any radiographic testing (RT) during this outage. The inspector reviewed inspection data sheets and documentation for these activities to verify the effectiveness of the examiner, process, and equipment in identifying degradation of risk significant systems, structures and components and to evaluate the activities for compliance with the requirements of ASME Code, Section XI.

Steam Generator Inspection Activities

The inspectors reviewed a sample of the Salem Unit 1 steam generator Eddy Current Testing (ECT) tube examinations, and applicable procedures for monitoring degradation of steam generator tubes to verify that the steam generator examination activities were performed in accordance with the rules and regulations of the steam generator examination program, Salem Unit 1 steam generator examination guidelines, NRC Generic Letters, Code of Federal Regulations 10CFR50, Technical Specifications for Salem Unit 1, Nuclear Energy Institute 97-06, EPRI PWR steam generator examination guidelines, and the ASME Boiler and Pressure Vessel Code Sections V and XI. The review also included the Salem Unit 1 steam generator degradation assessment and steam generator Cycle 21 and 22 operational assessment. The inspector also reviewed and verified the personnel certifications of the personnel participating in the SG ECT inspections during the 1R20 refueling outage.

PSEG identified wear degradation to the tubing in the four SGs at Salem U1. The majority of these wear indications was attributed to Anti Vibration Bar (AVB) wear in the u bend regions of the four SGs. After conducting the appropriate analyses and evaluations, a total of 14 SG tubes were removed from service by plugging.

Boric Acid Corrosion Control Program Activities

The inspector reviewed the PSEG boric acid corrosion control program. The resident inspectors observed PSEG personnel performing boric acid walkdown inspections, inside containment, and in other affected areas outside of containment, at the beginning of the Unit 1 refueling outage. The walkdown inspections were thorough, well organized and indications of boric acid leakage were recorded and evaluated in accordance with the PSEG program for documentation in the corrective action (Notification) process. Additionally, the inspector reviewed a sample of Notifications for correct evaluation and/or further engineering analysis and/or final resolution.

Section XI Repair/Replacement Samples:

AFW System Piping, Control Air & Station Air: The inspector monitored PSEG's discovery, reporting, evaluation and the repair/replacement of Unit 1 AFW piping which had been excavated for inspection during the April 2010 Unit 1 refueling outage (1R20). This inspection was accomplished in accordance with PSEG's Buried Piping Inspection Program.

PSEG replaced the degraded buried piping with new piping between the fuel transfer tube area (FTTA) building and the Outer Penetration Area building. After installation this portion of the piping was successfully pressure tested, coated with a protective coating and the excavated area was backfilled. This piping was replaced under the ASME, Section XI program as a replacement.

The remainder of the originally buried, uninspected piping (approximately 340 ft.) was abandoned in place and new piping was installed, above ground, inside the fuel transfer tube area (FTTA) building. The rerouting of this portion of the piping was completed as a plant modification under 10 CFR 50.59. After replacement this portion of the piping was successfully pressure tested and returned to service.

The excavation also inspected the condition of two, 2" buried Station Air (SA) pipes and two, 1" buried Control Air (CA) pipes which are buried in the vicinity of the #12 and #14 AFW buried piping. The SA pipes are non-Code, non-safety related and the CA pipes are non-Code, safety related. During inspection, one of the CA pipes was discovered to be leaking and was repaired and tested satisfactorily. All of the accessible buried SA and CA piping was visually inspected, coating was repaired and the piping was backfilled when the AFW piping was backfilled.

The inspector reviewed the repair/replacement work orders for the AFW, CA and SA piping. The inspector monitored the fabrication of the replacement piping, reviewed the documentation of the welding and NDE of the replacement piping and reviewed the pressure tests used to certify the replacement piping. Additionally, the inspector reviewed the specified replacement coating, the application of the replacement coating and the backfill of the excavated area after the piping had been tested.

Notification 20459689, prompted by the inspector's questioning, reported the failure to perform the IWA-5244 required pressure tests on the buried AFW piping on both Salem Unit 1 and Unit 2. PSEG performed a limited excavation of the buried piping to #22 SG and the #24 SG AFW piping in the Unit 2 fuel transfer tube area (FTTA) building.

Limited UT testing was performed on the AFW piping and no significant degradation of the Unit 2 piping was observed.

Main Feedwater Piping Elbow Erosion:

The inspector also reviewed the record of a rejectable wall thickness measurement taken on the #11 SG Feedwater elbow during 1R20. The licensee recorded additional wall thickness data to further define the condition and performed a finite element analysis (FEA) which verified that sufficient wall thickness remained to operate the component until the next refueling outage when it will be replaced.

b. Findings

The inspector identified the following violation for the Unit 1 buried AFW piping.

Introduction The inspector identified a GREEN non-cited violation (NCV) of 10 CFR 50.55a(g)(4) and the referenced American Society of Mechanical Engineers (ASME) Code, Section XI, paragraph IWA-5244 for PSEG's failure to perform required pressure tests of buried components. The AFW piping supplying water to SG #12 and SG #14 of Salem Unit 1 and for SG #22 and #24 for Salem Unit 2. This piping is safety related, 4.0" ID, ASME Class 3, Seismic Class 1 piping.

Description Portions of the Unit 1 and Unit 2 Auxiliary Feedwater (AFW) System piping is buried piping and has not been visually inspected since the plant began operation in 1977 for Unit 1 and since 1979 for Salem Unit 2. In April 2010, approximately 680 ft. (340 ft. of the #12 SG AFW supply and 340 ft. of the #14 SG AFW supply) of piping between the pump discharge manifold and the connection to the Main Feedwater piping to the affected SGs was discovered to be corroded to below minimum wall thickness (0.278") for the 1950 psi design pressure of the AFW System. The lowest wall thickness measured in the affected piping was 0.077". PSEG plans on excavating the Unit 2 buried piping to inspect the condition during the next Unit 2 outage in 2011.

