

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION III**

**Docket No:** 50-255  
**License No:** DPR-20

**Report No:** 50-255/99015(DRS)

**Licensee:** Consumers Power Company

**Facility:** Palisades Nuclear Generating Plant

**Location:** 27780 Blue Star Memorial Highway  
Covert, MI 49043-9530

**Dates:** October 25 - November 9, 1999

**Inspectors:** K. GreenBates, Reactor Engineer  
M. Holmberg, Reactor Engineer  
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**Approved by:** John J. Jacobson, Chief, Mechanical Engineering Branch  
Division of Reactor Safety

## EXECUTIVE SUMMARY

### Palisades Nuclear Generating Station NRC Inspection Report 50-255/99015(DRS)

This routine inspection focused on the conduct of inservice inspection activities to identify problems which have resulted from inservice use of the piping, systems or components at Palisades. The following specific observations were made:

#### Maintenance

- The steam generator eddy current examination scope, methods and repairs met or exceeded the technical specification requirements. Personnel acquiring eddy current data used state-of-the-art industry qualified techniques, were knowledgeable and performed eddy current examinations in accordance with the approved procedures. (Section M1.1)
- The licensee's inservice inspection personnel performing ultrasonic examination of Code Class 1 and 2 pipe welds and component supports used state-of-the-art industry qualified techniques, were well prepared, well trained and conducted a thorough examination in accordance with the approved procedures. The use of the industry sponsored Performance Demonstration Initiative requirements for ultrasonic examinations demonstrate a commitment to a quality inservice inspection program. (Sections M1.2, M5.1)
- In general, the inspectors concluded that the ISI program was implemented in accordance with NRC and ASME Code requirements. However, the inspectors noted that the ISI program did not always control the use of alternatives to required Code nondestructive examination methods. While it appeared that the technical aspects of the ISI program were satisfactory, a violation of regulatory requirements was identified. Ultrasonic examination procedures (and associated examinations) did not meet the 1989 ASME Code as required by plant technical specifications. (Sections M3.1, M7.1)
- Ultrasonic and eddy current examination personnel had extensive experience and training above the minimum required by Code. (Section M5.1)
- The inspectors considered that the ISI program audits conducted by the Nuclear Performance Assessment Department were noticeably improved for the conduct of performance based audits. Specifically, audits of ISI activities included numerous direct observations of Code field activities with qualified personnel. (Section M7.2)
- The inspectors considered the material condition of safety-related systems near the 607 foot elevation of containment, spent fuel pool room heat exchangers and east/west safeguards room generally good. The inspectors noted several corroded components, and verified the licensee had previously identified and appropriately documented the issues. However, the lack of timely corrective actions in completing the evaluations

required by NRC commitments on components affected by boric acid indicated a need for continued effort to improve the boric acid program and IFI 50-255/99009-01 will remain open. (Section M2.1)

### Engineering

- Overall, the inspectors concluded that flaw evaluations of indications found during nondestructive examinations were performed in accordance with plant procedures and 1989 ASME Code requirements. However, one violation of regulatory requirements was identified for a Class 2 main steam weld flaw evaluation which did not meet 1989 Code requirements as required by plant technical specifications and an NCV was issued. While the evaluation was deemed technically acceptable, relief from Code requirements had not been requested. (Section E2.1)

## **REPORT DETAILS**

The objective of the Palisades inservice inspection (ISI) program was to identify problems which have resulted from inservice use of the piping, systems or components. The program addressed the American Society of Mechanical Engineers (ASME) Section XI non-destructive test requirements for examination of Class 1 and 2 components. Palisades was in the second period of its third 10-year ISI interval; the current interval began in 1995 and will conclude in the year 2005. Unless otherwise stated, "Code" as discussed herein, refers to the 1989 Edition with no Addenda of Section XI, of the ASME Code.

### **II. Maintenance**

#### **M1 Conduct of Maintenance**

##### **M1.1 Steam Generator Inservice Inspection (ISI)**

###### **a. Inspection Scope (73753, 73755)**

Inspectors observed the acquisition of eddy current (ET) data on steam generator (SG) tubes in steam generators E-50A and E-50B and reviewed SG procedures, outage scope and repairs.

