U. S. NUCLEAR REGULATORY COMMISSION

Region I

Report Nos. 50-443/82-11
50-444/82-06

Docket Nos. 50-443
50-444

License Nos. CPPR-135
CPPR-136 Priority -- Category A

Licensee: Public Service Company of New Hampshire

1000 Elm Street

Manchester, New Hampshire 03105

Facility Name: Seabrook Station, Units 1 and 2

Inspection At: Seabrook, New Hampshire

Inspection Conducted: September 20-24, 1982

Inspectors: S. A. Richards, Reactor Inspector — date signed: 10/7/82

_____ — date signed: _____

Approved By: L. H. Bettenhausen, Ph.D., Acting Chief, Plant Systems Section — date signed: 10/7/82

Inspection Summary: Inspection on September 20-24, 1982 (Combined Report No. 50-443/82-11 and 50-444/82-06)

Areas Inspected: Routine, unannounced inspection by a region-based inspector of procedures and work activities related to the installation and inspection of electrical and instrumentation components. The inspection involved 31 inspector-hours onsite.

Results: No violations were identified.

DETAILS

1. Persons Contacted

Yankee Atomic Electric Company (YAEC)

*F. Bean, Field Quality Assurance Engineer (FQAE)
*D. Covill, FQAE
*J. Herrin, Site Manager (PSNH)
*W. Middleton, QA Supervisor
*B. Mizzan, QAE
*S. Sadosky, QAE
*T. Singleton, Field QA Manager
*W. Smith, Instrumentation and Control Supervisor (PSNH)
*T. Wiebold, Auditor

United Engineers and Constructors (UE&C)

S. Buia, Structural Engineer
*J. Grusetskie, Engineering Manager Assistant
*D. Lambert, Field Superintendent of QA

Johnson Controls, Inc. (JCI)

J. Foster, Training Coordinator
J. Giguere, Foreman
A. Kennedy, QA Manager
H. McNeil, Support Engineer
A. Schroeder, QAE
R. Walter, Project Engineer

Fischbach-Boulos-Manzi (FBM)

N. Frost, Quality Control Supervisor

USNRC

*A. Cerne, Senior Resident Inspector

*denotes attendees at exit meeting on September 24, 1982.

In addition, the inspector conferred with other licensee, construction management and contractor personnel during the course of the inspection.

2. Instrumentation -- Construction and Inspection Procedure Review

Johnson Controls, Inc. (JCI) is the Seabrook Station instrumentation contractor. The inspector reviewed the following construction and inspection procedures to ascertain whether quality assurance plans, instructions, and procedures for instrumentation components and systems has been established in accordance with the Seabrook Final Safety

Analysis Report (FSAR), the facility QA manual, and applicable regulatory requirements.

-- Seabrook FSAR, Section 7.1,

-- JCI Quality Assurance Manual, Revision 1,

-- Quality Assurance Standard (QAS) - 202-SS, Revision 0, Quality Auditor Qualification, Training and Maintenance of Proficiency,

-- QAS-501-SS, Revision 0, Procurement Document Control,

-- QAS-602-SS, Revision 0, QA Review and Approval of Field Revisions to the I/F Package,

-- QAS-801-SS, Revision 2, Receiving Inspection,

-- QAS-802-SS, Revision 1, Verification of Items,

-- QAS-1007-SS, Revision 2, Inspection of Concrete Expansion Anchors,

-- QAS-1301-SS, Revision 3, Control of Measuring and Test Equipment,

-- QAS-1501-SS, Revision 1, Inspection Status,

-- QAS-1601-SS, Revision 2, Nonconforming Items,

-- QAS-1701-SS, Revision 2, Corrective Action,

-- QAS-1801-SS, Revision 2, QA Records,

-- QAS-1901-SS, Revision 1, Audits,

-- Field Instrumentation Construction Procedure (FICP) -201, Revision 1, Indoctrination and Training Programs,

-- FICP-401, Revision 1, Design Control,

-- FICP-501, Revision 1, Procurement Document Control,

-- FICP-602, Revision 0, I/F Package Field Revisions,

-- FICP-1007, Revision 2, Installation of Concrete Anchors,

-- FICP-1401, Revision 1, General Housekeeping During Construction of Nuclear Plants,

-- FICP-1403, Revision 1, General Preventive Maintenance and Minimum Storage Requirements for In-Place Storage of Permanent Plant Equipment,

-- FICP-1404, Revision 1, Storage of ASME of Safety Related Items and Materials,

-- Quality Assurance Inspection Procedure (QAIP) No. 1101-9, Revision 0, Inspection of Pipe and Tubing Installation,

-- QAIP 1101-14, Revision 1, Inspection-Housekeeping and In-Place Storage of Permanent Plant Equipment,

-- UE&C Specification 9763-006-46-1, Revision 4, Specification for Instrumentation Installations.

No violations were identified.

3. Control of Measuring and Test Equipment (M&TE)

The inspector reviewed JCI procedures governing control of measuring and test equipment, the M&TE Issue Log, the M&TE Accountability Log, the JCI Calibration Data Card File, and randomly selected calibration data sheets to ascertain whether measuring and test equipment was being properly controlled and calibrated. The inspector discussed procedural requirements with the responsible JCI personnel and visually inspected the M&TE storage area. All equipment observed was noted to be indicated in calibration. The inspector selected five pieces of equipment that were logged as issued to the field and then verified their location and control. The inspector additionally discussed M&TE accountability and control procedures with craft personnel working at a field storage location. No violations were identified.

