

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-443/79-10
50-444/79-10

Docket No. 50-443
50-444

License No. 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: December 11-13, 1979

Inspectors: A. Cerne
A. Cerne, Reactor Inspector

1/3/80
date signed

A. E. Finkel
A. E. Finkel, Reactor Inspector

1-2-80
date signed

R. A. McBrearty
R. A. McBrearty, Reactor Inspector

1/2/80
date signed

Approved by: B. W. McGaughy
R. W. McGaughy, Chief, Projects Section,
RC&ES Branch

1/9/80
date signed

Inspection Summary:

Inspection on December 11-13, 1979 (Report No. 50-443/79-10)

Areas Inspected: Routine, unannounced inspection by three regional based inspectors of licensee action on previous inspection findings, electrical specifications and procedures, and plant inspection tours. The inspection commenced at 6:00 a.m., outside the normal dayshift working hours at the site and involved 27 inspector-hours onsite by three NRC regional based inspectors.

Results: No items of noncompliance were identified.

Inspection on December 11-13, 1979 (Report No. 50-444/79-10)

Areas Inspected: Routine, unannounced inspection by three regional based inspectors of licensee action on previous inspection findings, RPV and internals storage, electrical specifications and procedures, and a plant tour. The inspection commenced at 6:00 a.m., outside the normal dayshift working hours at the site and involved 29 inspector-hours onsite by three NRC regional based inspectors.

Results: No items of noncompliance were identified.

DETAILS

1. Persons Contacted

Yankee Atomic Electric Company (YAEC)

F. W. Bean, QA Engineer
*B. B. Beckley, Manager of Nuclear Projects (Manchester)
D. L. Covill, QA Engineer
W. J. Gagnon, QA Engineer
*R. E. Guillette, Senior QA Engineer (Westborough)
*J. H. Herrin, Construction Manager
*D. Maidrand, Construction Engineer
*J. McDonald, Jr., QA Engineer (Westborough)
*W. J. Miller, QA Manager (Westborough)
J. F. Nay, QA Engineer
*R. P. Pizzuti, Construction Manager (Westborough)
**W. Reed, Senior Title Engineer, I&C (Westborough)
*J. W. Singleton, Field QA Manager

United Engineers and Constructors (UE&C)

R. L. Brown, Mechanical Liaison Engineer
M. A. Edgar, Resident Construction Engineer
*R. J. Phelps, Field Superintendent of QA
N. A. Vitale, QA Supervisor for Admin. and Records

Pittsburgh Des Moines (PDM)

W. Stiger, Site QA Superintendent

Perini Power Corporation (Perini)

P. Antonich, Assistant Supervising QA Engineer
P. Bruce, Supervising QA Engineer
A. J. Coviello, Lead Structural QA Inspector
O. Oates, QA Inspector
A. Schroeder, QA Inspector
R. Vachon, QA Inspector

*denotes those present at the exit interview.

**denotes telephone discussion during the inspection.

2. Plant Tours (Units 1 and 2)

The inspector observed work activities in-progress, completed work and plant status in several areas of the plant during an inspection of third-shift activities of the plant. The inspector examined work for any obvious defects or noncompliance with regulatory requirements or license conditions. Particular note was taken of presence of quality control inspectors and quality control evidence such as inspection records, material identification, nonconforming material identification, housekeeping and equipment preservation. The inspector interviewed craft personnel, supervision, and quality inspection personnel as such personnel were available in the work areas. Other site tours were also made during the course of this inspection.

The inspector specifically observed rebar installation and containment liner welding activities, spot-checked field drawing control, and examined the condition of erected structural steel and stainless steel pipe stored on a flatbed trailer.

No items of noncompliance were identified; however, two items remain unresolved, as discussed below.

- a. The inspector noted the fillet welds attaching a beam clip to an embedded plate for support of structural steel in the Primary Auxiliary Building (approximate elevation 3.00) had been interrupted by 9/16" holes in the embeds. Interviews with engineering and QA personnel indicated that these holes had been approved and detailed for attachment of the embeds to the formwork prior to concrete placement. However, the weld detail drawings show a continuous fillet weld on both vertical legs of the clip angle and make no allowance for interference of any holes. QA inspection of welding in this area had been completed, but final inspection of other details (e.g., bolting) was yet to be done. Further discussion revealed that a few hundred clip angles similarly designed had been installed in various plant areas of Unit 1 and that the weld interruption may exist at some of these other locations depending upon the relation of the clip interface with the embed plate.

