

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

REGION I

Report Nos. 50-443/80-01
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Docket Nos. 50-443
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License Nos. CPPR-135 Priority -- Category A
CPPR-136
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: January 22-25, 1980
Inspectors: AC Cerne March 4, 1980
A. C. Cerne, Reactor Inspector date
FOR: AC Cerne March 4, 1980
A. A. Varela, Reactor Inspector date
FOR: AC Cerne March 4, 1980
L. Remaklus, Investigation Specialist date
Approved by: BW McLaughly March 4, 1980
R. W. McLaughly, Chief, Projects Section, date
RC&ES Branch

Inspection Summary:

Inspection on January 22-25, 1980 (Report No. 50-443/80-01)

Areas Inspected: Routine, unannounced inspection by two regional based inspectors of licensee action on previous inspection findings, cadwelding splicing and concrete preplacement and curing activities, equipment maintenance and storage, weld rod control, and plant inspection tours. The inspection involved 46 inspector-hours on site by two regional based inspectors.

Results: No items of noncompliance were identified.

Inspection on January 22-25, 1980 (Report No. 50-444/80-01)

Areas Inspected: Routine, unannounced inspection by two regional based inspectors of licensee action on previous inspection findings, QC controls on rebar installation and cadwelding, equipment maintenance and storage, and a plant inspection tour. The inspection involved 8 inspector-hours on site by two regional based inspectors.

Results: No items of noncompliance were identified.

DETAILS

1. Persons Contacted

Yankee Atomic Electric Company (YAEC)

F. W. Bean, QA Engineer
*D. L. Covill, QA Engineer
*W. J. Gagnon, QA Engineer
*J. H. Herrin, Site Manager (PSNH)
*G. F. McDonald, Jr., Senior QA Engineer (Westborough)
*T. M. Sherry, Director of Construction (Westborough)
*J. M. Singleton, Field QA Manager

United Engineers and Constructors (UE&C)

R. L. Brown, Mechanical Liaison Engineer
J. S. Fleming, Long Term Storage Material Control Supervisor
*R. J. Phelps, Field Superintendent of QA
N. A. Vitale, QA Supervisor for Administration and Records
L. R. Wade, Assistant Field Superintendent of QA
J. B. Zabielski, Concrete Superintendent

Perini Power Constructors (Perini)

R. Abbott, Cadweld Foreman
P. Antonich, Assistant Supervising QA Engineer
S. Bertolino, QA Inspector
P. Bruce, Supervising QA Engineer
C. Galente, QA Inspector
J. McGowen, Batch Plant Superintendent
C. Walter, QA Inspector

Pullman-Higgins (Pullman)

*R. Davis, Field QA Manager
H. Sinclair, Chief Engineer
D. Walker, QA Supervisor

Pittsburgh Des Moines (PDM)

W. A. Stiger, QA Manager
G. Clark, Weld Material Controller

Pittsburgh Testing Laboratory (PTL)

H. Ruffner, Site Manager

ERICO Products, Inc.

J. Langdon, Field Representative

* denotes those present at the exit interview

2. Preliminary Inquiry - Seabrook Drug Indictments

During this inspection, the inspector conducted inquiries into any impact the recent arrests of construction workers on drug charges may have had on safety-related construction at Seabrook. He interviewed management personnel and the foremen of twelve of the indicted individuals and examined Project Rule 7, the violation of which led to the discharge of these individuals.

Nine of these twelve workers were employed as laborers whose work function could be categorized as that of a "tender", performing various tasks under the direction of or meeting the supply needs of other craftsmen (e.g. - carpenters or masons). The other three workers were carpenters involved in the fabrication and erection of concrete formwork. In either case, all of the work performed by these individuals had been checked both in process and at subsequent construction stages by supervisory and related craft personnel (e.g. - surveyors), and any safety-related work had additionally received quality assurance inspection. The interviews with the foremen disclosed no specific problems regarding the work performance of any of these twelve individuals.

