

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-263/84-06(DE)

Docket No. 50-263

License No. DPR-22

Licensee: Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

Facility Name: Monticello Nuclear Generating Plant

Inspection At: Monticello site, Monticello, MN

Inspection Conducted: March 5-9, 26-28 and April 24-25, 1984

Inspectors: *[Signature]*
K. D. Ward

5/11/84
Date

[Signature]
R. L. Cillimberg
(March 5-8)

5/11/84
Date

[Signature]
D. E. Jones
(March 26-28)

5/11/84
Date

Approved By: D. H. Danielson, Chief
Materials and Processes Section

5/11/84
Date

Inspection Summary

Inspection on March 5-8, 26-28 and April 24-25, 1984 (Report No. 50-263/84-06(DE))

Areas Inspected: Inservice inspection (ISI) activities; licensee action on IE Bulletins; and recirculation system piping replacement. This inspection involved a total of 68 inspection-hours onsite by 3 NRC inspectors including 24 inspector-hours onsite during off-shifts.

Results: No items of noncompliance or deviations were identified.

8405240221 840511
PDR ADOCK 05000263
PDR
Q

DETAILS

1. Persons Contacted

Northern States Power Company (NSP)

*W. Shamla, Plant Manager
P. Krumpos, Superintendent Materials and Special Processes
R. Schernost, Superintendent Quality Engineer
L. Noian, Superintendent Nuclear Technical Services
L. Waldinger, Superintendent Radiation Protection
L. Dahlman, Materials and Spec. Proc. Spec.
J. Schansen, Mat'l and Spec. Proc Spec.
D. Netzer, QA Engineer

Lambert - MacGill - Thomas Incorporated (LMT)

B. Thomas, Level III Examiner

Battelle

P. Robinson, Corrosion Engineer

General Electric Company (GE)

R. Price, QC Supervisor

Quadrex Corporation

J. Crider, Engineer
M. Segal, Consultant

Hartford Steam Boiler Engineering and Insurance Company

M. Rudek, Authorized Nuclear Inservice Inspector (ANII)

The inspector also contacted and interviewed other licensee and contractor employees.

*Denotes the individual present at the final exit interview on April 25, 1984.

2. Licensee Action on IE Bulletins

(Closed) IEB 78-12, Revision 1 and 2. (263/78-12-BB; 263/78-12-1B; 263/78-12-2B) Atypical weld material in reactor pressure vessel welds. The inspector reviewed the final response dated May 29, 1979.

In compliance with the subject Bulletins, General Electric (GE) requested Chicago Bridge and Iron Company (CB&I) to conduct a records investigation of low alloy, high tensile weld deposits used in all reactor pressure vessels built in their, or their supplier's, facilities. The purpose of

this investigation was to identify atypical weld deposit similar to the one described in Bulletin 78-12. In response to the GE request, CB&I prepared a report and submitted it to the NRC on April 24, 1979. This report states that no deviations were found in the welding material used in the Monticello vessel.

This IEB is considered closed.

(Closed) IEB 79-13 Revision 1 (263/79-13-1B) Cracking in feedwater systems piping. For information only. The inspector verified that the licensee management received the IEB and that it was reviewed for applicability.

This IEB is considered closed.

(Closed) IE Bulletin 79-17 and Revision 1 (263/79-17-BB; 263/79-17-1B) Pipe cracks in stagnant borated water systems at PWR plants. For information only. The inspector verified that the licensee management received the IEB and that it was reviewed for applicability.

(Closed) IE Bulletin 80-03 (263/80-03-BB) Loss of charcoal from standard type #2", tray adsorber cells. The inspector reviewed the final response dated March 12, 1980 and related documents to the following.

IE Bulletin 80-03 requested that power reactor facilities perform inspections of the charcoal adsorbers for loss of charcoal due to adsorber cell degradation. The only safeguards system at Monticello that contains charcoal adsorbers is the Standby Gas Treatment System. Information on the two charcoal adsorbers and the inspections performed as requested in Item 1 of the bulletin are given below.

System: Standby Gas Treatment System (2 Trains)

Adsorber Units: Quantity - 1 per train

Adsorber Cells: Quantity - 12 per unit

Type - 11, Barneby-Cheney Type FC-1521

1, Barneby-Cheney Type FC-2645 (test cell)

Weight - 94 lbs.

