



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report No.: 50-261/84-48

Licensee: Carolina Power and Light Company
411 Fayetteville Street
Raleigh, NC 27602

Docket No.: 50-261

License No.: DPR-23

Facility Name: H. B. Robinson

Inspection Conducted: December 4 - 7, 1984

Inspector:

J. J. Blake

W. P. Kleinsorge

12/21/84

Date Signed

Approved by:

J. J. Blake

J. J. Blake, Section Chief
Engineering Branch
Division of Reactor Safety

12/21/84

Date Signed

SUMMARY

Scope: This routine, unannounced inspection entailed 34 inspector-hours on site in the areas of licensee action on previous enforcement matters, service water piping degradation and inspector followup items and IE Bulletins (IEB).

Results: One violation was identified - failure to provide adequate measures to protect stainless steel - paragraph 3.

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REPORT DETAILS

1. Licensee Employees Contacted

- *R. E. Morgan, General Manager, Robinson Plant
- *G. P. Beatty, Manager, Robinson Plant
- *J. M. Curley, Manager, Technical Support
- *F. L. Lowery, Manager Operations
- *R. M. Smith, Manager E&RC
- *H. J. Young, Director QA/QC
- *D. C. Stadler, Director Regulatory Compliance
- *J. Latimer, Welding Engineer
- *C. Wright, Senior Specialist Regulatory Compliance
- *J. C. Sturdavant, Technician, Regulatory Compliance

Other licensee employees contacted included engineers, technicians and office personnel.

NRC Resident Inspector

*H. E. P. Krug

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on December 7, 1984, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below. No dissenting comments were received from the licensee.

- (Open) Violation 261/84-48-01: "Failure to Establish Adequate Measures to Protect Stainless Steel" - paragraph 3.
- (Open) Inspector Followup Item 261/84-48-02: "Water Filled Pipe Welding" - paragraph 5b(1).
- (Open) Inspector Followup Item 261/84-48-03: "Stress Isos Weld Location" - paragraph 5b(6)(a).
- (Open) Inspector Followup Item 261/84-48-04: "Sleeve Data Sheet Discrepancies" - paragraph 5b(6)(b).

3. Licensee Action on Previous Enforcement Matters (92702)

(Closed) Unresolved Item 261/84-43-01

During the week of November 5 - 9, 1984, NRC inspectors observed Health Physics signs attached by an adhesive backing to cold leg accumulator stainless steel 304 piping. Licensee supervision was questioned whether the adhesives used on the aforementioned signs were considered chloride free. The inspectors were informed that the licensee was unsure of the chloride content of the adhesive but that they would find out and inform the inspectors. The inspectors informed licensee management that this question will be considered an unresolved item. Subsequently, the licensee determined that the adhesive on the signs had not been evaluated for chloride content. This inspector determined that FSAR Section 1.8 - Regulatory Guide 1.38 requires tapes and adhesive materials, when used with austenitic stainless steel and nickel alloy materials, not be compounded from or treated with chemical compounds containing lead, zinc, copper, sulfur, or mercury or more than 0.1 percent (1,000 ppm) halogens where such elements are leachable or where they could be released by breakdown of the compounds under expected environmental conditions. This requirement is implemented by CP&L Procedure TMM 3, Revision 8, which provides a list of acceptable consumables for use in maintenance. Health Physic signs and safety signs are not considered maintenance consumables. As a result, the Health Physic signs were not evaluated for chlorides or the other elements addressed in the above FSAR reference. The above indicates that the licensee had not established adequate measures to control storage and preservation of materials and equipment (cold leg accumulator stainless steel piping) in accordance with procedures to prevent deterioration (chloride and other element contamination). Failure to provide such adequate measures is in violation of 10 CFR 50, Appendix B, Criterion XIII. This matter will be closed as an unresolved item and opened as violation 261/84-48-01: "Failure To Establish Adequate Measures To Protect Stainless Steel".

4. Unresolved Items (92701)

Unresolved items were not identified during this inspection.

5. Service Water Piping Degradation (92706B)

a. Background

The degradation of the service water system is described in NRC Report 261/84-45. This inspection is a continuation of the inspection described in the above report.

The inspector discussed the progress of the repair, to the service water system piping, with the licensee who provided the following information. All service water weld joints inside containment will be sleeved or replaced with the following exceptions: 1) Welds that have been verified by radiography to be free of degradation, 2) Socket

welded joints (23 socket welded joints have been examined by radiography and no degradation was identified, which supports the premise that there is no degradation associated with socket welded joints), and 3) welded lugs (11 welded lugs have been examined by radiography and no degradation was identified, which supports the premise that there is no degradation associated with welded lugs).