10 CFR 50.55(a)(g)(4)(ii) requires licensees to follow the in-service requirements of the ASME Code, Section XI. Paragraph IWA-5244 requires licensees to perform pressure tests on buried components to demonstrate structural integrity of the tested piping. The pressure test required by IWA-5244 is considered to be an inservice inspection and is part of Section XI. Section XI and IWA-5244 do not specify any other non-destructive examinations (NDE) on buried components to ensure structural integrity. Thus, PSEG neglected to perform the only inservice inspection, intended to demonstrate the structural integrity of this safety related buried piping. PSEG did not perform the required tests for Unit 1 during the 1st period (5/19/01 to 6/3/04) and 2nd period (6/24/04 to 5/20/08) periods of the 3rd In Service Inspection Interval, and for Unit 2 for the 1st period (5/19/01 to 6/3/04) and 2nd period (6/24/04 to 5/20/08) of the 3rd In Service Inspection Interval.

PSEG sought relief, from the NRC, from the previous Code required pressure testing in 1988 for Unit 1 only. Relief was granted to PSEG, by the NRC, to perform an alternate flow test in 1991 for Unit 1, however, PSEG did not perform the proposed alternate tests during the 2nd inservice interval and during the 1st (5/19/01 to 6/3/04) and 2nd (6/24/04 to 5/20/08) periods of the 3rd In Service Inspection Interval for Unit 1. Also, PSEG did not

perform the proposed alternate tests during the 1st period (5/19/01 to 6/3/04) and 2nd period (6/24/04 to 5/20/08) of the 3rd In Service Inspection Interval for Unit 2. Thus, PSEG missed an opportunity to identify and correct this performance deficiency.

A second opportunity to identify and correct this performance deficiency was missed in 2002 when a similar condition (failure to perform buried piping pressure tests) was reported by Indian Point Unit 3. PSEG's review of operating experience reports did not identify that the same condition potentially existed at Salem Unit 1 and Unit 2.

Analysis The inspector decided that the licensee's failure to perform the required pressure test on this safety related piping was a performance deficiency because this condition was the result of the licensee's failure to meet the regulatory requirements of 10 CFR 50.55a(g)(4) and the ASME Code, Section XI, paragraph IWA-5244. Additionally, the inspector decided that this performance deficiency was reasonably within the licensee's ability to foresee and correct and should have been prevented.

The inspector determined that the performance deficiency was more than minor because this condition affected the Equipment Performance attribute (availability and reliability) of the mitigating systems cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage).

This finding affects the mitigating systems cornerstone by affecting the secondary, short term decay heat removal. Because the finding did not result in loss of operability or functionality the inspector determined that the finding was of very low safety significance, Green.

Enforcement 10 CFR 50.55a(g)(4) says, in part: "Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components ... which are classified as ASME Code Class 1, Class 2 and Class 3 must meet the requirements, ... , set forth in Section XI of editions of the ASME Boiler and Pressure Vessel Code". Paragraph IWA-5244, Buried Components, of Section XI says, in part,

"(b) For buried components where a VT-2 visual examination cannot be performed, the examination requirement is satisfied by the following: (1) The system pressure test for buried components that are isolable by means of valves shall consist of a test that determines the rate of pressure loss. Alternatively, the test may determine the change in flow between the ends of the buried components. ..."

Contrary to these requirements, PSEG did not perform the required pressure tests of the buried AFW piping to the #12 SG and #14 SG at Salem Unit 1 during the 2nd In Service Inspection Interval (2/27/88 to 5/19/01) and during the 1st (5/19/01 to 6/3/04) and 2nd (6/24/04 to 5/20/08) periods of the 3rd In Service Inspection Interval (5/19/01 to 5/19/11). Also, contrary to these requirements, PSEG did not perform the required pressure tests of the buried piping to the #22 SG and #24 SG for Unit 2 for the 1st period (5/19/01 to 6/3/04) and 2nd period (6/24/04 to 5/20/08) of the 3rd In Service Inspection Interval. Consequently, from 2/27/88 to 4/20/07 the required pressure tests were not performed to demonstrate structural integrity on the affected buried Unit 1 AFW piping.

Because PSEG entered this condition into the corrective action process (Notification 20459686) and because it is of very low safety significance (Green), it is being treated as a non-cited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. NCV 50-272/2010-?? and NCV 50-311/2010-??

4OA2 Identification and Resolution of Problems (71152)

a. Inspection Scope

The inspectors reviewed a sample of corrective action reports (Notifications), listed in Attachment 2 which involved in-service inspection related issues, to ensure that issues are being promptly identified, reported and resolved. The sample of Notifications selected did demonstrate that non-conformances are being identified, evaluated and appropriately addressed.

b. Findings

No findings of significance were identified.

c. Observations

- (1) The inspector noted that the PSEG buried piping inspection procedure did not document how a representative inspection sample is selected and did not enumerate the basis for the inspection sample selection.
- (2) The inspector noted that PSEG buried piping inspection procedure does not provide a threshold criteria for inspection conditions which are to be entered into the corrective action process for evaluation, potential resolution and/or tracking.
- (3) PSEG has not defined a design life for the new coating on the new buried AFW piping for Unit 1. Also, PSEG has not determined an inspection frequency for the newly coated, replaced Unit 1 buried piping.
- (4) Notification 20459689 reported the failure to perform the IWA-5244 required pressure tests on the buried AFW piping. This Notification says, "The system pressure test boundary drawing (S2-SPT-336-0) identifies the piping as YARD piping not buried piping." It is not clear what PSEG is doing to ensure that other system drawings which contain the same YARD markings and are potentially not being treated as buried piping and components.
- (5) The PSEG Buried Piping Program assumes that buried piping is protected by a coating system to protect from degradation for the plant life. However, the Unit 1 AFW piping was discovered to not have been coated or protected. It is not clear what PSEG is doing to confirm or verify that buried piping is protected with an effective coating which will protect the piping for the plant life.

4OA5 Temporary Instruction (TI) 2515/172

a. Inspection Scope

The Temporary Instruction (TI), 2515/172 provides for confirmation that owners of pressurized-water reactors (PWRs) have implemented the industry guidelines of the Materials Reliability Program (MRP) -139 regarding nondestructive examination and evaluation of certain dissimilar metal welds in the RCS containing nickel based Alloys 600/82/182.