Design - Cells held in place by studs and retaining clips. Perforated screens secured to cells by rivets spaced 1/2 to 5/8 inches apart.

Inspections of the adsorber units were performed in accordance with Section 5 of ANSI N510-1975. The cells were in excellent condition with no signs of sagging, channeling or other degradation. There were no gaps between the perforated screens and casings. The visual inspection did reveal a minute amount of charcoal (approximately one tablespoon) on the floor of the exhaust side of each unit. These small amounts of charcoal are believed to have fallen through the screens during handling of removal of test cartridges and to have accumulated over a period of several years.

Monticello performs in-place halogenated hydrocarbon tests on the charcoal adsorbers once each operating cycle. The penetrations into the adsorbers have always been less than the maximum specified in the Technical Specifications ($\leq 1\%$) and minute losses of charcoal have not affected the results.

No defective cells were identified, therefore no additional actions as described in Items 2 and 3 of the bulletin have been taken.

This IEB is considered closed.

(Closed) IE Bulletin 82-01 (263/82-02-2B) Alteration of radiographs of welds in piping subassemblies. For information only. The inspector verified that the licensee management reviewed the IEB and that it was reviewed for applicability.

This IEB is considered closed.

(Closed) IE Bulletin 82-03, and Revision 1 (263/82-03-BB; 263/82-03-1B) Stress corrosion cracking in thick wall, large diameter, stainless steel, recirculation system piping at BWR plants. The inspector reviewed the final response dated November 22, 1982.

IE Bulletin 82-03, issued on October 14, 1982, required boiling water reactors scheduled to be in a refueling or other extended outage through the end of January, 1983 to perform inspections of recirculation system piping and supply information related to these inspections. This bulletin was subsequently revised and reissued on October 28, 1982. The purpose of inspections required by the Bulletin was to detect possible stress corrosion cracking in recirculation system piping similar to cracking experienced recently at the Nine Mile Point Nuclear Generating Station. Prior to the release of IE Bulletin 82-03, Northern States Power Company initiated a comprehensive inspection of recirculation system piping during the refueling outage beginning September 2, 1982.

Following the discovery of crack indications at Monticello on September 28, 1982, a meeting between Northern States Power Company, NRC Region III personnel, and NRC Office of Nuclear Reactor Regulation personnel was held on October 14, 1982 at the Region III office. Proposed corrective actions for the crack indications found in the Monticello recirculation system piping were discussed. Information required by the NRC for their review of the corrective actions proposed by Northern States Power Company was specified in a Confirmatory Action Letter dated October 19, 1982.

The following actions and information submittals were required by IE Bulletin 82-03, Revision 1 and reviewed by the inspector.

1. Demonstration of effectiveness of detection capability of ultrasonic methodology.
2. Listing of results of recirculation system piping inspection.

3. Description of corrective actions taken if the inspections indicate the presence of cracks.
4. Description of the inspections, including -
 - a. The sampling plan used
 - b. The UT procedures and calibration standards used
 - c. Summary of the results of previous inspections using the validated inspection methodology
 - d. Evaluation of crack detection capability

This IEB is considered closed.

(Closed) IE Bulletin 83-06 (263/83-06-BB) Nonconforming materials supplied by Tube Line Corp. The inspector reviewed the final response dated February 7, 1984.

A review of Attachment 2, Table I to IEB 83-06 identified the Monticello Nuclear Plant as a recipient of carbon steel from Tube Line Corporation via Capital Pipe and Steel Products Company through Cherne Contracting Corporation.

The materials identified consisted of six 10 inch, Schedule 80, 90 degree elbows purchased by Cherne Contracting Corporation on their purchase order M8298 from Capital Pipe and Steel Products Company (CPSP Co.) who obtained them from Tube Line Corporation. The elbows bore the stamping: Tube Line, Schedule 80 SA 234 WPB, EZWB.