The licensee performed mock-up testing and determined that welding on the existing service water piping when filled with water did not sensitize the weld heat affected zone. The sensitized heat affected zone in the existing fabrication welds was the, almost exclusive, location of the degradation. As a results of the above, the licensee is welding type 304L sleeves over the existing fabrication welds and heat affected zones with type ER-308L welding filler material, with the service water system piping filled with water, to minimize or prevent sensitization of the existing pipe, new sleeving materials or new sleeving welds. The only exceptions to the above are the following: 1) the first 35 or 36, sleeves were Type 304 stainless steel vise Type 304L, 2) through wall repairs and 3) replacement joints. As of December 7, 1984, approximately 200 sleeves have been installed.

b. Inspection

To evaluate the effectiveness of the sleeving program, the inspector reviewed procedures, observed work and work activities, and reviewed quality records as indicated below.

(1) Review of Quality Program

The inspector reviewed the below listed documents to ascertain whether the repair program had been approved by the licensee and whether adequate plans and procedures had been established to assure that the replacement project would be controlled and accomplished consistent with commitments and regulatory requirements.

<u>No.</u>	<u>Title</u>
CP&L-SP-638, Rev. 0	"Repair of Corrosion Damaged Service Water Pipe"
CP&L-WP-500, Rev. 9	"General Welding Procedure"

With regard to the examination above, the licensee informed the inspector that the program of welding the sleeves over the fabrication welds with water in the pipes to prevent sensitization in the weld heat affected zone is not documented. The licensee indicated that Special Procedure SP-638 is being converted to a "temporary repair" and the above program of welding on water filled piping will be included in that "temporary repair". Pending NRC Review of the "temporary repair", this matter will be

identified as inspector followup item 261/84-48-02: "Water Filled Pipe Welding".

(2) Welding Procedure Specification

The following Welding Procedure Specification (WPS) was selected for review and comparison with the ASME Code:

WPS

8B2, Rev. 14

PQR

6.6A & 6B

The above WPS and its supporting Procedure Qualification Records (PQRs) were reviewed to ascertain whether essential, supplementary and/or nonessential variables including thermal treatment were consistent with Code requirements; whether the WPS was properly qualified and its supporting PQR was accurate and retrievable; whether all required mechanical tests had been performed and the results met the minimum requirements as required; whether the PQR had been reviewed and certified by appropriate personnel and; whether any revisions and/or changes to nonessential variables were noted. WPSs are qualified in accordance with ASME B&PV Code Section IX.

(3) Production Welding

The inspector surveyed ongoing welding activities and selected typical in-process operations representing different welding processes, procedures and joint configurations for detailed review. The weld joints selected are listed below. The review was conducted to determine the following: work conducted in accordance with a "traveler"; welding procedures and drawings available; WPS assigned in accordance with applicable code; technique and sequence are specified; materials as specified; geometry as specified; fitup and alignment as specified; temporary attachments consistent with applicable code; gas shielding and purging as specified; preheat is as specified; technique is as specified; welding electrodes are as specified and consistent with the code; gas flow is controlled as specified; welding equipment is as specified; interpass temperature is controlled and consistent with the applicable codes; interpass cleaning performed as specified; process control system has provision for repairs consistent with applicable codes; weld repairs are conducted in accordance with specified procedures; base material repairs are properly documented; welder identification; peening not done on root or final weld surface layer; and contractor/licensee has periodic welding equipment preventative maintenance program.

Sleeves Examined

HBR-2-CW-069
 HBR-2-CW-122
 HBR-2-CW-149

- (4) Base Material and Filler Material Compatibility for Welding
- (a) The inspector reviewed the base and filler material combinations employed to evaluate the suitability of application.
- (b) The inspector reviewed the CP&L program for control of welding materials to determine whether materials are being purchased, accepted, stored, and handled in accordance with QA procedures and applicable code requirements. The following specific areas were examined:
- Welding material purchasing and receiving records for the following materials were reviewed for conformance with applicable procedures and code requirements.

<u>Type</u>	<u>Size</u>	<u>Heat No.</u>
ER 308L	1/8"	09735
ER 308L	3/32"	C3821

(5) Welder Performance Qualification

- (a) The inspector reviewed the CP&L program for qualification of welders and welding operators for compliance with QA procedures and applicable code requirements.
- (b) The following welder qualification status records and "Records of Performance Qualification Test" were reviewed:

Welder Symbol

MX
 W1
 GF
 C5
 HF
 AR
 AT
 TN
 AQ
 AJ
 MW

(6) Examination of Welds

The inspector visually examined completed and accepted welds as described below to determine whether applicable code and procedure requirements were being met.