###### **b. Observations and Findings**

The licensee's ET acquisition equipment configurations were qualified by the Electric Power Research Institute to detect and size anticipated types of degradation in the steam generator tubes. Contract ET personnel were certified to ASME Code requirements and were knowledgeable of the procedure and equipment being used. The equipment configurations, probes and calibration checks for the bobbin coil inspections conformed to the licensee procedures.

The licensee's original ET scope included a 25 percent bobbin coil inspection of random tubes combined with motor rotated pancake coil inspection of the bend radius and top of tube sheet. The scope and equipment used was in accordance with licensee procedures and technical specification requirements. Subsequent expansions in tube inspection scope occurred due to finding defective tubes caused by wear at the vertical and diagonal supports. The licensee documented the ET findings in condition report CPAL 9902109, and appropriately entered the C-2 level of scope expansion as defined in Technical Specification 6.5.8 and procedure EM-09-05 "Steam Generator Program," Revision 8.

The inspectors noted that the tube repairs were conservative with respect to technical specification requirements. Tubes with identified wear indications were plugged with mechanical plugs, (5 tubes were plugged in SG E-50A, and 12 tubes were plugged in SG E-50B). The total number of tubes plugged in E-50A increased to 326, and 324 for E-50B. The inspectors noted that each SG had approximately 3 percent of the tubes plugged which remained well within the plugging limit of 15 percent. The licensee

appropriately reported the steam generator repairs to the NRC in accordance with Technical Specification 6.6.9a.

c. Conclusions

Overall, the inspectors considered the acquisition of ET data to be well controlled and in accordance with licensee procedures and technical specification requirements. Contractor personnel used state-of-the-art industry qualified techniques and were knowledgeable of procedural requirements. The eddy current examination scope, methods and repairs met or exceeded the technical specification requirements.

M1.2 Volumetric Examinations of Code Class 1 and 2 Welds

a. Inspection Scope (73753, 73755)

The inspectors observed licensee personnel performing ultrasonic examinations (UT) on three safety injection system check valve welds. In addition, inspectors observed personnel performing pre- and post UT examination calibration tests and reviewed radiographic record films of Class 1 and 2 welds.

b. Observations and Findings

b.1 Ultrasonic Examinations

The licensee had taken a proactive stance towards implementing the advanced techniques of the industry sponsored Performance Demonstration Initiative into all UT examinations. The inspectors considered this to be a proactive effort that demonstrated the licensee's commitment to a quality Inservice Inspection Program.

The inspectors observed manual UT examinations performed on safety injection system weld numbers 12,13 and 14 on the twelve inch line ESS-12-SIS-1B1 in containment. The personnel performing the nondestructive examinations were well prepared, well trained and conducted a thorough examination in accordance with the approved procedures. The transducers (size, model and frequency), cable length and type, scan angles, and the UT equipment were in accordance with procedure NDT-UT-33 "Ultrasonic Examination of Austenitic Piping & Branch Connection Welds," Revision 0. However, inspectors identified that when plant UT procedures were revised on September 24, 1998, the 1989 ASME Section III-2430 mandatory Code requirements for scanning sensitivity were not included in the revised procedure. As a result, the three welds ESS-12-SIS-1B1-12, -13 and -14 although examined in accordance with plant approved procedures, were not examined in accordance with the licensee's technical specification required 1989 Code. As the welds were examined with the improved techniques, there was no issue concerning the integrity of the welds. The lack of control of the use of alternatives to Code nondestructive examination methods is discussed in Section M3.2 "ISI Procedures", of this report. No recordable indications were identified during these examinations.

**b.2 Radiographic Examinations**

The inspectors examined the radiography record films and reader sheets for a Class 1 reactor coolant system power operated relief valve weld and a Class 2 containment sump pump check valve weld. The inspectors observed that penetrometer type and size and film quality attributes were found to be in accordance with the approved procedures and ASME Section V Code requirements. The inspectors considered that the weld coverage (overlap) and associated radiography records were appropriate for the welds.