4. Work In Process/Completed Work (Instrumentation)

The inspector toured areas of the plant where JCI was involved in construction of instrumentation systems. The inspector observed completed work and work in progress to ensure that component installation was in accordance with approved job specifications. When reviewing drawings associated with two Installation/Fabrication (I/F) Packages, the inspector noted that several changes had been made to the drawings. Discussions with craft personnel indicated that occasional changes were required to installation drawings to reflect the location of other systems which interfered with the routing of the instrumentation lines and that these changes were often made at the job site by a JCI engineer. A review of JCI procedures governing design control and I/F package revisions and further discussion with licensee and JCI personnel indicated that JCI engineers perform no design work and are allowed to make changes without review to JCI drawings so long as the changes are described in and allowed by the UE&C specifications and details provided to JCI. Additional procedural requirements specify quality assurance review to be performed for specific types of changes. The inspector stated that ANSI N45.2.11-1974 requires document control procedures to delineate clearly minor changes which may be made without review and to identify personnel who may make such changes. The licensee agreed to

revise the applicable JCI procedures within sixty days of September 24, 1982, to reflect the fact that JCI performs no design work and to delineate allowable minor changes which may be made to documents in accordance with ANSI N45.2.11-1974. This item is unresolved pending NRC review of the revised JCI procedures (443/82-11-01 and 444/82-06-01).

JCI uses Hilti kwik-bolt stud anchors to mount supports for the installation of instrumentation trays and sensing line runs. The inspector observed that installation specifications placed requirements on the spacing between individual anchor bolts and on the spacing between anchor bolts and other objects embedded in the wall or floor. However, the specifications did not address the location of anchor bolts or other objects which may be embedded from the opposite side of the same wall or perpendicular on the same corner of a common wall. Discussions with licensee personnel indicated that the use of Hilti anchors is generic to all contractors at the site and that the above interference had not been previously considered. The licensee agreed to evaluate this potential interference. Other questions concerning installation of Hilti anchor bolts have been previously discussed and designated as unresolved in combined NRC Inspection Report 443/82-03 and 444/82-03. The above question is considered an expansion of the previously identified item (443/82-03-07 and 444/82-03-06).

The inspector questioned JCI personnel concerning the verification of correct installation of compression fittings. A review of the applicable Quality Control Inspection Procedure (QCIP) indicated that ten percent of all fittings assembled for each I/F package are disassembled and inspected by Quality Control. The procedure did not, however, specify the acceptance criteria for the inspection. The procedure was revised, prior to the inspector's exit interview, to require a one hundred percent inspection of all compression fittings in an I/F package if any one fitting within the original ten percent sampling inspected is unacceptable.

The inspector had no further questions in this area.

5. Electrical Component Installation

The inspector reviewed selected construction and inspection procedures and observed work in progress and completed work in the area of electrical component installation to ascertain whether adequate instructions and procedures have been developed and implemented in accordance with the FSAR, applicable regulatory requirements, and recognized industry standards. Fischbach-Boulos-Manzi (FBM) is the electrical contractor at Seabrook Station. For this determination the following FBM documents were reviewed:

-- UE&C Specification No. 9763-006-48-2, Revision 7, General Electrical Installation,

-- Field Electrical Construction Procedure (FECP) -504, Revision 2, Installation of Safety and Non-Safety Related Cable,

-- FECP-505, Revision 1, Installation of Cable Terminations,

-- FECP-601, Revision 4, Calibration of Measuring and Test Equipment and Tools,

-- Quality Control Procedure (QCP)-504, Revision 2, QCP for Inspection of Electrical Cable Installation,

-- QCP-505, Revision 1, QCP for Installation of Cable Terminations,

-- FECP-202, Revision 1, Raceway, Cable, Termination Slip Handling Procedure,

-- FECP-601, Revision 4, Calibration of Measuring and Test Equipment and Tools.

The inspector toured plant areas where electrical installation work had been completed or was in progress. The inspector selected nine safety-related cables and verified that the cable type, circuit identification, and division separation were correct. During a tour through the main control board cabinets, he noted that the crimping tools used to perform terminations are color-coded to indicate their calibration. The inspector verified that the crimping tool in use was in calibration by reviewing the applicable calibration records. However he questioned the method by which the tools are color-coded. Procedure FECP-601 governing calibration of M&TE allowed tools to be color-coded to indicate the month in which calibration expires and further indicated that calibration will always be valid until the last day of that month. The procedure, as written, allowed a tool to be used for up to thirty days beyond its calibration if the calibration occurred in the beginning of a month. Licensee personnel stated that no tools had been issued for use beyond their calibration date and agreed to revise the procedure within sixty days of September 24, 1982, to ensure no tools with an expired calibration could be issued to the field. The inspector reviewed M&TE issue and calibration records and was unable to identify any tools which may have been used beyond their calibration date. This item remains unresolved pending NRC review of the revised procedure (443/82-11-02 and 444/82-06-02).

All safety-related cable pulls at Seabrook Station are required to be observed by a quality control inspector. Five safety-related cables were selected at random by the inspector for review for proper quality control inspection. Cable pull slip records indicated that installation of two of the cables was complete and quality control inspection had been performed. Records for the other three cables indicated that the cable pulls were only partially completed and the final quality control records were therefore not on file.

The inspector toured areas of Unit 2 where conduit has been routed in preparation for embedment in concrete. The inspector discussed routing, identification, construction, and inspection requirements for embedded conduit with a licensee quality assurance representative during the tour. No violations were identified.

The inspector had no further questions in this area.

6. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable, violations, or deviations. Unresolved items identified during this inspection are discussed in paragraphs 4 and 5.

7. Exit Interview

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on September 24, 1982. The inspector summarized the scope and findings of the inspection. The NRC Senior Resident Inspector was present at the meeting.