- (a) The below listed welds were examined relative to the following: location, length, size and shape; weld surface finish and appearance (including inside diameter of pipe welds when accessible); transitions between different wall thicknesses; weld reinforcement -- height and appearance; joint configuration of permanent attachments and structural supports; removal of temporary attachments; arc strikes and weld spatter; finish-grinding or machining of weld surface -- surface finish and absence of wall thinning; surface defects -- cracks, laps, and lack of penetration, lack of fusion, porosity, slag, oxide film and undercut exceeding prescribed limits.

Sleeve Number

HBR-2-CW-028
HBR-2-CW-029
HBR-2-CW-030
HBR-2-CW-031
HBR-2-CW-180
HBR-2-CW-181
HBR-2-CW-182
HBR-2-CW-183
HBR-2-CW-318
HBR-2-CW-319

With regard to the examination above, the licensee indicated that the as-built dimension data for the stress Isos for the service water system piping were measured with the pipe lagging installed. Therefore, the locations of the piping fabrication welds on the stress Isos are only approximations. The inspector stated that the above matter will be identified as inspector followup item 261/84-48-03: "Stress Isos Weld Locations".

- (b) Quality records for the below listed sleeves were examined relative to the following: records covering visual and dimensional inspections indicate that the specified inspections were completed; the records reflect adequate quality; history records were adequate.

HBR-2-CW-006
HBR-2-CW-028
HBR-2-CW-029
HBR-2-CW-030
HBR-2-CW-031
HBR-2-CW-039
HBR-2-CW-180
HBR-2-CW-181
HBR-2-CW-182
HBR-2-CW-183
HBR-2-CW-192
HBR-2-CW-224
HBR-2-CW-318
HBR-2-CW-319

With regard to the examination above, the inspector noted the following discrepancies on in-process documentation:

- SP-638 data sheets No. 1, for all sleeves installed to date, indicate that sleeve material is Type 304 stainless steel, when in fact, only 35 or 36 sleeves are Type 304 and the remainder are Type 304L.
- SP-638 data sheets No. 1, for all sleeves covering more than one fabrication butt weld, have insufficient dimensional data to specify the location of both sleeve fillet welds with relation to the fabrication butt welds.

The inspector discussed the above with the licensee who indicated discrepancies would be corrected prior to the completion of the data sheets. The inspector stated that pending NRC review of the corrected documents this matter will be identified as inspector followup item 261/84-48-04: "Sleeve Data Sheet Discrepancies".

- (c) The inspector verified that approved procedures are available for the nondestructive examination of welds when required by applicable code and/or contract requirements.

Within the areas examined, no violations or deviations were identified.

6. Inspector Followup Items (92701B)

- a. (Closed) Item 261/84-27-03: Radiographic "Inspection Report Discrepancies."

The discrepancies identified in this item have been corrected. This matter is considered closed.

- b. (Open) Item 261/84-45-01: "Service Water Degradation"

This matter was further examined during this inspection and is discussed in paragraph 5 of this report. This item remains open.

7. IE Bulletins (IEB) (92703B)

- a. (Open) IEB No. 83-06, "Nonconforming Materials Supplied by Tube-Line Inc.," Unit 2.

The inspector reviewed CP&L letter of November 18, 1984, and determined that the requested actions of the Bulletin have been acceptably addressed. The inspector held discussions with responsible CP&L representatives, reviewed supporting documentation and observed representative samples of work to verify that the actions identified in the letter of response have been completed. This matter remains open pending NRC review of metallurgical data and back-up documentation that are located at the Harris E&E Center. The above material will be reviewed during an inspection at the Harris Site.

- b. (Open) IEB No. 83-07, "Apparently Fraudulent Products Sold by Ray Miller Inc.," Unit 2.

The inspector reviewed CP&L letters of March 23, June 1, and November 9, 1984, and determined that the requested actions of the Bulletin have not been acceptably addressed. The inspector held discussions with responsible CP&L representatives, reviewed supporting documentation and observed representative samples of work to verify that the actions identified in the letter of response have been completed. The June 1, 1984 letter indicated that CP&L was unable to contact 13% of their suppliers; the November 9, 1984 letter made no change in this area. The licensee committed to reevaluate their position relative to the previously uncontactable suppliers, and to develop a program to address the issue of the possibility of Ray Miller materials supplied by uncontactable suppliers. The licensee agreed to respond by January 31, 1985. This matter remains open.