The inspector also verified that employment at Seabrook Station for the subject personnel had been terminated as of either January 10 or 11, 1980 and that records indicate the only work performed for their employer, Perini Power Constructors, at Seabrook was correctly represented by their stated occupations. Various licensee and contractor management personnel were interviewed concerning the events surrounding these indictments and the impact upon construction activities.

No items of noncompliance or concerns about the quality of construction, as related to this drug inquiry, were identified. This finding was substantiated by a separate, but complementary inquiry conducted by an NRC investigation specialist, the results of which are detailed below.

Two representatives of the Public Service Company of New Hampshire (PSNH) corporate security staff were interviewed concerning the arrests of twelve Seabrook Station construction workers for drug trafficking. Reportedly, the arrests were the culmination of an undercover drug investigation initiated at the Seabrook construction site by the corporate security staff on April 11, 1979 in conjunction with site security, New Hampshire State Police, and the Rockingham County, New Hampshire sheriff's office. The investigation was initiated after workers' complaints of

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drug availability at the site. The undercover agent utilized in the investigation had previous undercover drug experience and was appointed a Deputy Sheriff for the investigation. He joined the local union and obtained employment at the site. When construction at the site was temporarily halted, the undercover agent was laid off until rehired later. He continued his assignment until the investigation was terminated since it was felt the majority of those trafficking in drugs at the site had been identified. Site security was responsible for operational contact with the undercover agent. A total of 25 drug purchases were made from 14 individuals indicted by a grand jury. Only twelve of these individuals had been arrested at the time this information was gained. Drugs purchased consisted of marijuana, hashish, cocaine, amphetamines, and tranquilizers, all in small amounts. All but one of the purchases were believed to have been made in site parking lots as employees were leaving work. None of those indicated were considered to be "major" traffickers and all were either carpenters or laborers in non-supervisory positions who have since been terminated. Reportedly, the undercover agent did not observe any poor or unsafe construction work performed at the site by those indicted, or anyone else.

3. Plant Tours (Units 1 and 2)

The inspectors observed work activities in-progress, completed work and plant status in several areas of the plant during general inspection of the plant. The inspectors examined work for any obvious defects or non-compliance 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 inspectors interviewed craft personnel, supervision, and quality inspection personnel as such personnel were available in the work areas.

The inspectors specifically observed the state of preparation for two concrete pours scheduled for second-shift placement, and examined the condition and storage status of various items (e.g. - embeds, penetrations, threaded studs) located at the lower levels of Unit 1 containment. The use of portable rod ovens was noted for field storage of low hydrogen electrodes being utilized in the welding of refueling canal embed angles and the tagging of one of these stainless steel angles was verified to be correct with regard to applicable specification requirements. An inspector also checked that a Pullman isometric drawing and weld rod requisition, both in use in the field, were current issuances.

The inspector reviewed a licensee trend analysis for the three-test moving average of concrete cylinder compressive strengths for all safety-related mix designs, placed from September thru mid-December, 1979. Examina-

tion of the resultant individual strength test charts indicated no significant deviations from required average strength and consistency with the evaluation techniques recommended by ACI Standard 214.

No items of noncompliance were identified.

4. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (443/79-07-02): Failure to reject cadweld splice due to excessive void. The inspector verified documentation which identified the following actions taken by Perini:

- 1) rejection and replacement of cadweld splice #87-5-116
- 2) retraining and requalification of the QC inspector
- 3) re-inspection by other QC inspectors of 36 cadweld splices previously accepted by this QC inspector

This item is resolved.

(Closed) Noncompliance (443/79-07-03 and 444/79-07-02): Failure to provide detailed instructions in procedure QAP 10.10 for major repairs to concrete. The inspector verified in Revision 3 to the above procedure that adequate coverage is given to complete reporting of major repairs to concrete, to the removal of unsound concrete, and to the re-inspection and evaluation of damaged rebar controlled by the issuance of a nonconformance report.

This item is resolved.