During 1R20 PSEG inspected the dissimilar metal weld on the 1" reactor vessel drain piping with no detected indications. Salem Unit 1 has dissimilar metal welds in the eight reactor coolant system piping to reactor vessel nozzle safe end welds. No additional inspections or MSIP applications were performed during 1R20.

This TI requires documentation of specific questions in an inspection report. The questions and responses for the IR 05000272/2010003 section 4OA5 are included in this report as Attachment "B-1".

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

The inspectors presented the ISI inspection and TI 2515/172 inspection results to Mr. Ed Eilola, Salem Plant Manager, and other members of the PSEG staff at the conclusion of the inspection at an exit meeting on June 28, 2010 for Salem Unit 1. The licensee acknowledged the conclusions and observations presented. Some proprietary information was reviewed during this inspection and was properly destroyed. No proprietary information is contained in this report.

4OA7 Licensee Identified Violations

a. Inspection Scope

During the Unit 1 refueling outage in April 2010, PSEG conducted an excavation of buried AFW piping. After limited guided wave and ultrasonic inspections a degraded condition of the piping became self-revealing.

b. Finding

Introduction PSEG identified a condition which is a non-cited violation (NCV) of very low safety significance (Green) for PSEG's failure to protect the Unit 1 buried AFW system piping with an effective protective coating system. This performance deficiency is a violation of 10 CFR 50, Appendix B, Criterion III Design Control. This performance deficiency resulted in significant corrosion (significantly below minimum wall thickness)

on a large portion of the buried AFW discharge piping to SG# 12 and SG#14. This buried piping is not inspected via other non-destructive examination (NDE) techniques as part of the inservice inspection program. This piping is safety related, ASME Class 3, Seismic Class 1 piping.

Description Portions of the Unit 1 Auxiliary Feedwater (AFW) System piping is buried piping and had not been inspected by any NDE methodology since the plant began operation in 1977. In April 2010, approximately 680 ft. (340 ft. of the #12 SG AFW supply and 340 ft. of the #14 SG AFW supply) of buried piping between the pump discharge manifold in the Auxiliary Building and Mechanical Penetration Building was discovered to be corroded to below minimum wall thickness (0.278") for the 1950 psi design pressure of the AFW System. The area of the worst corrosion resulted in a wall thickness of 0.077".

The affected AFW piping was to have met Specification S-C-MPOO-MGS-0001 and piping schedule SPS54. Page II-190 of Piping Schedule SPS54 says, "For protection of underground piping in the yard see page II-88 of Piping Schedule SPS28 of this specification. "X-tru-coat" may be used." Page II-88 specifies two (2) coats of Bitumastic No. 50 paint applied cold after installation (special coating for portions of lines as specified on drawing). Auxiliary Feedwater drawing 207483A8923-11 contains a Note directing that a "plastic coat is to be removed prior to welding, with the protection of that section to be done in the field by appropriate application of two (2) coats of Bitumastic 50 applied cold." Despite these detailed specifications PSEG has not provided written records showing what coating had actually been applied to this buried piping. Also, upon inspection, after excavation, there was very little evidence of the existence of a protective coating on the buried AFW piping.

PSEG did not provide engineering evaluations, testing data, vendor certification, QC/QA records documenting application of coating(s) or other details of the design life of the specified coating. PSEG did not provide appropriate testing to demonstrate that the coating would provide protection to the buried piping for the design life of the plant. Also, PSEG did not specify an inspection periodicity for interim visual inspections to verify that the coating was providing protection against corrosion of the piping.

Analysis The inspector decided that the licensee's failure to protect the Unit 1 AFW piping with an effective coating system was a performance deficiency because this condition was the result of the licensee's failure to meet the regulatory requirements of 10 CFR 50, Appendix B, Criterion III, Design Control. Additionally, the inspector decided that this performance deficiency was reasonably within the licensee's ability to foresee and correct and should have been prevented.

The inspector determined that the performance deficiency was more than minor because this condition affected the Equipment Performance attribute (availability and reliability) of the mitigating systems cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Additionally, this issue is more than minor because if left uncorrected, could lead to a more significant condition, failure of the buried safety related, risk significant, ASME Class 3, Seismic Class 1 AFW piping.

Enforcement 10 CFR 50, Appendix B, Criterion III, Design Control, states, in part "Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. Measures shall also be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems and components."

Contrary to these requirements, PSEG did not provide engineering evaluations, vendor certification, or testing data to demonstrate that the specified coating would protect the buried AFW piping for the design lifetime of the plant. Also, PSEG did not assure appropriate quality standards which assure that deviations from such standards were controlled. Additionally, PSEG did not provide measures for the selection and review for suitability of the coating materials for the buried AFW piping application, for periodic inspections to ensure that the applied coating was protecting the buried AFW piping, and did not provide engineering details demonstrating the ability of the coating to protect the buried AFW piping for the life of the plant.

Because PSEG entered this condition into the corrective action process (Notification 20456999) and because the issue is of very low safety significance (Green), this issue is being treated as a non-cited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. **NCV 50-272/2010003-??**

ATTACHMENT
SUPPLEMENTAL INFORMATION
KEY CONTACTS

Licensee Personnel:

Howard Berrick, PSEG
Pat Fabian, PSEG
Mohammad Ahmed, PSEG
Tony Oliveri, PSEG
Tom Roberts, PSEG
Ali Fakhar, PSEG
Len Rajkowski, PSEG
Dave Mora, PSEG
Edley Giles, PSEG
Walter Sheets, PSEG
Bob Montgomery, PSEG
Jim Mellichiona, PSEG
Bill Mattingly, PSEG
Pat Van Horn, PSEG
Jim Barnes, PSEG
Justin Werne, PSEG
Rick Villar, PSEG
Matthew Murray, PSEG

LIST OF DOCUMENTS REVIEWED

Notifications:

20457869, Control Air Piping Leak*
20462034, Basis AFW Discharge Line Design Pressure*
20461785, Untimely retrieval of Design Documents*
20461255, U2 Containment Liner Blisters*
20459259, U2 Containment Liner Blisters*
20459689, failure to do IWA-5244 pressure tests*
20456999, Guided Wave (GW) pipe wall loss 20% to 44%*, in Equipment Apparent Cause Evaluation (EQ;ACE) Charter
20457854, see Equipment Apparent Cause Evaluation (EQ: ACE) Charter
20457869, Air Line Leak, in Equipment Apparent Cause Evaluation EQ: ACE Charter
20458147, see Equipment Apparent Cause Evaluation (EQ: ACE) Charter
20458148, see Equipment Apparent Cause Evaluation (EQ: ACE) Charter
20458568, see Equipment Apparent Cause Evaluation (EQ: ACE) Charter
20458554, 11 CA HDR Line In Fuel Xfer Area Degraded*
20458761, 1R20 CA Buried Pipe Coating Repair*
20458925, 1R20 SA Buried Pipe Coating Repair*
20457262, (88) 1R20 AF Buried Pipe Inspection Results*
20460624, Need Heat Trace on AF lines in FFT Area
20457877, U1 Containment Liner Corrosion at 78' El.*

20459259, U1 Corrosion on Containment Liner*
 20459303, #14 AF pipe damaged penetration seal*
 20459304, #12 AF pipe damaged penetration seal*
 20459454, Request for Additional UT Data, 4/18/10 (due to 0.077" reading)*
 20344017, Inspect steel liner in 1R19
 20235636, NRC noted water running down containment wall
 20459189, Question on location of RFO-14 location of a PZR shell weld
 20290560, Replace section of 15B FWH shell-S1-R18
 20457879, (184) 1R20 FAC(N18) 14# elbow below Tmin
 20456828, (66) valve has visible boron buildup 1R20
 20459232, Heavy Dry White Boron Vlv Packing (1R20)
 20456834, Heavy Dry White Boron Vlv Packing (1R20)
 20456840, Medium Dry White Boron Vlv Packing (1R20)
 20456839, Medium Dry White Boron Vlv Packing (1R20)
 20389147, Recordable ISI Indications on CVC Tank
 20344017, Inspect Steel Liner in 1R19 @ Containment Sump
 20235636, NRC Noted Water Running Down Containment Wall
 20392631, ARMA From ISI Program Audit 2008
 20460624, Need Heat Trace on AF lines in FTT Area
 20333050, Response to NRC NOV EA-07-149
 20322039, 2nd Interval ISI NRC Violation
 20397518, A1CVC-1CV180 Chk Vlv Stuck Open - PI&R review
 20444514, Boric Acid Leak from Drain Line - PI&R review
 20445314, boron leak - PI&R review
 20448241, Minor Packing Leak - BAC - PI&R review
 20435861, 21SJ313 Has Boric Acid Leakage - PI&R review
 20417331, Boric Acid Leak at 11 CV156 - PI&R review
 20411151, Tubing leak on 1SS653 - PI&R review
 20414343, 12 Charging Pump seal inj. Line - PI&R review
 20395346, 12 Bat PP Seal Leak - PI&R review
 20450330, Containment Liner Corrosion - PI&R review
 20385733, Severe Corrosion on FP Valve - PI&R review
 20438320, (217) Op Eval. Of Containment Corrosion - PI&R review
 20387897, Significant outlet pipe corrosion - PI&R review
 20397225, MIC Corrosion Causing Through Wall Leak - PI&R review
 20436836, Repair Cracks in Battery Cells - PI&R review
 20392145, Update U1 ISI Relief Request Book - PI&R review
 20449447, Update Salem Unit 1 ISI 10 Yr Plan - PI&R review
 20449744, Update Salem Unit 1 Containment ISI 10 Yr Plan - PI&R review
 20449442, Update Salem Unit 2 Containment ISI 10 Yr Plan - PI&R review
 20449554, Salem U2 RFO18 ISI Scope - PI&R review
 20416605, INPO PSIRV Alloy 600 Program - PI&R review
 20404057, Unit 2 ISI (MSIP) - PI&R review
 20392631, ARMA FROM ISI PROGRAM AUDIT 2008 - PI&R review
 20388065, Water leaking in decon room - PI&R review
 20439023, 23 CFCU Head Leakage - PI&R review
 20439022, SW Header Leakage 23 CFCU - PI&R review
 20389148, 1R19 ISI Weld Exam Limitations - PI&R review
 20416605, INPO PSIRV Alloy 600 Program - PI&R review
 20449442, Update Salem 2 Containment ISI 10 yr. Plan - PI&R review
 20449554, Salem Unit 2 RFO18 ISI Scope - PI&R review

20449747, Update Salem 2 ISI 10 Yr. Plan - PI&R review
20401542, Perform ISI BMV Exam on RPV Upper Head - PI&R review
20449063, SA U1 Service Inspec – ISI & U1 TI 2515 - PI&R review
20389147, Recordable ISI Indications on CVC Tank - PI&R review
20392145, Update U1 ISI Relief Request Book - PI&R review
20449744, Update Salem U1 Containment ISI 10 Yr. Plan - PI&R review
20409943, NRC RIS 2009-04 SG Tube Insp Rqmts – PI&R review
20459851, Section XI Exams Limited to 90% or Less – PI&R review
20450520, Recoat Affected Areas of Liner 2R18 – PI&R review
20457388, Excavation Issues – PI&R review

*Denotes this Notification was generated as a result of this inspection

Section XI Repair/Replacement Samples:

W.O. 60079414, 14" Carbon Steel Elbow FAC indication below minimum wall
W.O. 60084266, Salem U1 AF Buried Piping Inspection
W.O. 60089561, 80101381: Replace Aux FW U/G Piping
W.O. 60064104, Repair 15B FWH Area
W.O. 60084375, BACC Program repair to 1PS1
W.O. 60089612, BACC Program repair to S1CVC-14CV392
W.O. 60089615, BACC Program repair to S1SJ-13SJ25
W.O. 60089848, 80101382 Advanced Work Authorization #2 FTTA Replace Aux. Feedwater
Pipe
W.O. 60089561, 80101381 Advanced Work Authorization – Replace Aux. FW U/G Piping,
4/9/10

Non-Code Repair

W.O. 60089848, Repair Non-nuclear, safety related CA Pipe, Unit 1 FTTA
W.O. 60089757, Test Non-nuclear, safety related CA Pipe Repair, Unit 1 FTTA

Miscellaneous Work Orders:

W.O. 60089917, Penetrations for CA & SA Lines, 4/23/10
W.O. 941017262, Activity 04, Excavate and Examine Auxiliary Feedwater Piping, Unit 2, 12/94
W.O. 941017262, Activity 03, Excavate and Examine Auxiliary Feedwater Piping, Unit 2, 12/94
W.O. 941017262, Activity 02, Excavate and Examine Auxiliary Feedwater Piping, Unit 2, 12/94
W.O. 941017262, Activity 01, Excavate and Examine Auxiliary Feedwater Piping, Unit 2, 12/94
W.O. 60089561, Flush New AFW piping 12 and 14

Drawings & Sketches:

205236A8761-54, Salem Nuclear Generating Station, Unit No. 1, Auxiliary Feedwater
Salem Unit 1 Aux Feed Piping, Allan Johnson, 4/10/10
80101381RO, Buried Pipe, Replaced AFW Piping Arrangement
207483A8923-11, Salem Nuclear Generating Station, Unit No. 1 – Reactor Containment
Auxiliary Feedwater, Plans & Sections – Elev. 78' 10" & 100' 0", Mechanical
Arrangement, Revision 8, 9/31/86

- 207483A8923-28, Sheet 1 of 4, Salem Nuclear Generating Station, Unit No. 1 – Reactor Containment Auxiliary Feedwater, Plans & Sections – Elev. 84', Mechanical Arrangement, Revision 8, 9/31/86
- 207483A8923-31, Sheet 2 of 4, Salem Nuclear Generating Station, Unit No. 1 – Reactor Containment Auxiliary Feedwater, Plans & Sections – Elev. 84', Mechanical Arrangement, Revision 8, 9/31/86
- 207483A8923-28, Sheet 3 of 4, Salem Nuclear Generating Station, Unit No. 1 – Reactor Containment Auxiliary Feedwater, Plans & Sections – Elev. 84', Mechanical Arrangement, Revision 8, 9/31/86
- 207483A8923-30, Salem Nuclear Generating Station, Unit No. 1 – Reactor Containment Auxiliary Feedwater, Plans & Sections – Elev. 84', Mechanical Arrangement, Revision 8, 9/31/86
- 207610A8896-12, Salem Nuclear Generating Station, Unit No. 1 – Auxiliary Building & Reactor Containment Compressed Air Piping, Aux. Building El. 84 East & React. Contain. El. 78, Mechanical Arrangement, Revision 8, 9/31/86

Design Change Packages/Equivalent Change Packages

- 80101382, Revision 2, Replace Salem Unit 1 AFW Piping from the Unit Mechanical Penetration Area El. 78'-0" to the Unit 1 Fuel Transfer Tube Area El. 100'-0"
- 80101381, Revision 1, Replace in-kind the Salem Unit 1 AF Piping that runs underground from the Unit 1 Fuel Transfer Tube Area to the Unit 1 Main Steam Outer Penetration Area

50.59 Applicability Reviews, Screenings & Evaluations

- 80101382; Salem Unit 1 12/14 AF Piping Reroute; 4/24/10

System & Program Health Reports & Self-Assessments:

- Salem Boric Acid Corrosion Control Program Focused Area Self-Assessment, 1/2010
- 70106830, Salem S1R20 NRC ISI Inspection Check-In Self Assessment
- 70095327, Salem Boric Acid Corrosion Control Program Focused Area Self-Assessment, 4/29/09

Program Documents

- PSEG Nuclear Salem Units 1 & 2, Alloy 600 Management Plan, Long Term Plan (LTP), Revision 2, Integrated Strategic Plan For Long Term Protection from Primary Water Stress Corrosion Cracking (PWSCC), 10/15/09
- ASME, Section XI, 1998 Edition, 2000 Addenda, IWA-5244 Buried Components
- OAR-1, Owner's Activity Report, #S1RFO19, 1/15/09

ProceduresDETAILED AND GENERAL, VT-1 AND VT-3 VISUAL EXAMINATION OF ASME CLASS MC AND CC CONTAINMENT SURFACES AND COMPONENTS

SH.RA - AP.ZZ - 8805(Q) - Revision 4, 8/31/06; Boric Acid Corrosion Management Program
 ER - AP - 331, Revision 4, Boric Acid Corrosion Control (BACC) Program
 ER - AP - 331 - 1001, Revision 2, Boric Acid Corrosion Control (BACC) Inspection Locations, Implementation And inspection Guidelines
 ER - AP - 331 - 1002, Revision 3, Boric Acid Corrosion Control (BACC) Program Identification, Screening, and Evaluation
 ER - AP - 331 - 1003, Revision 1, RCS Leakage Monitoring And Action Plan
 ER - AP - 331 - 1004, Revision 2, Boric Acid Corrosion Control (BACC) Program Training and Qualification
 ER - AA - 330 - 001, Revision 7, SECTION XI PRESSURE TESTING
 LS - AA - 125, Revision 13; Corrective Action Program (CAP) Procedure
 LS - AA - 120, Revision 8; Issue Identification And Screening Process
 SH.RA-IS.ZZ-0005(Q)-Revision 6; VT-2 Visual Examination Of Nuclear Class 1, 2 and 3 Systems

SH.RA-IS.ZZ-0150(Q) – Revision 8, 10/19/04; Nuclear Class 1, 2, 3 and MC Component Support Visual Examination

OU-AP-335-043, Revision 0; BARE METAL VISUAL EXAMINATION (VE) OF CLASS 1 PWR COMPONENTS CONTAINING ALLOY 600/82/182 AND CLASS 1 PWR REACTOR VESSEL UPPER HEADS

OU-AA-335-015, Revision 0; VT 2 - VISUAL EXAMINATION

Areva NP, Inc., Engineering Information Record 51-9118973-000; Qualified Eddy Current Examination Techniques for Salem Unit 1 Areva Steam Generators, 10/15/09

