

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-443/84-18

Docket No. 50-443

License No. CPPR - 135

Priority -

Category B

Licensee: Public Service Company of New Hampshire

P.O. Box 330

Manchester, New Hampshire 03105

Facility Name: Seabrook Station, Unit 1

Inspection At: Seabrook, New Hampshire

Inspection Conducted: December 3-7, 1984

Inspectors:

R. J. Paolino, Lead Reactor Engineer

F. Paulitz, Reactor Engineer

P. Phelan, Reactor Engineer

Approved by:

C. J. Anderson, Chief
Plant Systems Section, DRS

4-3-85
date

4-3-85
date

4-3-85
date

4/5/85
date

Inspection Summary: Inspection on December 3-7, 1984 (IE Report No. 443/84-18)

Areas Inspected: Routine, unannounced safety related inspection of activities relating to the installation of electrical/instrument components and systems. Review of applicable quality assurance records and current status of previously identified items. The inspection involved 101 inspection-hours on site for three region based inspectors.

Results: One violation in housekeeping.

Detail

1.0 Persons Contacted

1.1 New Hampshire Yankee

J. Gries, Preventative Maintenance Supervisor
*J. L. Marchi, Site Quality Control Manager
*G. F. McDonald, Construction QA Manager
*D. G. McLaine, Startup Manager
*W. T. Middleton, Quality Assurance Supervisor
*J. W. Singleton, Special Projects Manager
*J. G. Tefft, Special Assistant
Wm. Stinger, QA Records Supervisor

1.2 Yankee Atomic Engineering Corporation

*J. W. Bean, Field Quality Assurance Engineer
J. DeLoach, Assistant Project Manager
D. Caron, Startup Maintenance
L. Covill, Surveillance QA Manager
*D. E. Groves, Senior Quality Assurance Engineer
T. Heydon, Assistant Facility Supervisor
*G. F. Monerth, Field Quality Assurance
D. Maidrand, Assistant Project Manager
*B. Temple, Field Quality Assurance
B. Wolfe, Lead Electrical Startup Engineer

1.3 United Engineers and Constructors, Inc.

J. Garozzo, Manager of Engineering
*J. A. Grusetskie, Site Engineering
C. D. Hauson, QA Supervisor (Receiving 1 Storage)
C. E. Huhn, I&C Superintendent
*D. C. Lambert, Project Field Quality Control Manager
M. P. McKenna, Project Engineering Manager
V. Myshko, Electrical Engineer
Wm. Swanton, Cable Pulling Supervisor

1.4 Westinghouse Electric Corporation

R. Powell, Manager

1.5 U.S. Nuclear Regulatory Commission

*A. C. Cerne, Senior Resident Inspector
*L. C. Gesalta, IAEC Observer
*J. M. Wescott, Resident Inspector

*denotes personnel present at exit meeting

2.0 Facility Tour

- 2.1 The Inspector observed work activities in progress, completed work and plant status in several areas during a general inspection of Unit 1. The inspector examined work items for obvious defects or noncompliance with NRC requirements or licensee commitments. Particular note was taken regarding the presence of quality control inspection personnel and indications of quality control activities through visual evidence such as inspection records, material identification, nonconformance and acceptance tags.
- 2.2 The inspector noted that the heater for safety related pump motor No. S1-P-6B was not energized, and it was not possible to determine if the heaters for pump Nos. RH-P-8A, 8B and CS-P-2A, 2B were energized. The licensee indicated the heaters were energized at one time but could not explain why the heater temporary power leads were disconnected.

