

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-443/85-11

Docket No. 50-443

License No. CPPR-135

Priority ---

Category B

Licensee: Public Service of New Hampshire

P. O. Box 330

Manchester, New Hampshire 03105

Facility Name: Seabrook Station, Unit 1

Inspection At: Seabrook, New Hampshire

Inspection Conducted: April 29 - May 3, 1985

Inspector:

Frederick P. Paulitz

F. P. Paulitz, Reactor Engineer

6-24-85

date

Approved by:

Clifford J. Anderson

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

7/5/85

date

Inspection Summary: Inspection on April 29 - May 3, 1985 (Inspection Report No. 50-443/85-11)

Areas Inspected: Routine, unannounced inspection of activities pertaining to the installation of electrical safety-related equipment and the status of previous inspection findings. The inspection involved 44 hours on site by one region-based inspector.

Results: No violations were identified.

8507170485 850712
PDR ADOCK 05000443
G PDR

DETAILS

1.0 Persons Contacted

1.1 New Hampshire Yankee

- *J. W. Singleton, Assistant Q.A. Manager
- *R. P. Grippardi, Assistant Q.A. Manager
- *G. Kingston, Station Staff Compliance Manager
- *L. Monteith, Field Q.A. Engineer
- *J. Marchi, Site Q.C. Manager
- *D. G. McLaine, Startup Manager
- *G. A. Kann, Startup Test Department (STD)
- *F. W. Bean, Field Q.A. Engineer
- *W. T. Middleton, Staff Q.A. Engineer
- G. F. McDonald, Construction Q.A. Manager
- W. J. Temple, STD Q.A. Supervisor
- J. G. Tefft, STD
- D. W. Perkins, Q.A. Engineer
- J. O. Azzopardi, Q.A. Engineer
- R. E. Guillette, Assistant Construction Q.A. Manager

1.2 Yankee Atomic Engineering Corporation

- *R. A. Jeffery, Site Engineer

1.3 United Engineering and Constructors, Inc.

- D. C. Lambert, Project Field Q.C. Manager
- *B. E. O'Connor, Field Site Q.C.

1.4 U. S. Nuclear Regulatory Commission

- A. Cerne, Senior Resident Inspector
- H. Westcott, Resident Inspector
- L. E. Briggs, Lead Reactor Engineer
- R. Barkley, Reactor Engineer

2.0 Licensee Action or Previous Inspection Findings

2.1 (Open) Nonconformance (83-20-01) Cable Tie Connection

2.1.1 Cable tie connection mounts in safety-related equipment were a problem for the following reasons:

- The mounts were detached which could affect the seismic analysis of the equipment.
- The epoxy material used to adhere the mounts to the equipment

was used beyond the materials effective date for field applications.

- There was no procedure which permitted this type of mounting for field applications, in safety related equipment.

The licensee response to this violation SBN-638 dated March 19, 1984 stated that cable-tie connectors were to support internal wiring harnesses in a neat and workman like manner. Random detachment of the cable-tie connectors during a seismic event will not affect the operation of the control panels since their proper function is not dependent on the support of the cable-tie connectors. This will be verified with the manufacturer. Corrective action was to be complete by April 30, 1984.

United Engineers & Contractors (UE&C) letter SBU-91281 dated October 23, 1984 stated that various vendors of electrical equipment were contacted regarding the impact of random detachment of epoxy attached cable-tie mounts. Based upon the response from two manufactures, Westinghouse and Brown Boveri, UE&C has concluded that detachment during a seismic event does not affect the operation of the equipment.

- 2.1.2 The inspector reviewed the responses from the above two manufacturers and concluded that, for these manufacturers, random detachment of the cable tie connection mounts is not a safety issue. This is because the cable tie connectors are not the primary cable support.

However, other vendors use cable tie connectors, using epoxy for mount adhesion, in safety related equipment at Seabrook. Information from other vendors was not provided to the inspector. The information from the two vendors is not sufficient to conclude that detached cable tie connection mounts for the other vendors is acceptable.