AREVA NP 03-9123233, Revision 000, 10/13/09; Salem Unit 2 RVCH Flange Repair

SC.MD-GP.ZZ-0035(Q) – Revision 9, PRESSURE TESTING OF NUCLEAR CLASS 2 AND 3 COMPONENTS AND SYSTEMS, 02/02/10

SH.MD-GP.ZZ-0240(Q) – Revision 10, SYSTEM PRESSURE TEST AT NORMAL OPERATING PRESSURE AND TEMPERATURE, 7/29/09

S2.OP-AF-0007(Q)-Revision 20, 12/23/09; INSERVICE TESTING AUXILIARY FEEDWATER VALVES, MODE 3

ER-AA-5400-1002, Revision 1, BURIED PIPING EXAMINATION GUIDE

Specification No. S-C-MPOO-MGS-0001; Piping Schedule SPS54, Auxiliary Feedwater, Revision 6

PSEG Test Procedure 10-H-8-R1, Unit 2 Auxiliary Feedwater 2100/2150 Hydro; 9/21/78

NDE Examination Reports & Data Sheets

003753, VT-10-113, PRV nozzle sliding support

003754, VT-10-114, RPV nozzle sliding support

006325, UT-10-041, PZR longitudinal shell weld J (100%)

007500, UT-10-132, PZR surge line nozzle (100%)

007901, UT-10-028, 13 SG lower head to tubesheet weld (67%)

006073, VE-10-026, CRDM TO VESSEL PENETRATION WELD, 4/12/10

008001, VE-10-027, 31-RCN-1130-IRS

008026, VE-10-028, 29-RCN-1130-IRS

009070, VE-10-030, 12-STG Channel Head Drain (100%)

033300, UT-10-027, 4-PS-1131-27 (100%)

033200, UT-10-029, 4-PS-1131-26 (100%)

033100, UT-10-032, 4-PS-1131-25 (100%)
 032300, UT-10-033, 4-PS-1131-17 (100%)
 031700, UT-10-040, 4-PS-1131-12 (100%)
 032600, UT-10-034, 4-PS-1131-20 (100%)
 047600, UT-10-045, 29-RC-1140-3 (100%)
 051200, UT-10-048, 29-RC-1120-3 (100%)
 203901, UT-10-047, 32-MSN-2111-1 (100%)
 204001, UT-10-046, 16-BFN-2111-1 (70.64%)
 210586, UT-10-025, 14-BF-2141-19 (100%)
 210588, UT-10-024, 14-BF-2141-20 (100%)
 836300, IWE: VT-10-338, PNL-S1-343-1
 836400, IWE: VT-10-333, ALK-S1-100-tubing
 840000, IWE: Vert Leak Channels 1 – 14
 006073, VE-10-026, RPV Upper Head Inspection
 006051, PT-10-004, CRDM Housing Weld Exams, penetrations #66, 67, and 72
 Salem Unit 1, VT-2, Visual Examination Record, 12/14 AF FTTA, W.O. 60089848, 4/26/10 (VT)
 Salem Unit 1, VT-2, CA Repair Snoop Test, W.O. 60089575, 4/27/10
 Salem Unit 1, UT, W.O. 60084266, Yard AF, 4/18/10
 Salem Unit 2, UT, W.O. 60089851, Exam of containment liner
 Salem Unit 1, UT 1-SGF-31-L2 FW elbow below min. wall
 Salem Unit 1, UT, W.O. 30176541, 1-SGF-31-L2 FW elbow below min. wall
 Salem Unit 1, UT, W.O. 60084266, AFW
 Order 50113214, ST 550D, Surveillance: ISI Perform PORV Check
 Order 50118090, ST 550D, Surveillance: OPS Perform PORV Check
 W.O. 60089848, VT-2 Visual Examination Record, 12/14 AFW in FTTA, 4/26/10
 W.O. 941017262, Activity 02; Salem Unit 2, Excavate and Examine Auxiliary Feedwater Piping,
 12/2/94
 W.O. 60084266, UT Unit 1 AFW (thinnest area), 4/20/10
 UT Analysis, Component 1-SGF-31-L2 (14" FW Elbow below Minimum wall), 4/10/10
 W.O. 60089851, Unit 2 Containment Liner blister UT measurements, 4/21/10
 W.O. 60086175, Unit 1 Containment corrosion 78' elevation
 W.O. 60084266, Unit 1 AFW piping UT measurements, 4/12/10
 W.O. 30176541, Unit 1 AFW piping UT measurements, 4/12/10
 W.O. 60084266, Unit 1 AFW piping UT measurements, 4/7/10
 W.O. 60084266, Unit 1 AFW piping UT measurements, 4/5/10
 W.O. 60084266, Unit 1 AFW pipe UT measurements at supports, 4/18/10
 W.O. 30176541, Unit 1 CA piping UT measurements in FTTA
 401600, VE-04-198; Hope Creek system pressure test CST to HPCI/RCIC and Core Spray,
 11/5/04
 VT-2, Salem Unit 1 AF 12 & 14 Pressure Test, 4/25/10
 W.O. 60089661, UT measurements, Unit 2 AFW Piping #24 in FTTA, 4/25/10
 W.O. 60089661, UT measurements, Unit 2 AFW Piping #22 in FTTA, 4/26/10

Eddy Current Testing Personnel Qualification Records

A2421	C2028	R6452	T5616
B8731	C4596	R8002	R9311
B0500	C3340	S7752	G4943
B5127	D3858	T8251	C5542
B5128	H6267	V3197	F0075
B2576	H0282	R4142	F6623
F3961	I4048	R6279	F3453
C1560	J1978	G3380	G4943
D7895	2010983302133	B3720	G1311
D9573	P6459	R6900	H7791
D6502	R0830	A9608	J9141
H2039	R1164	N2574	M0950
K5380	S0608	I3805	M2665
M9460	2509981330193	T2170	M7006
E0427	K5858	N4815	M9459
M6664	1007951330114	M0945	M7007
B4260	L9168	P2963	M9082
A3502	L4332	M9715	N7035
J9815	F7460	K1903	N9952
P5436	F0037	D5318	R9311
M6042	3107943330158	W6070	S9098
B8589	6206070744	M5096	T5616
B4014	6507061922	J1945	T5565
G2573	1803983330125	L4588	W2639
V8530	2709977301226	C8042	W7912
W3368	P5304	N5330	
M4305	P4006	L8267	
B4052	R4201	F3453	
K6975			
G3910			
H0268			
L3025			
P1465			
B8079			
G1756			
C8071			
6410058746			
B5371			
H2131			
2909965330076			