This item is unresolved pending NRC review of licensee evaluation and corrective action. (443/84-18-01)

- 2.3 During this general site inspection the inspectors observed a considerable amount of trash, debris, empty spray cans and loose hardware scattered throughout the facility. In the electrical tunnel penetration (elevation 14' - 0") area, an electrical craftsman working on a safety-related electrical distribution panel was standing in the midst of empty spray cans, loose hardware, stripped cable insulation and other debris.
- 2.3.1 A review of the Housekeeping records, indicated that surveillance personnel had identified and reported the housekeeping problem on a monthly basis as required by Section 7 of Procedure No. FIP-20, revision 1. The reports identified these areas as hazardous and detrimental to safety-related work in process in the areas. There was no evidence of any management action to take corrective action.
- 2.3.2 Section 5.7 of Procedure No. FIP-20 states, that: "garbage, trash, scrap, litter or other waste/excess material shall be deposited in a suitable container as it is generated."
- 2.3.3 Section 5.8 of this procedure states that: "Excess Materials shall not be allowed to accumulate and create conditions detrimental to quality and/or safety."
- 2.3.4 The licensee was told that this was a violation of 10 CFR 50, Appendix B, Criterion V which states, in part, that: "activities affecting quality shall be prescribed and shall be accomplished in accordance with these instruction." (443/84-18-02)

3.0 Electrical (Components and Systems)--Work Observations

3.1 Residual Heat Removal Pumps

3.1.1 The inspector observed work in progress, partially completed work and completed work pertaining to electrical equipment and components associated with the Residual Heat Removal Pumps to determine whether the requirements of applicable specifications, work procedures, drawings and instructions have been met in the areas relating to installation, modifications and maintenance.

3.1.2 Items examined for this determination include:

- Residual Heat Removal (RHR) Pumps (NNS-2050) located in Vault No. 1, Elevation 61, of the Auxiliary Building.
- Ingersoll-Rand Drawing No. C-8X20WDF86X24B, Residual Heat removal pump general arrangement Rev. 2 dated January 16, 1978
- PSNH Drawing No. 9763-F-101566, RHR Structural Support
- RHR Pump Purchase Order No. 546-CAS-208461-BN
- Ingersoll - Rand Co., QCL No. 78-422, RHR pump, Motor and Heat Exchanger Certificate of Compliance, August 25, 1978
- Assembly, Disassembly or Installation Instruction/checklist, Tag No. 1-RH-P-88, RHR Pump/motor element, August 13, 1978
- Durametallic SD-1139-03078, Recommended Procedures for protection of Dura Seals during long term storage, May 4, 1979.
- United Engineers, "Preventive Maintenance Record," May 1979 - November 1980
- Drawing No. E-03-F01 Rev. 10, Initial Run - Large Motors, May 30, 1984
- RHR Drawing No. GT-E-02-F01 Rev. 10, Nameplate Data-Motors, May 7, 1984
- RHR Drawing No. GT-E-06-FP1 Rev. 10, Voltage/Current Data, May 30, 1984
- RHR Drawing No. GT-E-07-F01 Rev. 10, Megger Tests, April 24, 1984
- RHR Drawing No. GT-E-01-F01 Rev. 10, Verification of Equipment Installation, May 7, 1984
- Insulation Resistance Tests, No. 1-RH-P-84, July 20, 1984
- Wiring Verifications and functional tests, GT-E-21-F01, Rev. 10 March 28, 1984
- Hydrostatic Test Report, COCM #357 Rev. 6, August 10, 1978
- Work Request #RH-0221, Residual Heat Removal Pump, December 6, 1984

3.1.3 No violations were identified

3.2 Battery

3.2.1 The inspector noted that several cells were missing from two of the four safety related 125V DC battery rooms.

3.2.2 Discussions with the licensee indicates that there has been a continuing problem with leaking batteries. It appears that the batteries have been returned to the vendor on at least three occasions. Non-conformance report (NCR) No. NCR-1099 dated November 12, 1981 documents the return of 236 control battery cells. NCR-83-040 dated June 29, 1983 identified additional battery failures when pressure tested at one psi. NCR-820040A dated June 22, 1984 documents the return of 295 battery cells for placement in styrene-acrylonitrile (SAN) vessels.

3.2.3 Notes from a meeting held between the licensee's architect engineer and the battery vendor on March 7, 1984, to review the qualification of the polycarbonate jars and the jar cover seals, references a 1983 International Telecommunications Energy Conference which describes an inherent design deficiency (stress cracking) in the use of polycarbonate materials in a sulfuric acid atmosphere. The vendor estimates that 50% of the large cells would experience leaks within 5 years. The meeting notes also indicate that the battery manufacturer would approach the NRC within the week on a potential 10 CFR 50 Part 21 notification.