Pending licensee receipt and NRC review of information from the remaining vendors this issue remains open.

2.2 (Closed) Unresolved Item (84-18-03) Class IE Batteries Replacement

The licensee had previously identified a problem with polycarbonate jars leaking at the top and side interface. The batteries had been returned to the vendor two times for rejarring because of the leaks. However, this third time they were rejarrer with styreneacrylonitrile (SAN) jars and jar covers. The work requests, battery intercell resistance test and specific gravity were reviewed and found acceptable. The licensee QC personnel had identified missing vendor test reports. They issued Nonconformance Reports to assure that these reports were replaced. This item is closed.

2.3 (Closed) Unresolved item (84-18-04) Compression Fittings

The use of Cryofit couplings as replacement for welded couplings and compression fittings was an unresolved item because the licensee had not provided the inspector with the following information:

- Procedures for installing the Cryofit Couplings.
- Personnel training.
- Test data supporting manufacturer's claims.
- Justification for use of the Cryofit Couplings as a replacement for welded couplings.

A QA/QC procedure advance notice No. 221 January 4, 1985 to Quality Control Procedure QCP-13 "Handling and Storage Control" was made to include a new paragraph IVA.3.a(6) Cryofit Coupling Storage to assure couplings are stored as required by manufacturers instructions.

The vendor Raychem Corporation Instruction Manual FP97663 "Cryofit Monolithic Pipe Couplings" relative to the vendor installation specification was reviewed by the licensee as required by Administrative Procedure No. 37 on March 22, 1984.

Field Instrumentation Procedure No. 34 "General Installation of Instrumentation Systems" was revised by Interim Procedure Change Notice No. 5 to include the following:

- Reference 4.2.10 FP-97663 Installation Instruction for Cryofit Monolithic Pipe Couplings.
- Reference 4.3.14 QC Installation Report for Cryofit Coupling (Final) February 15, 1985.
- Detail Procedure 5.15 Cryofit Heat Recoverable Couplings.
- Quality Requirements 6.2.12 Cryofit Coupling surveillance of in-process activities.
- Quality Requirements 6.2.13 Cryofit Coupling final inspected and documented.

- 2.3.1 The inspector reviewed related training records that indicate, as of February 1985, workmen were trained in the installation of Cryofit Couplings. The inspector verified that two workers installing Cryofit Couplings had been trained in the handling and installation of these couplings.

Report No. EDR-5116 "Elevated Temperature Performance Test of Raychem Cryofit Brand Heat Recoverable Pipe Couplings dated May 25, 1984 was reviewed and it was noted that the following performance tests had been conducted:

- Leak test, at ambient temperature, with nitrogen gas at 1000 PSI.
- Proof pressure test, as ambient temperature, with hydraulic fluid at 9000 PSI.
- Burst test at 700°F.
- Thermalcycling from ambient to 700°F, then burst tested.
- Thermal aging at 700°F, then burst tested.
- Tensile Testing at 700°F.

The following summary of the results of above tests indicates that the Cryofit Couplings satisfy the performance requirements at 700°F:

- No coupling leakage
- Burst always occurred in the pipe or tube at locations removed from the Cryofit Coupling
- Tensile pull out was 1.5 to 3 times the yield strength of the pipe or tube.

As justification for the replacement of welded couplings with Cryofit Couplings the licensee offered an ASME Code letter. The code inquiry reply letter from The American Society of Mechanical Engineers (ASME) dated May-19, 1980 to Raychem Corporation states that compression type fittings of proprietary design made from materials not listed in ANSI/ASME B31.1, Table 126.1 are acceptable for B31.1 construction.

Additional justification for the use of the fittings included a report "ASME Code Requirements for Raychem Cryofit and Cryoweld Products" by Reedy, Herbert, Gibbons and Associates, Revision 2 dated January 4, 1983, to show that Cryofit and Cryoweld Fittings, one inch nominal pipe size and less,

manufactured by Raychem are in compliance with the applicable requirements of the ASME code.