**c. Conclusions on ISI of Code Class 1 and 2 System Welds**

The licensee personnel performing volumetric examination of Code Class 1 and 2 pipe welds and component supports were well prepared, well trained and conducted a thorough examination in accordance with the approved plant procedures. Use of the industry sponsored Performance Demonstration Initiative requirements for all ultrasonic examinations was considered proactive.

**M2 Maintenance and Material Condition of Facilities and Equipment**

**M2.1 Material Condition of Safety Related Systems**

**a. Inspection Scope (73753)**

The inspectors visually examined safety related components in the auxiliary building (spent fuel pool room heat exchangers and east/ west safeguards rooms), and lower containment areas near the 607 foot elevation during observation of ISI activities.

In addition, the inspectors reviewed the boric acid program to verify that this ISI associated program for monitoring the reactor coolant boundary was effective. Inspectors reviewed the Palisades corrective actions for leakage from systems containing boric acid and evaluated the licensee's progress in resolving IFI 50-255/99009-01 "Boric Acid Leak Inspection Program Ineffectiveness."

**b. Observations and Findings**

In general, the material condition of the safety related piping systems and supports was good in the areas observed by the inspectors. The inspectors did observe some locations which exhibited corrosion and wastage, which may have been caused by boric acid buildup from nearby leaks, and verified that each location had been identified by the licensee and evaluation/correction of the problem had been included in their corrective action program.

In Inspection Report 50-255/99009 the NRC identified that the Boric Acid Leak Inspection Program was ineffectively implemented as evidenced by the number of discrepancies that were identified by the inspectors. Additionally, engineering personnel were not proactive in resolving problems for components that were included in the program. A lack of ownership contributed to the program's ineffectiveness (reference

IFI 50-255/99009-01). Subsequently, the licensee performed an assessment of the pressure testing and boric acid control programs and documented the results in A-PAL-99-029. The evaluation identified 22 recommendations for the boric acid and pressure testing programs. To address the boric acid related issues the licensee revised procedure EM-26 "Boric Acid Leak Inspection." The procedure revision more clearly defined responsibilities for tracking, monitoring and evaluating components with boric acid accumulation and met licensee commitments to Generic Letter 88-05 "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components In PWR Plants."

The licensee was currently tracking approximately 400 components in the boric acid program. The licensee had prioritized the list of components to address those most at risk for boric acid related degradation (e.g. evidence of active leakage and/or degraded fasteners). As of the date of the inspection, over 150 components had been inspected and the majority of the remaining components were scheduled to be inspected by the completion of the outage. The inspectors sampled components inspected on this list and reviewed condition reports with boric acid evaluation sheets for valves CK-ES3116, CV-2113, CV-2115, CV-2117 and spent fuel pool heat exchangers E-53A and E-53B. Corrective actions implemented for these components complied with procedure EM-26, however as discussed below the licensee had not fully implemented NRC commitments into the boric acid control program.

In August of 1999, the licensee discovered leakage (one drop every 4-5 minutes) from the shell head flanges of these heat exchangers which contacted the carbon steel fasteners. The licensee documented this condition on EPAL-99-1240 and considered the heat exchangers operable based on the observed surface rusting of the steel fasteners which had not yet degraded the minor diameter of the bolting. The inspectors inspected the leakage area of these heat exchangers and confirmed leakage rate and bolting condition was as recorded on the licensee boric acid evaluation sheets. However, the inspectors noted that the evaluation block on the boric acid evaluation sheet did not include or reference parameters (service age and number of bolts, corrosiveness of process fluid, system function, or leakage history) required to be considered per the licensee relief request which committed to follow Code Case N-566-1. This relief request had been approved by the NRC on August 26, 1999 and had not been directly incorporated into the boric acid leak procedure EM-26. The program owner stated that a separate evaluation independent of that documented on the boric acid evaluation sheet would be used to evaluate the integrity of the heat exchanger flanged joints and this evaluation would conform to the Code Case N-566-1, however this evaluation had not yet been initiated. Inspectors considered the lack of timely corrective actions in completing the evaluation required by NRC commitments to indicate a need for continued effort to improve the boric acid program and IFI 50-255/99009-01 will remain open.

c. Conclusions

The inspectors considered the material condition of safety-related systems near the 607 foot elevation of containment, spent fuel pool room heat exchangers and east/west safeguards room generally good. The inspectors noted several corroded components, and verified the licensee had previously identified and appropriately documented the issues.