Perini Nonconformance Report (NCR) 575 was written to determine what corrective action, if any, is required. Pending engineering determination as to the adequacy of the existing interrupted welds and further detailed inspection, if necessary, to determine the extent of this problem, this item is unresolved (443/79-10-01).

- b. The inspector noted the field use of Bethlehem Steel Drawing 030-R20 (Revision 4) in the installation of rebar in the Primary Auxiliary

Building. Attached to this drawing were two UE&C Site Approved Changes (SAC) 41/0599B and 0660B for which the inspector verified conformance of erection to the change details and checked that these details complied with standard ACI code requirements. The use of and authority for SAC's, as well as Design Change Notices (DCN's), was determined to be derived from the following UE&C documents, reviewed by the inspector:

- Field General Construction Procedure 15, Revision 5
- Quality Assurance Procedure QA-3, Revision 10
- General Engineering and Design Procedure GEDP-0032, Revision 3

The inspector then spot-checked a SAC file and chose five SAC's regarding rebar bending for further followup. In the case of three of these SAC approved rebar bends, the inspector verified the existence of either a "Bending of Embedded Rebar Inspection Report" or a "Reinforcing Fabrication Inspection Report," as applicable.

In the case of SAC 41/00555A, it was determined that the rebar had not actually been bent, but rather sprung to miss an interfering anchor bolt. Since this activity did not conform to the SAC requirements, Perini NRC 576 was then written. In the case of SAC 41/0589A, the inspector determined that the bars had been bent without QA inspection, but that QA inspection was still possible during the reinforcing steel installation inspection for the pour in which they were located. Checking the attributes of the "Installation of Reinforcing Steel Inspection Report" of Perini Quality Assurance Procedure QAP 10.2 (Revision 2), the inspector determined that while any bending of embedded rebar had to be noted by the specific inspection report number, this was not the case for field bending prior to embedment. An Interim Procedure Change IPC 2 to QAP 10.2 was then issued to add an attribute requiring notation of the "Reinforcing Fabrication Inspection Report Number," as would be applicable to the bars bent under SAC 0589A. Since this report includes inspection verification that the subject bars were bent cold, the inspector inquired as to how this could be accomplished without QA witness of each rebar bending operation.

Pending resolution of Perini NRC 576, verification of the systematic use of the inspection attribute added by IPC 2 to QAP 10.2, and a determination by the licensee as to the programmatic necessity of QA attributes which would appear to require witnessing and documenting all rebar bends, this item is unresolved (443/79-10-Q2 and 444/79-10-01).

3. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (443 and 444/79-07-01): Control of containment equipment hatch storage to ANSI N45.2.2 requirements. The inspector reviewed the latest edition (Revision G) of PDM Procedure CP-02 and determined that Revision F had added access controls, an inspection schedule, and a site material storage inspection checklist, and is now in accordance with ANSI N45.2.2 requirements. The inspector also examined completed inspection checklists, starting in August, 1979, and monthly thereafter to verify implementation of contractor control measures to prevent deterioration of the containment hatch materials. The inspector had no further questions on the corrective action taken in response to this item of noncompliance.

(Closed) Unresolved Item (443/78-01-01): Review PDM Welding Specification, use of torque wrenches, and detailed receiving inspection procedures. The inspector examined PDM Drawing WS-2 (Welding Specification), Revision D, and noted that exposure time for low hydrogen electrodes (E 7018) was limited to four hours, after which they would be either discarded or baked for one hour at 700°F. An interview with contractor personnel indicated that the baking option was not being utilized at this time.

The inspector also reviewed PDM Receiving, Inspection, and Storage Procedure CP-02, Revision G, and determined that receiving inspection and storage requirements had been procedurally specified and that QA controls were evident in various documents accompanying the material arriving onsite (i.e., Intra Company Shipment Releases, Document Checklists, and Manufacturer's Reports of Certification).

With regard to the use of torque wrenches, the PDM Corporate QA Manual (June, 1978) indicates that calibration is required for all inspection devices. An interview with contractor personnel revealed, however, that it was not expected that torque wrenches would be utilized for the installation of the containment liner and this was reflected in the PDM Calibration Procedure CP-1 which in Section 21.0, Torque Wrench Standards, indicated that these standards were to be added later. This item is considered resolved.