These carbon steel elbows were ordered by Cherne Contracting for Northern States Power Company's Nuclear Engineering and Construction Department (NE&C) in April, 1982 and received in June, 1982 for the Main Steam Safety Relief Valve Drain Line and Tap Modification Project (NSP Project Job Number E-E81N335). The elbows originally consigned to this project, were never incorporated into the plant, but rather turned over to the plant as excess material and placed in an outside locked storage area when Cherne forces demobilized.

Upon receipt of IE Information Notice 83-07 in March, 1983, Cherne Contracting contacted CPSP Company to determine if materials received from them were possibly deficient and then notified NSP's NE&C Department by telephone and a followup letter dated April 14, 1983, that the subject elbows were deficient.

The six elbows supplied by Tube Line were then located in the locked storage area and returned to CPSP Company in May, 1983. They were never installed or used at the Monticello Nuclear facility.

A review of Monticello plant purchase orders indicated that no materials were directly supplied from Tube Line or CPSP Company. Capital Pipe and Steel Products Company and Tube Line Corporation are not on NSP's Approved Vendors List maintained by Power Supply Quality Assurance. This does not, however, preclude a contractor from purchasing materials from CPSP Company, if approved by them.

Contractor QA personnel for Cherne Contracting Corporation and AZCO Incorporated provided verbal assurance to CECO that no ASME Code materials supplied by Tube Line have been purchased and installed at the Monticello Plant since 1981.

This IEB is considered closed.

(Closed) IE Bulletin 84-01 (263/84-01-BB) Cracks in Boiling Water Reactor Mark I Containment Vent Headers. The inspector reviewed the final response dated February 6, 1984, and data reports of the above items.

The IEB was issued for action to all BWR plants having a type Mark I Containment who were currently in cold shutdown. The action required was to visually inspect for cracks in the entire vent header and in the main vents in the region near the intersection with the vent header, and as practicable to include the entire surfaces of these components.

This inspection at the Monticello Nuclear Plant was conducted by certified plant staff welding inspectors, using flashlights for the internal examinations and flashlights and quartz high intensity lamps for the external surface examinations.

All accessible surfaces and welds of the exterior (approximately 2/3 of the circumference) were examined from the catwalk and on top the Vent Header and vent line assemblies (main vents) with particular concentration of effort in Bay 13 where the nitrogen penetration from the vaporizer enters the torus and at the intersections of the eight vent header and vent line assemblies. The remainder of the external surface area and welds were inaccessible due to the normal water level in the torus. One hundred percent of the welds and surfaces for the vent header were examined internally including each vent line assembly (main vent) up to the missile barrier inside the bottom of the drywell.

No cracks or crack indications were noted in any weld or surface on the Monticello vent header.

This IEB is considered closed.

3. Inservice Inspection (ISI)

a. General

- . NSP contracted Lambert, MacGill, Thomas, Inc. (LMT) to perform the ISI in accordance with ASME Section XI, 1977 Edition, Summer 1978 Addenda, and General Electric (GE) to perform the visual examination on the reactor vessel. Westinghouse and NSP jointly performed a visual examination of the internal and external surfaces and the nozzles on the four feedwater spargers.
- . Ultrasonic examinations (UT) were performed on the following systems:

- . Stand-by Liquid Control.
Results: acceptable
- . Residual Heat Removal "D" Loop.
Results: acceptable
- . Head Vent.
Results: acceptable
- . Head Spare.
Results: acceptable
- . Instrumentation Nozzles.
Results: acceptable
- . Jet Pump Instrumentation Nozzle and Canisters.
Results: On the "A" Loop, weld W-1 on the canister was cracked. Weld W-2 was acceptable and weld W-3 was not ultrasonically examined. Liquid penetrant examinations (PT) were also performed on welds W-1, W-2 & W-3 and were acceptable. On the "B" Loop weld JPAD-1 on the jet pump instrumentation nozzle N8A was acceptable. The "A" and "B" Loops are to be replaced from the nozzle/safe end welds through the canister welds and the inspector will be following this activity.
- . Residual Heat Removal, "A" and "B" Loops.
Results: On "A" Loop weld #RHCF-20 was cracked also weld #RHCJ-21. On "B" Loop weld #RHBF-20 and weld #RHBJ-21 cracked. "A" and "B" Loop piping were removed and are to be replaced and will be followed by the inspector.
- . Visual examinations (VT) were performed on the reactor vessel interior and the following are the results:
 - . Shroud support to shroud.
Results: acceptable
 - . Shroud support to shroud support.
Results: acceptable
 - . Shroud support to bottom head.
Results: acceptable
 - . Core spray spargers.
Results: acceptable
 - . Feedwater sparger.
Results: Sparger #N4C, one crack from center of reactor vessel looking at vessel-nozzle #5 from T-box connection, left side. Sparger #N4D, three cracks from center of reactor vessel looking at vessel nozzles #6, 7, 8 from T-box connection, left side. Sparger #N4B, one crack,