To address the boric acid related issues concerning the effectiveness of monitoring the reactor coolant boundary, the licensee revised procedure EM-26 "Boric Acid Leak Inspection." The procedure revision more clearly defined responsibilities for tracking, monitoring and evaluating components with boric acid accumulation and met licensee commitments to Generic Letter 88-05. However, the lack of timely corrective actions in completing the evaluations required by NRC commitments on components affected by boric acid indicated a need for continued effort to improve the boric acid program and IFI 50-255/99009-01 will remain open.

### **M3 Maintenance Procedures and Documentation**

#### **M3.1 ISI Procedures and Documentation**

##### **a. Inspection Scope (73753, 73052)**

The inspectors reviewed selected nondestructive examination procedures and the data recorded for the ISI activities witnessed in Section M1 to verify that examinations were being conducted in accordance with the ASME Code as specified in technical specification and Final Safety Analysis Report documents.

##### **b. Observations and Findings**

The inspectors found that the liquid dye penetrant and radiographic examination procedures were in accordance with Section V, Articles 2 and 6 of the Code. The data recorded for the ISI activities, witnessed in Section M1 by the inspectors, also met regulatory requirements. However, issues were identified with two of the reviewed UT procedures.

##### **b.1 Procedures NDT UT-11, 32, and -33, Ultrasonic Examination of Welds**

The inspectors reviewed Technical Specification 6.5.7 and Final Safety Analysis Report Chapter 6 licensing requirements for the ISI program and found that the inservice inspection code of record for Class 1, 2 and 3 piping for the Palisades 1999 outage to be the 1989 Edition of the Code. Procedure NDT-UT-11 "Ultrasonic Examination of Vessel Welds," met Code requirements. However, procedures NDT-UT-32 "Ultrasonic Examination of Ferritic Piping and Branch Connection Welds," Revision 0, and NDT-UT-33 "Ultrasonic Examination of Austenitic Piping and Branch Connection Welds," Revision 0, did not meet the 1989 Section XI requirements specified in mandatory Appendix III of Section XI. Specifically, the requirements of Section III-2430 which defined scanning sensitivity requirements, stated that "Manual scanning shall be done at a minimum of twice (+6dB) the primary reference level," were not included in either of the two procedures.

Nineteen safety related welds were scheduled to be examined using these two procedures. As a result of the procedure deficiency, out of the 5 examinations that were completed at the time of the inspection using these procedures, three of the welds (ESS-12-SIS-1B1-12, -13 and -14) although examined in accordance with plant procedures, were not examined in accordance with 1989 Code requirements.

The inspectors determined that the procedures had been revised on September 24, 1998, and that past procedures for ISI examinations, prior to the 1999 outage, did include this requirement. The new procedures had been written to satisfy the 1992 Edition, with the 1993 Addenda of the Code for Appendix VIII examination requirements. While inspectors considered that implementing the advanced techniques of the Performance Demonstration Initiative into the ISI program demonstrated a commitment to a quality inservice inspection program at Palisades, the use of these procedures without an approved relief request is a violation of NRC requirements.

As the improved UT techniques have been demonstrated in the industry to be more effective at crack detection than existing methodologies specified in the Code, this was not considered a technical issue regarding the integrity of the weld, but rather a concern for a lack of control of the use of alternatives to required Code nondestructive examination methods. There did not appear to be a feedback loop between licensing basis requirements and the technical initiatives implemented by the ISI program.