3.2.4 This item is unresolved pending NRC review of licensee evaluation and corrective action.
(443/84-18-03)

4.0 Electrical Residual Heat Removal Pumps---Quality Record Review

4.1 The inspector reviewed pertinent work and quality records for the installation of the Residual Heat Removal Pumps to ascertain whether the records meet established procedures and whether the records reflect work accomplished consistent with NRC requirements and FSAR commitments in the areas of receipt inspection, storage, identification, installation and inspection.

4.2 Documents examined include:

- United Engineers, RIR No. 871, "Receiving Inspection checklist", October 5, 1978
- Assemble, Disassemble or Installation Instruction/Checklist, RHR Pump- Motor/Pump element, dated August 13, 1978
- United Engineers, Preventive Maintenance Record RHR Pump S/N 12769, November 18, 1983 - March 16, 1984.
- United Engineers, In-Place Comment Sheet #142A, August 14, 1981
- 1-RH-P-8A, "Summary of Maintenance Done," May 8, 1984 - November 19, 1984

4.3 No violations were identified.

5.0 Electrical Components and System - Procedure Review

5.1 The following procedures were reviewed to determine whether technical requirements contained in the facility safety analysis report (SAR) for safety-related electrical systems and components have been adequately translated into applicable construction specifications, work procedures and instructions, and whether these documents are of sufficient details and clarity for adequate work performance and control.

5.2 Field General Construction Procedure (FGCP)

- FGCP #1, Development & Preparation of Field Construction Procedures, Revision 8, dated October 24, 1984
- FGCP #2, Drawing Specification and Document Control, Revision 9, dated February 23, 1984, IPC No. 3 dated October 8, 1984.
- FGCP #3, Receipt Inspection and Storage of Nuclear and Safety Related Equipment and Material, Revision 9, dated October 6, 1983
- FGCP #6, General Preventative Maintenance and Minimum Storage Requirements for In-Place Storage of Permanent Plant Equipment, Revision 3, dated January 4, 1984
- FGCP #7, Control and Calibration of Measuring and Test Equipment, Revision 9, dated August 30, 1984, IPC No. 1 dated January 18, 1984
- FGCP #8, General Housekeeping During Construction of Nuclear Power Plant, Revision 5 dated February 2, 1983
- FGCP #9, Preventative Maintenance and Protection of Nuclear or Safety Related Equipment, Revision 8, dated January 4, 1984
- FGCP # 13, Construction Indoctrination and training for Governmental, Code, Specification and Procedure Requirements, Revision 5, dated February 23, 1984, IPC No. 1 dated April 5, 1984.
- FGCP #16, Handling of Nuclear and Safety Related Material and Equipment, Revision 6, dated January 12, 1983, IPC No. 1 dated February 15, 1984.
- FGCP #35, Hilti Installation and Inspection Procedures, Revision 1, Dated August 30, 1983, IPC No. 6 November 21, 1984

5.3 Field Electrical Procedures (FEP)

- FEP-201, Document Control Administrative Procedure, Revision 0, dated July 25, 1984
- FEP-202, Raceway, Cable, termination Slip Handling Procedure, Revision 0, dated July 10, 1984. IPC No. 1 dated September 11, 1984
- FEP-203, Procedure for Rework, Revision 0, dated June 25, 1984. IPC No. 1 dated October 3, 1984
- FEP-205, Field modification of Equipment Revision 0, dated September 13, 1984
- FEP-501, Installation and Inspection of Embedded conduit, Revision 0, dated July 12, 1984
- FEP-502, Installation of Exposed conduit terminal and Pull Boxes and Supports, Revision 0, dated July 12, 1984, IPC No. 3 dated October 16, 1984
- FEP-503, Installation and Inspection of Cable tray Supports, Revision 0, dated July 20, 1984, IPC No. 10 dated October 16, 1984
- FEP-504, Installation and Inspection of Cable Revision 0, dated July 10, 1984, IPC No. 5 dated October 2, 1984
- FEP-505, Installation and Inspection of Cable Termination, Revision 0, dated June 27, 1984
- FEP-514, Installation and Inspection of Heat Tracing, Revision 0, dated June 28, 1984, IPC No. 1 dated September 11, 1984
- FEP-516, Installation and Inspection of Ground and Grounding System, Revision 0, dated June 28, 1984
- FEP-517, Installation and Inspection of Underground Duct and Duct Bank, Revision 0, dated July 12, 1984
- FEP-518, Compilation of Quality Records Generated in Support of Safety/Seismic/IE Installation, Revision 1, dated September 17, 1984
- FEP-519, Installation of Safety and Non-Safety Related Electric Equipment, Revision 0, dated September 12, 1984
- FEP-520, Installation of Power Actuated Fasteners, Revision 0, dated June 28, 1984