counting to the right from the tee nozzle #5. The feed-water spargers were removed for further inspection and the cracked nozzles are being removed by GE for analysis. The following nozzles were PT'd, found cracked, and removed:

- "D" Sparger - 8th nozzle to left of T-box.
- "B" Sparger - 5th nozzle to left of T-box.
- "C" Sparger - 7th and 10th nozzle to right of T-box.

The above nozzles were shipped to GE San Jose, California for analysis.

NSP and LMT jointly performed an internal VT of the nozzles on all four spargers. The VT was the best effort with a fiberscope with approximately 10% of the welds examined in each nozzle. No gross indications were found. NSP and GE are continuing discussions on the repair/replacement of the spargers. This item will be followed by the inspector.

Visual examination of "A" and "B" Recirculation pumps were performed and the following are the results:

"A" and "B" recirculation pumps internal surfaces were visually examined from the suction and discharge sides utilizing a high resolution TV system and a fiber scope. A direct VT was also performed where possible. Both pumps were found in very good condition. No signs of erosion, corrosion or other damage on the internal surfaces were noted.

"A" and "B" recirculation pump suction and discharge valves were internally examined and the following are the results:

Delta Ferrite readings were also taken on the "B" discharge valve, "A" discharge valve and the "A" suction valve.

The internal surfaces of the valve bodies VT very good. Some surface cracking was noted on the gate stellite seating surfaces.

The valve side of the valve to pipe welds were PT'd and several linear indications were noted. These indications were removed by marking for the weld prep. This area will be PT'd after marking.

Low ferrite readings were found on the "A" suction valve and some were zero. These areas were PT'd and were found to be acceptable.

The valve body to bonnet bolting, valve stems and other parts will be VT'd as the valves are reassembled.

b. Procedure Review

The inspector reviewed the following procedures:

NSP, Magnetic Particle Examination, Yoke Method, MT-1, Revision 3

NSP, Liquid Penetrant Examination, PT-1, Revision 3

NSP, Ultrasonic Examination of Pipe Welds, UT-1, Revision 2

NSP, Automatic Data Recording, UT-2, Revision 2

NSP, Ultrasonic Examination of Ferritic Vessels, UT-3, Revision 2

NSP, Ultrasonic Examination of Studs and Bolts, UT-4, Revision 2

NSP, Ultrasonic Examination of Reactor Vessel Nozzle Forging Inner Radii, UT-5, Revision 3

NSP, Ultrasonic Examination of Reactor Vessel Nozzle Bore, UT-6, Revision 3

NSP, Ultrasonic Examination for Intergranular Stress Corrosion Cracking (IGSCC), UT-16, Revision 0 and Revision 1

NSP, Visual Examination, VT-1.0, Revision 0

NSP, Visual Examination of Hanger Assemblies, VT-2.0, Revision 0

NSP, Visual Examination of Pump and Valve Internal Pressure Boundary Surfaces, VT-3.0, Revision 0

NSP, Visual Examination of Reactor Vessel Interior, VT-4.0, Revision 0

c. Material and Equipment Certification

The inspector reviewed the certification documents relative to the following items:

- . Ultrasonic instruments, calibration blocks, transducers and couplant
- . Liquid penetrant, penetrant, cleaner and developer
- . Magnetic particle, materials and equipment

d. NDE Personnel Certifications and Observation of Work Activities

The inspector reviewed several NDE personnel certifications in accordance with SNT-TC-1A.