The failure of procedures NDT-UT-32 and NDT-UT-33, used for ISI examination of safety related weldments, to meet the 1989 ASME Code criteria for gain settings as required by Palisades Technical Specification 6.5.7 is considered a violation of regulatory requirements. This Severity level IV violation is being treated as a Non-Cited Violation (NCV), consistent with Section VII.B.1.a of the NRC Enforcement Policy (50-255/99015-01 (DRS)). This issue is in the licensee's corrective action program as condition report CPAL9902201.

c. Conclusions

The inspectors found that the data recorded for examinations witnessed in Section M1 were in accordance with Code requirements. In general, the nondestructive examination procedures reviewed met the ASME Code specified in the licensee's technical specifications, however inspectors identified issues with two of the procedures reviewed. Two procedures used for ultrasonic examination of welds did not specify Code required gain settings, and as a result, three examinations were performed which did not meet the requirements of the 1989 ASME Code. While the examinations were considered technically acceptable, this matter was considered a violation of regulatory requirements and an NCV was issued.

**M5 Maintenance Staff Training and Qualification**

**M5.1 Nondestructive Examination Personnel Qualifications**

a. Inspection Scope

The inspectors reviewed the qualification and certification records for selected licensee and contractor level II and level III personnel that performed ultrasonic, eddy current and liquid penetrant examinations of Code Class 1 and 2 welds and components.

b. Observations and Findings

For the nondestructive examination personnel reviewed, inspectors found that personnel had the appropriate levels of certification, experience, and education and met the visual standards requirements of American Society for Nondestructive Testing SNT-TC-1A. In addition to finding that certifications were in compliance with Code and plant procedures, inspectors observed that certifications were also provided for the Performance Demonstration Initiative, indicating that volumetric examination personnel had extensive experience and training above the required minimum.

c. Conclusions

Contractor and licensee personnel performing nondestructive examination were qualified and certified to regulatory requirements. Inspectors observed that certifications were also provided for the Performance Demonstration Initiative, indicating that volumetric examination personnel had extensive experience and training above the required minimum.

**M7 Quality Assurance In Maintenance Activities**

**M7.1 Inservice Inspection Program Implementation**

a. Inspection Scope (73753, 73051)

The inspectors reviewed the licensee's ISI Program Plan and implementation of the 10 CFR 50.55a(g)(6)(I) relief request requirements.

b. Observations and Findings

**b.1 Implementation of the Inservice Inspection Program Consistent with Code Requirements**

The "40-Year Master Inservice Inspection Plan," Revision 8, clearly annotated the relief request requirements that applied to each examination required by the ASME Code. For this ISI program period, the minimum and maximum percentage of examinations required by Code were defined in Code Table IWB-2412-1 "Inspection Program B." For the current period, the inspectors confirmed that the percentage of examinations selected by the licensee in Code examination category B-G-1, "Pressure retaining Bolting Greater than 2 Inches Diameter" and B-F "Pressure Retaining Dissimilar Welds" (nozzles) met Code Table IWB-2412-1 and -2430(d) requirements. Therefore, the inspectors concluded that the licensee's implementation of the ISI program plan was consistent with Code requirements.

**b.2 Ultrasonic Examinations of Welds Based On Industry Experience**

The licensee had evaluated safety-related piping based on industry experience issues, (i.e., thermal fatigue, flow assisted corrosion, etc.), and had scheduled supplemental UT examinations on eleven of these susceptible weld locations. The ultrasonic examination of welds potentially susceptible to thermal fatigue cracking and other industry

experience issues (beyond the minimum welds required by Code), demonstrated the licensee's commitment to safety.

c. Conclusions

Overall, the licensee's implementation of the ISI Program Plan was consistent with Code requirements. The inspectors considered the licensee's use of the Performance Demonstration Initiative qualified ultrasonic techniques and supplemental examinations (beyond the minimum welds required by Code), to demonstrate a commitment to a quality ISI program.

M7.2 Inservice Inspection Program Audits

a. Inspection Scope

The inspectors reviewed the Palisades self audit process to verify that audit processes had reviewed the ISI program appropriately, and that corrective actions were being addressed in a timely manner.

b. Observations and Findings

In Inspection Report No. 50-255/98006, the NRC identified that the lack of actual field monitoring and observation of ISI work could significantly undermine the effectiveness of any audits conducted for the ISI Program. In response to this concern, the licensee issued CR 98-0957 to evaluate this issue. The evaluation resulted in audit requirements that include direct observation of work activities with experienced auditors.