(Closed) Unresolved Item (443 and 444/78-15-02): Non-uniform, tar-like surface on buried Service Water piping. The inspector examined documents indicating that the licensee had evaluated the subject condition and determined that because of previous holiday testing, corrosion calculations and effects upon minimum wall, and an installed cathodic protection system, the nonstandard patches would have no detrimental effect upon the quality of the buried pipe. In addition to these conclusions, the documentation further revealed that the patches were repaired and retested, the piping vendor was informed, and QA receiving personnel were specifically instructed

to look for any similar types of coating conditions in the future. The inspector also verified use of a "coating" attribute on the applicable Receiving Inspection Checklist. The following documentation was reviewed:

- UE&C Memo MM-4159A, November 9, 1978
- UE&C Memo, Re: QA Receiving Inspection, November 17, 1978
- UE&C Telephone Memos, November 7, 1978 and January 16, 1979
- UE&C Memo to File 4.3.8, January 16, 1979

(Closed) Unresolved Item (443 and 444/78-16-01): Develop fixed identification of lifting accessories and evaluate procedure FGCP for implementability. Procedure FGCP-1 was revised to delineate a method for revising procedures including field changes. Appendix I to FGCP-10, Revision 4, dated December 13, 1979, provides control of identification of lifting accessories. This item is resolved.

(Closed) Unresolved Item (443 and 444/79-06-01): Provide limitations for length of tack welds for Pullman Weld Procedure GWS-CS-CL. General Welding Standard GWS-CS-CL was revised to limit tack welds to one inch in length. This item is resolved.

(Open) Unresolved Item (444/79-07-04): Review of Reactor Vessel Internals Measurements (Baffle Cavity). Temperature and humidity in the internals storage area are recorded on a chart recorder and records indicate that the dew point is taken and recorded on a monthly basis.

Baffle cavity dimension inspection records do not document acceptability for the results.

This item remains unresolved pending clarification of how the requirement to maintain the temperature/dewpoint relationship in the storage area is implemented and documented, and licensee action to provide records indicating the acceptability of baffle cavity dimension inspection results.

4. Reactor Pressure Vessel (RPV) Storage Activities (Unit 2)

The inspector reviewed procedures governing RPV storage and maintenance, and storage records and conducted an inspection of the storage area in order to ascertain compliance with the applicable procedures. The following were included in the review:

- Applicable section of Westinghouse "NSSS Component Receiving and Storage Criteria," Volume I
- Westinghouse Attachment 105C entitled, "Reactor Vessel Receipt, Handling and Storage"
- Westinghouse Letter Code No. NAH-1210

The records indicated that inspections were conducted at the proper frequency and that applicable requirements were met.

No items of noncompliance were identified.

5. Electrical Procedures and Instructions (Units 1 and 2)

The inspector ascertained that procedures and instructions have been written to handle the safety-related electrical equipment in the areas of:

- Receipt Inspection, Handling and Storage
- Installation
- Material and Component Identification
- Inspection and Construction Testing
- Relay Coordination Study

a. Receipt Inspection, Handling and Storage

The inspector verified that the licensee's procedures required that safety-related items be checked for conformance with listed purchase specifications. Storage and handling procedures with regard to specific cleanliness and maintenance criteria are required.

The following procedures and specifications were reviewed by the inspector:

- YAEC Procedure entitled, "Field Quality Assurance Checklist No. 4," Revision 2, July 25, 1979.
- UE&C Procedure entitled, "Preventive Maintenance and Protection of Nuclear or Safety-Related Equipment," Revision 5, April 25, 1979, Field General Construction Procedure (FGCP) No. 9.

- Fischbach-Boulos-Manzi Field Electrical Construction Procedure entitled, "Preventive Maintenance for Electrical Equipment," (FECF)-303, Revision 1.

b. Installation

The inspector reviewed the following listed procedures to ascertain that instructions have been issued which reflect the PSA's commitments. The listed Field Electrical Construction Procedures (FECF's) detail the installation and inspection criteria:

- Installation of Safety and Non-Safety-Related Embedded Conduit, FECF-501, Revision 1, and QCP 501 inspection criteria.
- Installation of Safety and Non-Safety-Related Indoor Motor Control Centers, FECF-509, Revision 1, and QCP 509 inspection criteria.
- Installation of Safety and Non-Safety-Related Cable Tray and Supports, FECF-503, Revision 1, and QCP 503 inspection criteria.
- Installation of Safety and Non-Safety-Related Underground Ducts and Duct Bank, FECF-517, Revision 1, and QCP 517 inspection criteria.
- Installation of Safety and Non-Safety-Related Exposed Conduit, Terminal and Pull Boxes and Supports, FECF 502, Revision 1, and, QCP 502 inspection criteria.
- Installation of Safety and Non-Safety-Related Batteries and Racks, FECF-511, Revision 1, and QCP 511 inspection criteria.

c. Material and Component Identification

The inspector verified that both UE&C and Fischbach-Boulos-Manzi identify requirements from receipt to installation of safety-related items. Nonconforming items are identified and processed through procedures listed in the UE&C and Fischbach-Boulos-Manzi quality reporting systems.

d. Inspection and Construction Testing

The inspector verified that specific electrical test requirements are defined in the various electrical and instrumentation specifications. The inspector reviewed the following electrical specifications:

- 4000 and 460 Volt Motors - Specification No. 128-1, Revision 4, April, 1975.
- 13.8 KV and 4160 Volt Non-Segregated Group Phase Buses (associated with Engineered Safety Features) - Specification No. 144-1, Revision 5, March, 1975.
- 480 Volt Load Centers - Specification No. 143-1, Revision 1, May, 1977.
- Power Cables - 5 KV Specification No. 113-1, Revision 2, 1978; 15 KV Specification No. 113-2, Revision 2, 1978; and, 600 Volt Specification No. 113-3, Revision 1, 1978.

The purchase order for the diesel generators will be reviewed during a later inspection. The one diesel generator on site was stored in a temporary location. The inspector verified that the diesel generator was under storage and maintenance control and that the required maintenance was being performed.

e. Relay Coordination Study

The safety-related portions of the facility on site AC power system were discussed with the licensee. The protective devices and methods to be used by the licensee will be verified during a later inspection.

For all the above items, no items of noncompliance were identified.

6. Electrical Cables and Terminations (Units 1 and 2)

The inspector ascertained that the PSAR commitments on electrical requirements for cables and terminations have been addressed in the following type of specifications: procurement, storage, installation, inspection, fire, and change control. The environmental requirements are defined in the individual specifications and EQ-1.

The requirement for submergence is being evaluated by the licensee and is not part of EQ-1. This requirement will be addressed at the completion of the licensee's study.

This matter is considered to be unresolved (443/79-10-03).

7. Specification Review (Units 1 and 2)

The specifications, listed in Paragraphs 5.b and d, were reviewed by the inspector. The inspector noted that the 24 hour full-load carrying capability

test of the diesel generator was not required in the diesel generator specifications. The requirements of IE Bulletin 79-23 entitled, "Potential Failure of Emergency Diesel Generator Field Exciter Transformer," will be addressed during the Pre-operational Testing Program, when specific tests for these requirements are conducted.

No items of noncompliance were identified.

8. Control of Plant Anti-Icing Agents

During the course of the inspection, the inspector noted a stockpile of sand, segregated from plant fill supplies and far removed from the concrete batchplant sand storage area, to which a white-colored, granular, anti-icing agent had been added and mixed. Discussion with the licensee and inspection of the anti-icer packages in the warehouse revealed the agent to be urea, a 46 percent nitrogen based material manufactured by Genstar Chemical. The use of this material prevents the possibility of halogen based (i.e., chloride) anti-icers from adversely affecting any quality-related plant items or material.

The inspector had no further questions on the control and use of the urea. No items of noncompliance were identified.

9. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during the inspection are discussed in Paragraphs 2.a, b, and 6.

10. Exit Interview

At the conclusion of the inspection on December 13, 1979, a meeting was held at the Seabrook Station site with representatives of the licensee. Attendees at this meeting included personnel whose names are indicated by notation (*) in Paragraph 1. The inspector summarized the results of the inspection as described in this report. Additionally, the inspector was informed by the licensee that the following items, identified at other nuclear construction sites to contain potential deficiencies or defects, are not planned for purchase or use at the Seabrook Station:

- a. Tanks fabricated by the Industrial Piping Supply Company.
- b. Pressurizer Power Operated Relief Valve supplied by Control Components, Inc.
- c. Embeds supplied by Acme Steel Engineering Company.