5. Observation of Cadwelding Splicing (Unit 1 Containment Building Exterior Walls and Unit 2 Basemat)

The inspector observed Unit 1 containment wall work and QC inspection activities during all phases of cadweld splicing of two randomly selected splices and of special splices on number eighteen rebar. Randomly selected splices were observed being made on one horizontal rebar at northwest quadrant, first layer at elevation 25 and one vertical splice at southeast quadrant, second layer at elevation zero. A QC inspector was observed at each splice actively engaged prior to splice assembly, during the firing, and inspecting the completed splice. The NRC inspector verified the acceptability of these completed splices by checking rebar centering, and measuring for end voids and presence of filler metal at the top hole.

Diagonal number eighteen splices around the containment equipment hatch were observed during fabrication and firing and were post-fire inspected by a QC inspector and an ERICO representative. The inspector was informed by the latter that due to the previous rejects on several consecutive

diagonal splices, caused by excess end voids, the ERICO representative was brought to the site to examine the work. Following two days observing cadwelder requalification and testing with "fixed" and "variable" pouring basin equipment, the problem was apparently resolved by particular emphasis on equipment maintenance, preparation, and avoiding excess packing tightness at sleeve ends.

Cadwelding of Unit 2 top of basemat horizontal number fourteen and eighteen bars was observed during the preparation and firing stages. QC inspection personnel were noted to be present during these activities and during subsequent inspection of completed splices, with recording of their findings.

No items of noncompliance were identified.

6. Observation of Completed Rebar Installation, Formwork and Preparations for Concrete Placements

The inspector observed preparations for a 600 cubic yard concrete placement of the circulating water pump house (CWPH) walls and a Unit 1 refueling canal wall involving 60 cubic yards. QC preplacement inspections were examined by the NRC inspector for adequacy of rebar installation for tightness and clearance; formwork installation for tightness, cleanliness and rigidity; and placement equipment for prevention of concrete segregation and evidence of voids, rock pockets and honeycomb. Additionally, heating units and enclosure durability were examined for adequacy in providing cold weather concrete cure protection for the CWPH walls. Quality Control personnel and field engineers were interviewed on pre-pour release; and, batch plant operators, technicians and concrete test personnel were interviewed to ascertain overall coordination and cognizance of requirements identified in following:

- Job Specification 13-2, Containment Concrete Work
- Job Specification 13-3, Category I Concrete Work Other than Containment
- Job Specification 5-1, Civil Testing Facility and Services
- Job Specification 69-1, Concrete Batch Plant

No items of noncompliance were identified.

7. Observation of Concrete Curing Under Cold Weather Conditions

The inspector observed various Unit 1 safety-related structures at different ages during the required seven day moist cure at temperatures no less than 50°F. He verified that enclosures, heating units, temperature

control, and moisture application all met specified requirements. The following concrete placements were observed during a morning tour with contractor's QC personnel: Diesel Generator walls (5th day in cure/protection); Waste Product Walls (1 day); Primary Auxiliary Slab (7 days); Reactor Shield Wall (7 days); Refueling Canal Wall (2 days); CWPW Walls (2 days). The inspector observed that due to high winds beginning on the night of January 23rd, two of the above plastic covered temporary enclosures required repair to maintain temperatures above 50°F. The observed drop in temperature on the concrete surface to 40°F led to the issuance of a "hold" on these pours to reinstall and secure the enclosure and continue the cure period an extra day.

No items of noncompliance were identified.

8. Equipment Maintenance and Storage (Units 1 and 2)

The inspector examined the in-place storage condition of Residual Heat Removal Pump 1-RH-P-8A (pump bowl only), Containment Spray Pump 1-CBS-P-9A (pump and motor), and Safety Injection Pump 1-SI-P-6A (pump and motor). The adequacy of specified storage level environment, the existence of protective coverings, and the operation of motor space heaters were checked. The storage condition and internal nitrogen purge pressure on the accumulator tanks, located in Unit 1 containment, were spot-checked. The inspector noted that questionable storage conditions for a Limit Torque Valve assembly and some stainless steel spool pieces in the Unit 1 equipment vault had already been found and documented by the licensee QA surveillance program (reference: YAEF Deficiency Reports DR 042 and 043, January 22, 1980).