Procedure NPAP-03, "Nuclear Performance Assessment," Revision 18, had been revised to include planning and scheduling for direct observation of work activities and had also increased the required audit frequency to include each refueling outage. The inspectors verified that the ISI Audit Team was comprised of personnel with technical experience and observed that the ISI Audit Plan and Checklist included appropriate elements and source documents.

The inspectors found that the current outage audits included field monitoring of nondestructive examinations and observed nuclear performance assessment department personnel performing inspections in the field. The inspectors noted that several CR's were generated as a result of the nuclear performance assessment audit inspections and that the findings appeared productive for visual examinations in that they denoted where snubber ISI examinations were not in compliance with plant procedures and/or ASME Code.

c. Conclusions

The inspectors considered that ISI program audits conducted by the Nuclear Performance Assessment Department were noticeably improved. Specifically, the audits of ISI activities included numerous direct observations of Code field activities with qualified personnel.

### III. Engineering

#### E2 Engineering Support of Facilities and Equipment

##### E2.1 Flaw Analysis and Evaluation

###### a. Inspection Scope (73753)

The inspectors reviewed indications identified by ISI examinations during 1996 and 1998 outages and the licensee's disposition of flaw indications.

###### b. Observations and Findings

###### b.1 Weld Indication Flaw Analysis

Inspectors review of the licensee's flaw analysis evaluations found that in most cases flaw evaluation was performed in a conservative manner and met Code and regulatory requirements. However, one case was identified where the Palisades procedure used during a 1996 flaw evaluation for a main steam weld indication, did not meet the ASME Code requirements as defined by Technical Specification 6.5.7 and Final Safety Analysis Report Chapter 6 documents.

Inspectors found that during a 1996 radiographic examination, a 3/8-inch rejectable indication per IWC-3514 and Section III, NC-5000 acceptance criteria, was identified. The indication was found during examination of main steam component MSS-8-MSV-1S1-209, which is a Class 2 component examined as a Category C-F-2 weld. Further examination using UT again found that the flaw was not acceptable per the acceptance criteria of Table IWB-3514-1 of the 1989 Code. Subsequently the weld crown was removed, evaluated and approved using Appendix VIII examination techniques from the 1992 Edition, 1993 Addenda of ASME Section XI as modified by the Performance Demonstration Initiative program description Revision 1. However, Palisades was committed to the 1989 Edition of the Code. Inspectors observed that use of this alternative examination technique from a later edition of the Code was not documented as a demonstrated alternative examination technique per IWA-2240, and there had not been a relief request filed for this issue.

When the inspectors discussed the flaw analysis with the licensee, they promptly reviewed all flaw evaluation data from 1996 and 1998 ISI outages to verify that no other instances existed, and issued a condition report to determine relief request requirements.

The failure of the main steam component MSS-8-MSV-1S1-209 1996 weld flaw evaluation to meet the 1989 Code as required by Palisades Technical Specification 6.5.7 is considered a violation of regulatory requirements. This Severity level IV violation is being treated as a Non-Cited Violation (NCV), consistent with Section VII.B.1.a of the NRC Enforcement Policy (50-255/99015-02 (DRS)). This issue is in the licensee's corrective action program as condition report CPAL9902180.

During the course of discussions concerning regulatory obligations for keeping the NRC informed on plant initiatives within the ISI Program, the inspectors noted a general weakness in understanding the role/authority of the site Authorized Nuclear Inservice Inspector (ANII) by plant personnel (i.e., the ANII can allow a new technique different from the prescriptive technique, if it is in accordance with Section XI requirements. However, if it is the same technique, then it must meet the 1989 Code of record or a relief request must be submitted). The inspectors considered the lack of clarity and training for this issue to be a weakness in the program.

c. Conclusions

Overall, the inspectors concluded that flaw evaluations of indications found during nondestructive examinations were performed in accordance with plant procedure and 1989 Code requirements. However, one violation of regulatory requirements was identified for a Class 2 main steam weld flaw evaluation which did not meet 1989 Code requirements as required by plant technical specifications and an NCV was issued. While the evaluation was deemed technically acceptable, the Code provision for alternative examination techniques was not adhered to nor was a relief request submitted.