- 2.3.2 In conclusion the vendor's test have established that Cryofit Couplings are an acceptable replacement for welded or compression fittings and meet the ASME Code requirements. The licensee has procedures for storing, quality control and installing the Cryofit Couplings. The instrument tubing installation personnel have been trained using this procedure.

This item is closed.

3.0 Facility Tour

- 3.1 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. The quality control inspectors were observed by the inspector, monitoring cable routing from the spreading room for termination within equipment in the control room. The inspector observed wiring modifications within the main control board and noted that the wire termination tools used were within their recalibration dates. The inspector observed indications of quality control activities through visual evidence such as inspection records, material identification, nonconformance and acceptance tags.
- 3.2 During the inspection of the class 1E batteries, dirt was observed on the top of the battery cells and on the floor of battery room C. A quantity of baking soda was noted on the floor of both battery room C and D. In addition, the electrolyte fill plastic covers were broken on battery B, cells 4, 23, 33, 41 and 43. The integrity of these covers is necessary to prevent foreign materials from entering the battery cells. The inspector informed the licensee of the above batteries and battery rooms condition and the licensee took prompt corrective action.

The inspector noted that the space between the end jars and the seismic rack varied from zero to one inch. The licensee is evaluating if a 10 CFR 50.55(e) report is to be submitted concerning this gap, based upon the vendors seismic qualification program.

- 3.3 The inspector observed that electronic components, within the diesel generator control panels, were being replaced by the vendor personnel. The inspector determined that the activity was being

conducted in accordance with the work request and monitored by quality control personnel. In addition the inspector verified that the screw driver used by quality control personnel was set to the correct torque setting and within the required calibration date. Equipment within the diesel generator rooms was covered and protected from overhead work. The generator space heaters were energized to protect the insulation from moisture.

The inspector observed that deflector plates had been installed above the diesel generator exhaust stack where they terminate in the vertical direction above the roof line. The need for these deflector plates was identified in the Safety Evaluation Report, to prevent clogging from dust, ice and snow. The licensee agreed, in a letter dated November 12, 1982, to the installation of the deflector plate and the addition of a pressure relief device (PRD) on the exhaust stack. The pressure relief device was to assure diesel generator operation in the event that a tornado missile strikes the exhaust stack. The licensee has re-evaluated its' commitment for the installation of the pressure relief device. The licensee has proposed to include the diesel generator exhaust stack in an ongoing probability study of tornado missiles. The results of this study may preclude the pressure relief device modification. The results of this study are under review by NRR.

- 3.4 The inspector observed that the motor space heaters were operational for the charging pumps, safety injection pumps, and the containment spray pumps. The open gratings, above RHR pump motors, were covered to prevent dirt from overhead work getting into the motors. All of the above motors intake and exhaust air vents were covered with filters.

4.0 Engineer Safety Feature System (ESFS)

A potential failure of the ESFS from the permissive reset interlock P-4 reactor trip breakers, was reported to the NRC by Westinghouse, November 19, 1979. The licensee also reported this as required by 10 CFR 50.55(e) on December 6, 1979. This was identified as an unresolved item 79-00-04 and closed in Inspection Report 82-01 based upon the Westinghouse proposed verification procedure. The Westinghouse verification procedure is to provide assurance that the P-4 interlock, which is activated during reactor breaker testing, will not prevent ESFS actuation. However, the licensee's review of the Westinghouse procedure identified that the proposed procedure was inadequate. This was reported to the NRC in PSNH letter SBN-794 dated April 23, 1985. This item is unresolved pending NRC review of the Westinghouse verification procedure (85-11-01).

5.0 Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, violations or deviations. An unresolved items disclosed during the inspection is discussed in paragraph 4.

6.0 Exit Interview

The inspector met with the licensee representatives (denoted in paragraph 1) on May 3, 1985, and summarized the purpose, scope and findings of the inspection. At no time during this inspection was written material provided to the licensee by the inspector.