The inspector examined records and interviewed personnel regarding preventive maintenance and inspection requirements for the following equipment:

<u>Item</u>	<u>Unit 1</u>	<u>Unit 2</u>
Containment Spray Pump and Motor	1-CBS-P-9A	2-CBS-P-9A
Safety Injection Pump and Motor	1-SI-P-6A	2-SI-P-9A
Accumulator Tank	1-SI-TK-9C	

While some inconsistencies in the UE&C maintenance and QC procedures relative to the manufacturer's recommendations appeared to exist in the areas of motor shaft rotation and insulation resistance test frequency, the inspector determined that the most conservative requirements had been implemented. Additionally, an Interim Procedure Change, IPC No. 2, to Field General Construction Procedure FGCP No. 6 was issued on January 25, 1980 to clarify these preventive maintenance requirements. The inspector had no further questions on this issue.

The inspector also examined personnel access control requirements and lists for the various storage areas, reviewed storage area inspection criteria and frequency, and spot-checked the central record files for preventive maintenance of the containment spray pumps back to the date of receipt on site.

The above maintenance and storage items were evaluated against criteria established in the following documents:

- Westinghouse Nuclear Service Division NSSS Component Receiving and Storage Criteria, Volume 1, March, 1976; as amended by Westinghouse letter NAH-1193, January 24, 1979
- UE&C Field General Construction Procedures, FGCP Nos. 3, Revision 7, January 15, 1980; 6, Revision 0, January 15, 1980; 9, Revision 6, January 15, 1980; 26, Revision 0, November 23, 1979; and 27, Revision 0, January 2, 1980
- UE&C Quality Control Procedure, QCP-13, Revision 8, November 9, 1979
- ANSI Standard N45.2.2, 1972

No items of noncompliance were identified. One item required further followup as discussed below.

The inspector noted that backing plates had been used on some of the full penetration structural steel welds in the field erection of the support system for the Unit 1 north vault Residual Heat Removal Pump. A review of applicable Pullman Drawing, RHR-PS-1, Revision 3 (March 22, 1979), and a relevant UE&C Engineering Change Authorization ECA 01/0658C (May 9, 1979), indicated proper design and approval of these backing plates and further specified the use of SA-36 material. Additionally, the ASME Boiler and Pressure Vessel Code in Section III, Subsection NF requires compatibility of the backing strip with the base metal. However, neither the Pullman Field Weld Process Sheets nor any other record provided evidence as to the actual backing plate material type.

The inspector interviewed personnel and reviewed documents to determine that the backing plate tack welds had received visual QA inspection and that the designation of SA-36 material was not, in fact, a quality requirement. A Pullman Nonconformance Report NCR 127 was written and dispositioned on January 25, 1980 to require performance of a chemical analysis of the unidentified backing strip to confirm compatibility with the welded material. Since the actual quality of the welds is not in question and the licensee has taken action to establish material identification and to provide for further material traceability in the future, the inspector has no additional questions on this item.

9. Weld Rod Control (Unit 1)

The inspector interviewed personnel, reviewed documents, and examined existing conditions at the PDM weld rod control issue room to determine the adequacy of control over the weld filler metal utilized in the construction of the Unit 1 containment liner. Specific consideration was given to the measures governing weld rod out-of-oven time, returned rod disposition, electrode ID and traceability, and controls over rod issuance.

The inspector examined all Weld Wire Requisition Forms and the Weld Material Control Record for January 24, 1970 and reviewed the PDM Site Receiving Report, SRR 20, and the PDM Quality Conformance Report for the current supply of low hydrogen E7018 electrodes on site. Traceability of this supply (ID A9485) to the fabrication heat and lot numbers is provided.

The above items were evaluated against criteria established in the ASME Boiler and Pressure Vessel Code, Section III, Division 2, Subsection CC, and UE&C Specification No. 9763-WS-4A, Revision 4.

No items of noncompliance were identified.

10. Exit Interview

At the conclusion of the inspection on January 25, 1980, 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.