- FEP-528, Erection of Non-Safety Related Structural Support Steel, Revision 0, dated July 20, 1984
- FEP-529, Construction Procedure for Handling Release of Structural Steel, Revision 0, dated July 20, 1984
- FEP-601, Calibration of Measuring and Test Equipment and tools, Revision 0, dated July 12, 1984
- FEP-602, Electric Test Requirements, Revision 0, dated July 12, 1984
- Specification No. 9763-006-48-2, General Electrical Installation, Revision 8, dated July 14, 1982
- Drawing List for specification No. 9763-006-48-2 Revision 1 dated November 22, 1978
- Technical Procedure No. TP-8, Revision 6, Separation Criteria, dated December 29, 1983

5.4 General Test Procedures (GT)

- GT-E-06, Initial Run-Large Motors, Revision 10, dated February 29, 1984
- GT-E-07, Megger Test Revision 10, dated November 9, 1983

5.5 No violations were identified.

6.0 Instrument (Components/Systems)---Work Observations

6.1 The inspector observed work in progress, partially completed work and completed work pertaining to the installation of component cooling level transmitters to ascertain whether the requirements of applicable specifications, work procedures, drawings and instructions have been met in areas relating to routing, mounting, supports, material qualification and inspection.

6.2 Items examined for this determination include:

- Tubing Installation for Instrument Nos. CC-LT-2172-1, 2 & 3; CC-LT-2272-1, 2&3; CC-LT-2192-1, 2 & 3; and CC-LT-2292-1, 2 & 3.
- Drawing Nos. CC-I-1-CI-002J revision 0, CC-I-1-T-002J, revision 1
- Tray Hanger Notes CC-I-1-002J revision 0
- Tubing routing plan for Instruments identified above
- Plan Drawing No. W-P-SK-4-PB, revision 1

- Instrument & Tubing Installation Drawing No. 1-PAB-T-48, revision 1.
- General Installation and Instrument System Drawing No. FIP-34, revision 3

6.3 No violations were identified.

7.0 Compression Fittings

The inspector noted that the licensee had completed preliminary studies for the use of Cryofit Monolithic Tube Couplings as replacement for welded couplings and compression fittings.

The Cryofit coupling is a permanent tube and pipe joining product manufactured from an alloy of titanium and nickel. Cryofit couplings are stored and shipped in liquified nitrogen (LN2) until just before installation.

Vendor documentation specifying installation instructions requires specific controls on storage, contact with liquid nitrogen, personnel training and safety precautions on use and ventilation.

The licensee was not able to provide test data supporting manufacture's claims for product or justification for use of the Cryofit Coupling as a replacement for welded couplings. Instruction and procedures for installing the cryofit couplings were not available.

This item is unresolved pending NRC review of licensee test data, instructions and procedures (443/84-18-04)

8.0 Unresolved Items

Unresolved items are matters about which more information is needed to determine whether it is acceptable or a violation. Unresolved items are discussed in paragraphs 2.1, 3.3 & 7.0.

9.0 Exit Meeting

The inspector met with licensee and construction representatives (denoted in detail, paragraph 1.0) at the conclusion of the inspection on December 7, 1984 at the construction site.

The inspector summarized the scope of the inspection and the inspection findings. At no time during this inspection was written material given to the licensee or his representative.