**E8 Miscellaneous Engineering Issues (92700, 92720)**

**E8.1 (Closed) Licensee Event Report (LER) 50-255/98-009: Leaks in ASME Class 1 Primary Coolant System Sample Line Welds**

The licensee identified pinhole leaks in two primary coolant system sample line socket welds during inservice leak testing following valve replacements. The welds were repaired and subsequently passed both the liquid penetrant examinations and the inservice leak test. The root cause was determined to be residual moisture in the weld area during the welding operation. No new issues were identified by this LER. This item is closed.

**E8.2 (Closed) Inspectors Follow-up Item (IFI) 50-255/98-006-01: Code Volumetric Coverage for Single Sided Ultrasonic Examinations of Welds**

The inspectors identified that the licensee had performed single sided ultrasonic examinations which was inconsistent with ASME 1989 Code requirements by using Performance Demonstration Initiative qualified procedures, equipment and personnel. This issue was resolved on June 3, 1999, when the licensee was granted relief request No. RR-12 by the Office of Nuclear Regulation. The relief request approval concluded that it was impractical to comply with the applicable requirements of the ASME Code and that the alternative examination using Performance Demonstration Initiative techniques provided assurance of the structural integrity of the weld. This approval of the relief request addressed the inspectors' concern and this item is closed.

**E8.3 (Discussed) Inspectors Follow-up Item (IFI) 50-255/99009-01: Boric Acid Leak Inspection Program Ineffectiveness**

The boric acid program issue was discussed as part of the ISI related issues pertaining to the integrity of the reactor pressure boundary detailed in Section M.2.1 of this report. The inspectors considered that the lack of timely corrective actions in completing the evaluations required by NRC commitments on components affected by boric acid indicated a need for continued effort to improve the boric acid program and IFI 50-255/99009-01 will remain open.

**V. Management Meetings**

**X1 Exit Meeting Summary**

The inspection was concluded at an exit meeting on November 9, 1999. The inspectors discussed the inspection results with members of licensee management, the licensee acknowledged the findings presented and did not identify any of the potential report input as proprietary.

## **PARTIAL LIST OF PERSONS CONTACTED**

### **Consumers Power**

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J. Haggar, SG Engineering Programs  
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D. Ziegler, Nondestructive Examination

### **NRC**

J. Lennartz, Senior Resident Inspectors  
R. Powell, Resident Inspectors

## **INSPECTION PROCEDURES USED**

IP 92700: Onsite Review of LERs  
IP 92720: Corrective Action  
IP 73051: Inservice Inspection - Review of Program  
IP 73052: Inservice Inspection - Review of Procedures  
IP 73753: Inservice Inspection  
IP 73755: Inservice Inspection - Data Review and Evaluation  
IP 57090: RT Procedure Review/Work Observation/Record Review

## ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

- |                 |     |   |
|-----------------|-----|---|
| 50-255/99015-01 | NCV | ISI NDT-UT-32 & NDT-UT-33 Procedures did not meet TS 6.5 Requirements                   |
| 50-255/99015-02 | NCV | ISI Flaw Evaluation for Class 2 MSS-8-MSV-1S1-209 weld did not meet TS 6.5 Requirements |

### Closed

- |                  |     |   |
|------------------|-----|---|
| 50-255/98-009    | NCV | Leaks in ASME Class 1 Primary Coolant System Sample Line Welds                          |
| 50-255/98-006-01 | IFI | Code Volumetric Coverage for Single Sided UT of Welds.                                  |
| 50-255/99015-01  | NCV | NDT-UT-32 & NDT-UT-33 Procedures did not meet TS 6.5 Requirements                       |
| 50-255/99015-02  | NCV | ISI Flaw Evaluation for Class 2 MSS-8-MSV-1S1-209 weld did not meet TS 6.5 Requirements |