Engineering Analyses & Calculations & Standards

Calculation 6SO-1882, Revision 1, 8/30/96; Qualification of Safety-Related Buried Commodities For Tornado Missile and Seismic Evaluation

Calculation No. S-C-AF-MDC-1789; Salem Auxiliary Feedwater Thermal Hydraulic Flow Model, 10/4/00

70087436, Steam Generator Degradation & Operational Assessment Validation, Salem Unit 1 Refueling Outage 18 (1R18) & Cycles 19/20, 9/2008

51-9052270-000, Update – Salem Unit 1 SG Operational Assessment At 1R18 For Cycles 19 and 20, 10/1/08

51-9048311-002, Salem Unit 1 SG Condition Monitoring For 1R18 And Preliminary Operational Assessment For Cycles 19 and 20, 10/30/07

701086998-0050, Maximum Pressure in Underground Auxiliary Feedwater Piping

60089575-130, Past Operability Determination for the leak in the one inch air line to air operated valves in Unit 1 South Penetration Area

70109233/20459231; Boric Acid evaluation of leakage from S1CVC-1CV277

70109232/20459230; Boric Acid evaluation of leakage from S1CVC-1CV2

70109230/20459228; Boric Acid evaluation of leakage from S2RC-1PS1

70109234/20459232; Boric Acid evaluation of leakage from S1SJ-13SJ25

70108698/30, Operating Experience Report for degraded Unit 1 AFW piping

51-9135923-000, AREVA; Salem unit 1 SG Condition Monitoring For 1R20 and Preliminary Operational Assessment For Cycles 21 And 22, 4/20/10

SA-SURV-2010-001, Revision 1; Risk Assessment of Missed Surveillance – Auxiliary Feedwater discharge line underground piping pressure testing, 4/23/10

CQ9503151526; SCI-94-0877, EXCAVATED AUXILIARY PIPING WALKDOWN/DISPOSITION OF COATING REQUIREMENTS; 12/16/94

Specification No. S-C-M600-NDS-019, COATINGS INTERIOR/EXTERIOR SURFACES CARBON STEEL SERVICE WATER PIPING, NO. 12 COMPONENT COOLING HEAT EXCHANGER ROOM AUXILIARY BUILDING (ELEVATION 84)

Structural Integrity Associates, Inc. Calculation File No. 1000494.301, Evaluation of Degraded Underground Auxiliary Feedwater Piping (Between Unit 1 FTTA and OPA), 4/23/10

Technical Evaluation 60089575-0140, Acceptability of CA Piping in the Fuel Transfer Area, 4/29/10

Technical Evaluation 60089848-0960, Auxiliary Feedwater Piping Missile Barrier Exclusion, 4/29/10

Structural Integrity Associates, Inc. Calculation File No. 1000498.301, Evaluation of Thinned Feedwater Elbow, 4/22/10

Technical Evaluation 70108698-0050, Maximum Pressure in Underground Auxiliary Feedwater Piping, 4/29/10

SPECIFICATION NO. S-C-MPOO-MGS-0001, Piping Schedule SPS54 AUXILIARY FEEDWATER, Revision 6

OpEval. #10-005, Salem Unit 2 Operability Evaluation, Received 5/18/10

Technical Evaluation 60084266-105-20, Alternative Exterior Coatings for Buried Piping, AF, CA, SA and Pipe Supports Under W.O. 60084266, 4/2/10

Technical Evaluation H-1-EA-PEE-1871, Hope Creek Service Piping Coatings Alternatives, 80075587, Revision 0, 10/15/04

PSEG Nuclear, LLC, Technical Standard, Coating Systems and Color Schedules, Revision 5, 4/3/06

Weld Records – AFW Piping Repair (W.O. #'s 60084266, 60089561, 60089798, 60089848)

Multiple Weld History Record: 74626
Multiple Weld History Record: 74556
Multiple Weld History Record: 74557
Multiple Weld History Record: 74558
Multiple Weld History Record: 74559
Multiple Weld History Record: 74560
Multiple Weld History Record: 74561
Multiple Weld History Record: 74562
Multiple Weld History Record: 74563
Multiple Weld History Record: 74564
Multiple Weld History Record: 74565
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Multiple Weld History Record: 74623
Multiple Weld History Record: 74600
Multiple Weld History Record: 74630
Multiple Weld History Record: 74622
Multiple Weld History Record: 74578
Multiple Weld History Record: 74596
Multiple Weld History Record: 74601
Multiple Weld History Record: 74602
Multiple Weld History Record: 74603
Multiple Weld History Record: 74604
Multiple Weld History Record: 74605
Multiple Weld History Record: 74598
Multiple Weld History Record: 74606
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Multiple Weld History Record: 74624
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Multiple Weld History Record: 74572
Multiple Weld History Record: 74570
Multiple Weld History Record: 74571
Multiple Weld History Record: 74623
Multiple Weld History Record: 74622
Multiple Weld History Record: 74621
Multiple Weld History Record: 74537
Multiple Weld History Record: 74538
Multiple Weld History Record: 74537
Welder Stamp Number: P-664
Welder Stamp Number: P-65
Welder Stamp Number: P-466
Welder Stamp Number: P-57
Welder Stamp Number: E-64
Welder Stamp Number: P-710
Welder Stamp Number: P-207
Welder Stamp Number: P-666
Welder Stamp Number: P-708
Welder Stamp Number: E-89
Welder Stamp Number: P-84
Welder Stamp Number: P-228
Surface Exam Record: 60089561-0041
Surface Exam Record: 60089848-0001
Surface Exam Record: 60089848-0001
Surface Exam Record: 60089561-0041
Surface Exam Record: 60089561-0860