The inspector also observed the ultrasonic examination of weld #CSP 270-9 on the Core Spray "B" Loop and had discussions with personnel. These observations included calibrations, performance of the examinations, and the documentation.

e. Review of Data Reports and Audits

The inspector reviewed data reports, and certification review summary sheets (audits); also several NSP Surveillance reports.

No items of noncompliance or deviations were identified.

4. Recirculation System Piping Replacement

During the course of routine in-service inspection on September 28, 1982, crack-like indications were identified in the end cap of one of the recirculation system riser manifolds. Subsequent investigation confirmed the existence of four linear indications extending from the weld root into the adjacent heat-affected zone (HAZ), although no through-wall cracking was noted. The NRC was notified and advised that remedial measures were under investigation.

Upon further investigation, indications were found at five additional locations. Three indications were noted in the 12" riser to nozzle safe end welds and two were located in a riser pipe elbow. While preparing the recirculation safe-ends for repair, through-wall cracks were found in each of the three safe-ends. One elbow crack was found by leakage during hydro-static testing. The cracks were determined to be due to intergranular stress corrosion cracking (IGSCC). (Cracks were equally distributed between both recirculation loops.)

As a result of these findings, Northern States Power (NSP) performed repairs (DC 82M097) and then entered into contracts with General Electric Company (GE) and Bechtel Power Corporation (Bechtel) for the replacement of the recirculation system. To date 4/25/84 the piping has all been removed and sent to Quadrex Corporation. Also three welds are just started to be welded, #RCAJR-20, #RCAJR-17 and #RCAJR-25. The inspector observed the welding of #RCJR-25 and determined that all of the procedures were followed. There will be approximately 70 welds. The inspector will continue to follow the progress of the recirculation system replacement.

The following is the scope of work for the 1984 outage that this project entails, also the Codes and Standards.

Project Entails:

- . Hardware and software for the replacement of the ten (10) safe ends and transition pieces (General Electric NEBG).
- . Hardware and software for the replacement of the ten (10) 12" recirculation pipe risers (Bechtel San Francisco Power Division).

- . The 12" risers shall include bent pipe in lieu of elbows to eliminate weld joints.
- . In addition, hardware and software to use a 22" x 12" reducer at each end of the 22" recirculation pipe manifold. This configuration will eliminate the manifold end cap and equalizer crosstie between the A and B manifolds (Bechtel SFPD).
- . Hardware and software to replace all piping listed above, recirculation pump suction and discharge piping, the pump suction safe ends at the reactor vessel and the stainless steel portion of the RHR piping (Bechtel SFPD).
- . Small bore and instrumentation piping. (Materials are supplied by Cherne Contracting Corporation; fabricated by GE A&SEO).
- . RHR equalizer line (carbon steel, plus valves, BSFPD).
- . Refurbishment of recirculation pump and valves (Plant Maintenance) and reconstruction of weld preps (NE&C) for reinstallation.
- . Chemical decontamination of existing piping prior to removal and disposal as waste material (Quadrex). (This item is completed.)
- . Electropolishing of replacement piping after receipt inspection and prior to installation (NE&C, Quadrex). (All completed except for 7 spools and fittings.)
- . Installation collectively by NSP (electrical) and mechanical contractors (GE Apparatus and Engineering Services Operations).
- . Replace pipe supports spring elements, reusing the structural parts. (All structural parts may be removed by May 1, 1984.)
- . Reuse or replace pipe whip restraints (procured through BSFPD). (All whip restraints may be removed by May 1, 1984.)
- . Replacement of jet pumps instrumentation and standby liquid control safe-ends (GE NBEG).
- . Removal/Reinstallation of items for construction access (NE&C & Contractors).
- . IHSI by NSP (NE&C) Contractor; Ishikawagima Havima (IHI).

Codes and Standards

- . ASME Boiler and Pressure Vessel Code (ASME Code), Section XI, Division 1, "Rules for Inservice Inspection of Nuclear Power Plant Components", 1977 Edition, with all addenda up to and including Summer 1978 Addendum for design and installation.

Safe-ends (reactor vessel) may be procured to ASME Code Section III up to Winter 1980 Addendum (12") and Summer 1982 (28").

Piping subassemblies shall be in accordance with ASME Code 1980 Edition Section III through Summer 1982 Addenda.