### Discussed

- |                 |     |  |
|-----------------|-----|--|
| 50-255/99009-01 | IFI | Boric Acid Leak Inspection Program Ineffectiveness |
|-----------------|-----|--|

## LIST OF ACRONYMS USED

ACTS	Acquisition Technical Specification
ANTS	Analysis Technical Specification
ASME	American Society of Mechanical Engineers
ANII	Authorized Nuclear Inservice Inspector
CR	Condition Report
DRS	Division of Reactor Safety
EPRI	Electric Power Research Institute
ECT	Eddy Current
ET	Eddy Current Examination
GL	Generic Letter
IFI	Inspection Follow-up Item
IR	Inspection Report
ISI	Inservice Inspection
LER	Licensee Event Report
NDE	Non-destructive Examination
NCV	Non-Cited Violation
NPAD	Nuclear Performance Assessment Department
NRC	Nuclear Regulatory Commission
PDR	NRC Public Document Room
PT	Dye Penetrant Examination
PWR	Pressurized Water Reactor
SG	Steam Generator
TS	Technical Specification
UT	Ultrasonic Examination
VIO	Violation
VT	Visual Examination
WE	Westinghouse Electric

## PARTIAL LIST OF DOCUMENTS REVIEWED

### Procedures

EM-09-03 "Inservice Inspection," Revision 9  
EM-09-05 "Steam Generator Inservice Inspection," Revision 7  
EM-09-06 "Steam Generator Program," Revision 8  
EM-26 "Boric Acid Leak Inspection," Revision 1  
MRS.2.4.2 GEN-35, "ET Inspection of Preservice & Heat Exchanger Tubingm," Revision 8  
NDT-PT-01 "Liquid Penetrant Examination," Revision 13  
NDT-UT-32 "Ultrasonic Examination of Ferritic Piping & Branch Connection Welds,"  
Revision 0  
NDT-UT-33 "Ultrasonic Examination of Austenitic Piping & Branch Connection Welds,"  
Revision 0  
NDT UT-11 "Ultrasonic Examination of Vessel Welds," Revision 7  
NPAP-03, "Nuclear Performance Assessment," Revision 18

### Acquisition Technique Specification (ACTS) Sheets

ACTS PAL-02-99, Revision 0

### Condition Reports (CPAL)

96-1481 - "ET Tube Indications," 11/18/96  
98-0075 "Socket Weld Pipe Indication," 4/29/98  
98-0863 "ET Bobbin Indications," 5/7/98  
98-0863 "61 Loose Parts found inSG," 5/3/98  
98-0864 "2 ET Tube Indications Exceed Plugging Limit," 5/5/98  
98-0895 "1 ET Tube Indication Exceeds Plugging Limit," 5/6/98  
99-02084 "ET Probe Stuck in SG," 10/25/99  
99-02109 "ET Tube Indications," 10/26/99  
9902180 "MS Weld Flaw Dispositioned With Performance Demonstration Initiative  
Techniques," 10/28/99  
9902201 "NDE UT Procedures for Similar Metal Examinations Do Not Meet 1989 Code  
Section XI Code Requirements," 10/29/99

### Flaw Analyses

Engineering Analysis EA-ISI-96-01, Revision 0  
CPAL - 96-1481 Flaw Analysis  
CPAL - 98-075 Socket Weld Pipe Flaw Analysis, Revision 0

**PT Examination Sheets**

Data Sheet No. P-96-6018, 11/08/96

Data Sheet No. P-96-6037, 11/12/96

Data Sheet No. P-96-6083, 11/26/96

Data Sheet No. P-98-6053, 5/06/98

Data Sheet No. P-98-6071, 5/09/98

Data Sheet No. P-98-6079, 5/12/98

**Miscellaneous Documents**

40-Year Master Inservice Inspection Plan, Revision 9

A-PAL-99-029 "Adit Assessment of the Pressure Testing and Boric Acid Control Programs"