Miscellaneous Documents

Salem Unit 1 & Salem Unit 2 Technical Specification, 3.4.11 STRUCTURAL INTEGRITY, ASME
CODE CLASS 1, 2 AND 3 COMPONENTS
Electric Power Research Institute (EPRI), Steam Generator Integrity Assessment Guidelines,
Technical Report 1012987, Revision 2, July 2006
NRC Letter dated 3/11/91; FIRST TEN-YEAR INSPECTION INTERVAL, INSERVICE
INSPECTION PROGRAM RELIEF REQUEST, SALEM NUCLEAR GENERATING
STATION, UNIT 1 (TAC NOS. 66013 AND 71101)
PSEG Nuclear, Salem Unit 1 & 2 Alloy 600 Management Plan, Long Term Plan (LTP), Revision
2, 10/15/09
Salem Unit 1 – Buried Piping Risk Ranking

MPR Associates Report, Technical Input To Operability of Potential Containment Liner
 Corrosion, Revision 0, 10/30/09
 Transmittal of Design Information #S-TODI-2010-0005, 4/20/2010
 Transmittal of Design Information #S-TODI-2010-0004, 4/16/2010
 OQ950315126, PSEG ltr. Dated 12/16/94; Excavated Auxiliary Feedwater Piping
 Walkdown/Disposition of Coating Requirements
 PSEG letter LR-N07-0224 dated 9/13/2007; REPLY TO NOTICE OF VIOLATION EA-07-149
 UNTAGGING WORKLIST 4274446, 14 AF Underground Piping 1R20, 4/30/10
 UNTAGGING WORKLIST 4274351, 12 AF Underground Piping 1R20, 4/30/10

LIST OF ACRONYMS

ASME	American Society of Mechanical Engineers
BAST	Boric Acid Storage Tank
BWR-VIP	Boiling Water Reactor, Vessel Internals Project
CEA	Control Element Assembly
CEDM	Control Element Drive Mechanism
CFR	Code of Federal Regulations
CR	Condition Report
EDG	Emergency Diesel Generator
EPRI	Electric Power Research institute
EQ/ACE	Equipment Apparent Cause Evaluation
EQ	Environmental Qualification
ER	Engineering Request
FTTA	Fuel Transfer Tube Area
GEH	GE - Hitachi
IP	Inspection Procedure
IR	NRC Inspection Report
IVVI	In Vessel Visual Inspection
LER	Licensee Event Report
LOCA	Loss of Coolant Accident
MT	Magnetic Particle Testing
MSIP	Mechanical Stress Improvement Process
NCV	Non-cited Violation
Notification	Corrective Action Notification
NRC	Nuclear Regulatory Commission
NDE	Nondestructive Examination
OE	Operating Experience
OSG	Old Steam Generator
RSG	Replacement Steam Generator
PDI	Performance Demonstration Initiative
PI&R	Problem Identification and Resolution
PPL	Pennsylvania Power & Light Susquehanna
PWSCC	Primary Water Stress Corrosion Cracking
PQR	Procedure Qualification Record (Welding Procedures)
RCS	Reactor Coolant System
RT	Radiographic Test (Radiography)
PT	Dye Penetrant Testing
SDP	Significance Determination Process
SE	Safety Evaluation

SG	Steam Generator
SI	Stress Improvement
SSC	Structure, System, and Component
TS	Technical Specifications
UT	Ultrasonic Test
UFSAR	Updated Final Safety Analysis Report
VT	Visual Examination
WPS	Weld Procedure Specification

INSPECTION SAMPLE COMPLETION STATUS

PROCEDURE or TI	MINIMUM REQUIRED SAMPLES Annual (A) Biennial (B)	CURRENT INSPECTION SAMPLES	RPS TOTAL SAMPLES TO DATE	PROCEDURE STATUS OPEN (O) CLOSED (C)	RPS UPDATED (Y) (N)
7111108 (G)	1				N
2515/172	1				Y

Attachment B-1

TI 172 MSIP Documentation Questions Salem Unit 1

Introduction:

The Temporary Instruction (TI), 2515/172 provides for confirmation that owners of pressurized-water reactors (PWRs) have implemented the industry guidelines of the Materials Reliability Program (MRP) -139 regarding nondestructive examination and evaluation of certain dissimilar metal welds in the RCS containing nickel based Alloys 600/82/182. This TI requires documentation of specific questions in an inspection report. The questions and responses for MSIP for the IR 05000311/2009005 section 4OA5 are included in this Attachment "B-1".

In summary the Salem Units 1 and 2 have MRP-139 applicable Alloy 600/82/182 RCS welds in the four hot and four cold leg piping to reactor pressure vessel nozzle connections for each plant.

For Unit 1 during the 1R20 refueling outage in April 2010 PSEG inspected one dissimilar metal weld, a SG channel head drain line weld. No indications were reported from this inspection. PSEG plans on replacing this valve, and the dissimilar metal weld, during refueling outage 1R22.

TI 2515/172 requires the following questions to be answered for MRP-139 MSIP inspections:

Question 1: For each mechanical stress improvement used by the licensee during the Salem U1 1R20 outage, was the activity performed in accordance with a documented qualification report for stress improvement processes and in accordance with demonstrated procedures?

Response Question 1: No MSIP activities were conducted on U1 during 1R20.

Question d.1: Are the nozzle, weld, safe end, and pipe configurations, as applicable, consistent with the configuration addressed in the stress improvement (SI) qualification report?

Response – Question d.1: No MSIP activities were conducted on U1 during 1R20.

Question d.2.: Does the SI qualification report address the location radial loading is applied, the applied load, and the effect that plastic deformation of the pipe configuration may have on the ability to conduct volumetric examinations?

Response Question d.2: No MSIP activities were conducted on U1 during 1R20.

Question d.3.: Do the licensee's inspection procedure records document that a volumetric examination per the ASME Code, Section XI, Appendix VIII was performed prior to and after the application of the MSIP?

Response: Question d.3.: No MSIP activities were conducted on U1 during 1 R20.

Question d.4.: Does the SI qualification report address limiting flaw sizes that may be found during pre-SI and post-SI inspections and that any flaws identified during the volumetric examination are to be within the limiting flaw sizes established by the SI qualification

report?

Response: Question d.4.: No MSIP activities were conducted on U1 during 1 R20.

Question d.5.: Was the MSIP performed such that deficiencies were identified, dispositioned, and resolved?

Response Question d.5.: No MSIP activities were conducted on U1 during 1 R20.