- . ANSI B31.1-1977, Code for Pressure Piping, Power Piping, through Summer 1978 Addenda.
- . ASME Boiler and Pressure Vessel Code (ASME Code), Section IX, "Welding and Brazing Qualifications, 1980 Edition, with all addenda up to and including Summer 1982 Addendum (Table 1).
- . ANSI/ASME N45.2-1977, American National Standard, "Quality Assurance Program Requirements for Nuclear Facilities".
- . 10 CFR 50.59 - Safety Evaluation
- . 10 CFR 50, Appendix B - Quality Assurance Program
- . ANSI

- N45.2.1 (Cleaning)
- N45.2.2 (Storage)
- N45.2.3 (Housekeeping)
- N45.2.4 (Electrical)
- N45.2.6 (Inspection)
- N45.2.8 (Mechanical)
- N45.2.9 (Records)
- N45.2.10 (Definitions)
- N45.2.11 (Design)
- N45.2.12 (QA Audits)
- N45.2.13 (Procurement)

Mockups were designed by GE to assist in tooling design, welding procedure development and welder qualification. The inspector also observed welders welding on the mockups.

The inspector reviewed the process to be used for decontamination of both loops of the nuclear boiler recirculation system from near the reactor vessel suction nozzle to near the external riser vessel nozzles. In addition, RHR lines REW10-18" and TW30-16" to isolation valves M018-N14DU and M016-NW123D for loop A and similar lines and valves for loop B, and the recirculation loop equalizer lines will be decontaminated. Recirculation loop valves M02-43A, M02-53A, M02-43B, and M02-53B, and the recirculation pumps will be treated directly through available drain lines to obtain more effective decontamination of the multiple interior surfaces of these components.

Analysis of oxides at the decontamination flange showed high chromium content which will require the use of an oxidizing step prior to the use of the decontamination solution. Oxidation will be accomplished by exposing the chromium layers to dilute solutions of potassium permanganate and nitric acid for 24 hours.

The decontamination process to be used is the LOMI process which stands for low oxidation-state metal ion. The process exposes BWR oxides to the active reagent, vanadous formate which reacts stoichiometrically with ferric ions of the deposited oxide to reduce these to a ferrous state. This reaction takes place quickly, destabilizing the oxide structure and allowing the chelant, piculinic acid, to tie up the ferrous ion and keep it in solution. Once the oxides are dissolved, cobalt and other radioactive species are also complexed by the chelant and remain in solution. The resultant liquids are processed through anion or cation resin beds, and the activated cations are removed.

The inspector reviewed the results of corrosion studies to determine if any pressure boundary damage would be caused by exposure to decontamination solutions. Based on this review the low level of corrosion (less than 0.02 mil) that might occur is considered acceptable.

The inspector toured the following areas:

- . NSP's storage area of valves, pipe weld rod, etc., (for various jobs during the outage).
- . Machine shop, where GE was operating automatic welding machines on test pieces and personnel were machining spool pieces for weld preps on mock-ups. Also machining end preps on the safe-ends.
- . Weld test booths, where welders were trying to certify on pipe welds.
- . Weld rod control room, where rod was being issued and the operation was in accordance with their procedures.
- . Another NSP storage area a few miles from the site called "Remmele." This area was being used for storage of the new recirc. piping. The material was tagged, protected by wooden blocks and several pieces were electro polished.

Quadrex electropolished the interior of the Monticello reactor replacement primary coolant recirculation piping and fittings to achieve a surface finish sufficient to reduce the rate of activity buildup during future plant operations. The inspectors also observed ultrasonic and liquid penetrant examinations being performed on pipe bends and welds.

The inspector reviewed the following GE documents:

- . Welder qualification surveillances
- . PO's
- . Reviewing inspection reports
- . Certified material test reports
- . Certificates of Conformances
- . Code Data Reports
- . Welders qualification tests
- . Welding procedure specifications

- . Procedure qualification records
- . Welding performance qualification
- . Certifications of QC Inspectors

The inspector observed rigging of pipe for electropolishing, reviewed personnel certifications and the following procedures:

- . Quad, Qualification and Certification of Inspection, Examination and Testing Personnel (ANSI/ASME N45.2.6.) #QAP-203, Revision 1.
- . Quad, Electropolish Recirculation System Piping and Fittings, Project QA Plan, #7-83-056, Revision 1.
- . Quad, Pipe and Fittings Prepolishing Program, Project Plan, #7-83-057, Revision 0.
- . Quad, Pipe and Fittings Prepolishing Program #7-83-058, Revision 1.
- . Quad, Pipe and Fittings Prepolishing Program, Details Process for Electropolishing, #7-83-059, Revision 1.
- . Quad, Pipe and Fitting Prepolishing Program Safety Control, #7-83-060, Revision 0.
- . NSP, Liquid Penetrant Examination, PT-1, Revision 3.
- . NSP, Automatic Data Recording, UT-2, Revision 2.
- . NSP, Visual Examination, VT-1.0, Revision 0.
- . NSP, Ultrasonic Examination for Intergranular Stress Corrosion Cracking (IGSCC). UT-16, Revision 1.
- . NSP, Organization - Nuclear Plant Projects, #1-GF1, Revision 1.
- . NSP, Interfaces, 1-GF2, Revision 0.
- . NSP, Authorized Signatures, #1-GF8, Revision 0.
- . NSP, Project Authorization, 1-GF13, Revision 2.
- . NSP, Quality Assurance Program for the Repair and Modification of Nuclear Generating Plants, 2-GF1, Revision 1.
- . NSP, Project Quality Assurance, 2-GF2, Revision 1.
- . NSP, Design Document Review, 3-GF1, Revision 3.
- . NSP, Design Change Control, 3-GF2, Revision 1.
- . NSP, Engineering Change Request, 3-GF3, Revision 1.
- . NSP, Procurement Control of Consultant Services, 4-GF1, Revision 1.

- . NSP, Procurement Control of Construction Service, 4-GF2, Revision 1.
- . NSP, Review and Approval of Architect-Engineer Procurement, 4-G4, Revision 1.
- . NSP, Procurement of Items and Services, 4-GF5, Revision 1.
- . NSP, Specification of Procurement QA Requirements, 4-GF6, Revision 0.
- . NSP, Standard Requirements for Supplier Nuclear QA Programs, 4-1, Revision 4.
- . NSP, Standard Requirements for QA Programs, 4-3, Revision 1.
- . NSP, Procurement Package Processing, 4-GF9, Revision 0.
- . NSP, Procurement Package Processing, 4-GF9, Revision 0.
- . NSP, Transfer of Material & Equipment, 4-GF10, Revision 0.
- . NSP, Supplier Qualification and Inspection, 4-GF11, Revision 3.
- . NSP, Project Filing System, 5-GF1, Revision 4.
- . NSP, Processing of Project Documents, 5-GF2, Revision 0.
- . NSP, Identification and Format of Format of Correspondence/Documents, 5-GF3, Revision 0.
- . NSP, Drawing Control, 5-GF4, Revision 4.
- . NSP, Planning, Preparation and Control of Nuclear Operating Procedures and Project Work Instructions, 5-GF5, Revision 3.
- . NSP, Review and Approval of Contractor Procedures, Instructions and Other Control Documents, 5-GF8, Revision 1.
- . NSP, Structure, System and Component Identity Requirements, 6-GF1, Revision 0.
- . NSP, Material Storage and Release, 6-F2, Revision 3.
- . NSP, Receipt Inspection of Materials and Equipment, 6-F3, Revision 2.
- . NSP, Material Control, 6-F4, Revision 1.
- . NSP, Weld Material Control, 6-F5, Revision 0.
- . NSP, Indoctrination & Training Program, 7-GF1, Revision 0.
- . NSP, Nondestructive Examination Personnel Qualification & Certification, F-GF2, Revision 2.

- . NSP, Quality Control Personnel Qualifications, 7-GF3, Revision 2.
- . NSP, Construction Management, 8-GF1, Revision 2.
- . NSP, Release of Installed Electrical and Instrumentation Equipment for Testing, 8-F2, Revision 2.
- . NSP, Safety and Information Tagging, 8-F3, Revision 1.
- . NSP, Calibration and Control of Measuring and Test Equipment, 8-F9, Revision 0.
- . NSP, Construction Testing, 8-F10, Revision 2.
- . NSP, Nonconformance Control, 9-GF1, Revision 1.
- . NSP, Technical Review Board, 9-GF2, Revision 1.
- . NSP, Corrective Action, 10-GF1, Revision 0.
- . NSP, Reporting Deficiencies to the NRC, 10-GF2, Revision 2.
- . NSP, Test and Startup Program, 11-F4, Revision 2.
- . NSP, Records Disposition, 12-GF1, Revision 0.
- . NSP, Records Disposition, 12-GF1, Revision 2.
- . NSP, QA Section Quality Assurance Records, 12-GF4, Revision 3.
- . NSP, Audits, 13-GF1, Revision 1.
- . NSP, Management Evaluation of the QA Program, 13-GF2, Revision 0.
- . NSP, Surveillance, 13-GF3, Revision 1.
- . NSP, Qualification and Certification of Auditing Personnel, 13-GF4, Revision 1.
- . GE, Welding Performance Qualification, P28A-AE 2012, Revision 3.
- . GE, Welding Performance Qualification Supplement, #P28A-AE-2012S1, Revision 1.
- . GE, General Welding for Nuclear Power Plant Projects, #GWP 1000, Revision 17.
- . GE, General Welding Data Sheet, #GWP 1000AC, Revision 2.
- . GE, Storage and Handling, #GEM-AP-011, Revision 0.
- . GE, General Rigging #GEM-GP-003, Revision 1.

- . GE, Visual Examination ASME, GEM-N-001, Revision 1.
- . GE, Etching, GEM-N-005, Revision 1.
- . GE, Radiographic Examination, GEM-N-004, Revision 1.
- . GE, Liquid Penetrant Examination Color Contrast Solvent Removable, GEM-N-003, Revision 1.
- . GE, Dry Power Magnetic Particle Examination (Yoke and Prod Method), GEM-N-002, Revision 1.
- . GE, Radiographic Examination for the Qualification of Welders or Welding Operators, NDE-RT-3006, Revision 3.
- . GE, Visual Examination (AWS) GEM-N-010, Revision 0.
- . GE, RPRP Hanger Snubber & Whip Restraint Removal, GEM-REM-014, Revision 1. (All structural material have been removed worked and catalogued per GE Data Sheet GEM-DS-054 and suitably stored until reinstallation.)

The inspector reviewed the following documents that were to be used to remove and replace the reactor pressure vessel (RPV) recirculation inlet safe ends. The removal maybe completed in May, 1984.

- . GE, Reactor Vessel-Recirculation Inlet Safe End Design Specification, 23A1581, Revision 0.
- . GE, Certification of Design Specification, DC23A1581, Revision 0.
- . GE, Reactor Vessel Modification Drawing, 796E531 & PL, Revision 0.
- . GE, Reactor Vessel Modification Drawing, 796E532 & PL, Revision 0.
- . GE, Recirculation Inlet Safe End Replacement Installation Specification, 23A1597, Revision 0.
- . GE, Recirculation Inlet Replacement Installation Instruction, 23A1596, Revision 0.
- . GE, Welding Specification for Field Modifications of Vessel Components, Instruction, 22A6049, Revision 0.
- . GE, Weld Metal Interface Location, Instructions, 21A2039, Revision 2.
- . GE, Cleaning and Cleanliness Control for Field Modification of Vessel Components, Instruction, 21A2040, Revision 1.
- . GE, Repair of Arc Strikes, Instruction, 21A2041, Revision 1.
- . GE, Ultrasonic Examination to Determine Weld Overlay Clad Thickness, Instruction, 21A8808, Revision 2.

- . GE, Safe End, Instruction, 137c8006, Revision 0.
- . GE, Transition Piece, Instruction, 137C8007, Revision 0.
- . GE, Consumable Insert, Instruction, 167B3916, Revision 0.
- . GE, Forging Ring, Instruction, 167B3906, Revision 0.

No items of noncompliance or deviations were identified.

5. Exit Interview

The inspectors met with Mr. W. Shamba (denoted in Persons Contacted paragraph) at the conclusion of the inspection. The inspector summarized the scope and findings of the inspection noted in this report.