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

Region I

Report No. 50-423/80-07

Docket No. 50-423

License No. CPPR-113 Priority -- Category A

Licensee: Northeast Nuclear Energy Company

P. O. Box 270

Hartford, Connecticut 06101

Facility Name: Millstone Nuclear Power Station, Unit No. 3

Inspection at: Waterford, Connecticut

Inspection conducted: October 7-9, 1980

Inspectors: J. C. Mattia for — 10/23/80
R. Feil, Reactor Inspector — date signed

S. J. Elrateb — 10/23/80
A. Varela, Reactor Inspector — date signed

_____ — _____
date signed

Approved by: J. C. Mattia — 10/23/80
J. C. Mattia, Chief, Project Section — date signed
RC&ES Branch (Acting)

Inspection Summary:

Inspection on October 7-9, 1980 (Report No. 50-423/80-07)
Areas Inspected: Routine, unannounced inspection by regional based inspectors of licensee actions on previous inspection findings, concrete placement activities for the In-take Structure, Engineered Safety Features Building, Auxiliary Building and Service Building and review of field activities for installation of rock anchors and shear wall modifications in the Auxiliary Building, review of procedures for control of Engineering and Design Coordination Reports (E&DCRs) and incorporation into as-built drawings and facility tour. The inspection involved 48 inspector-hours on site by 2 regional based inspectors.

Results: No items of noncompliance were identified.

Region I Form 12
(Rev. April 77)

DETAILS

1. Persons Contacted

Northeast Utilities Service Company (NUSCO)

*Mr. L. C. Albee, Project Engineer
Mr. B. Carlson, Project Manager (Berlin Office)
*Mr. T. W. Deshefy, Resident Civil Engineer
*Mr. K. Gray, Supervisor , Construction Quality Assurance
Mr. A. K. Gullesserian, Design Engineer (Berlin Office)
*Mr. D. L. Hoisington, Civil Engineer
*Mr. K. A. Murphy, Construction Quality Assurance Specialist
*Mr. S. Orefice, Superintendent, New Site Construction
*Mr. S. Toth, System Superintendent/Generation Construction

Stone and Webster Engineering Corporation (S&W)

Mr. W. B. Anderson, Assistant Superintendent, Field Quality Control
Mr. J. H. Fletcher, Project Engineer (Boston Office)
Mr. T. Jackson, Construction Area Engineer
*Mr. M. R. Matthews, Assistant Superintendent, Field Quality Control
*Mr. W. Mackay, Resident Manager
Mr. K. Maki, Quality Control Engineer
Mr. S. Morris, Quality Control Engineer
*Mr. A. M. Prusi, Resident Engineer
Mr. D. Royce, Field Extension Project Engineering
*Mr. F. K. Sullivan, Senior Resident Engineer
*Mr. G. G. Turner, Superintendent, Field Quality Control
Mr. R. Troudeau, Geotech Engineer
Mr. F. Vitare, Lead Geotech Engineer (Boston Office)

The inspectors conferred with other licensee and contractor personnel during the course of the inspection.

*denotes those present at the exit interview.

2. Construction Site Inspection-Tour

The inspector observed work activities in-progress, completed work and construction status in several areas during general inspection of the site. 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 hold tags, housekeeping and equipment preservation. The inspector interviewed craft personnel, supervision, and quality inspection personnel as such were available in the work areas.

Specific activities observed for the intake structure were completion of rock mapping and cleanup and water control for structural concrete preparations on west wall of the circulating water pump house, control room masonry wall erection, auxiliary building preparations for rock anchor and column modifications, installation of shear studs to containment dome liner plate and load testing of Dywidag #18 thread bar rock anchors.

The inspector observed an unprotected mechanical shock arrestor in cubicle 'B' of the containment. The shock arrestor had some sand on it. This was a result of the sandblasting being done inside containment in preparation for painting. In addition, the shock arrestor had an S&WEC Category 1 Acceptable Sticker affixed next to a Reject Tag. The inspector expressed concern about the quality control on this particular shock arrestor since it was the same one which was found unprotected during a previous inspection. The licensee subsequently removed the Acceptable Sticker, cleaned the shock arrestor, placed it on dunnage and covered it with plastic. The licensee informed the inspector that increased effort on storage inspections would be made to preclude a recurrence of unsatisfactory storage conditions.

No items of noncompliance were observed.

3. Licensee Action on Previous Inspection

(Closed) Unresolved Item (423/77-10-01): Hay Bale Placement - Waste Water Discharge. Site effluent management. The inspector toured the site to observe the hay bale placement. All locations observed had adequate straw in the wire weir to allow filtering of sediment from the waste water. Records reviewed by the inspector revealed that inspections of all locations are accomplished weekly and the straw is replaced at each location on a monthly basis. These inspections are documented on the "Erosion and Sediment Control Sheet." The inspector had no further questions on this item.

(Closed) Unresolved Item (423/79-01-02): Erosion of Area of Sand Storage. A building has been erected over the sand pile. All sand is now under cover. In addition, a retaining wall has been built between the gravel storage area and Niantic Bay. The area below the retaining wall has been seeded in grass. The inspector saw no evidence of erosion. The inspector did not have any further questions on this subject.

(Closed) Unresolved Item (423/79-01-01): Erosion of Area of Ball Field. The inspector toured the area of the ball field and observed the corrective actions taken by the licensee to control erosion on the ball park stockpile. The slopes have been hydro seeded and hand seeded in an attempt to control the erosion. Grass and other vegetation has stopped the erosion on the west side of the stockpile. On the east side of the stockpile the wad at the bottom of the stockpile is graded in such a manner as to act as a berm. This prevents any siltation from the stockpile run-off to ingress the creek leading to Niantic Bay. Some grass and vegetation growth has

been started on the east side. The licensee appears to have the erosion problem from the ball park stockpile under control. The inspector had no further questions on this matter.

4. Status of Facility

The inspector was informed that the facility is approximately 33% complete. The four reactor coolant pump volutes have been placed in their respective cubicles in the containment building. Welding of the Reactor Coolant Loop Cold Leg piping, Quench Spray piping, Recirculation Spray piping and Safety Injection piping is being performed. Work is continuing on the Auxiliary Building, Engineered Safety Features Building, Containment (both concrete and welding of the dome), Turbine Building, Condenser Service Building and Intake Structure.

5. Pump and Equipment Alignment

On December 28, 1979 an item was identified alleging that piping was being attached prior to grouting and alignment of pumps. This was stated to not be in accordance with the manufacturer's procedures or with S&WEC Construction Methods Procedure (CMP) No. 7.2-6.78.

The inspector determined that CMP No. 7.2-6.78 specifies that Doweling and Grouting is done in accordance with manufacturer's instructions after final alignment of the equipment (Paragraphs 4.6 and 4.5). In addition the S&WEC Specifications for Field Fabrication and Erection of Power Piping states that ANSI B31.1 carbon steel piping may be aligned to required tolerances by using heat (lines 18.45 through 19.5). The inspector had no other questions regarding this matter.

No items of noncompliance were found.

6. Field Purchase Order (Hilti Kwik-Bolts)

Prior to the original issuance of a specification on drilled-in, expansion type concrete anchors (C-924) on June 28, 1979, a supply of Hilti Kwik-Bolts had been ordered (PO# - 06980A) and received (QAIR 58050560, dated May 17, 1978). The new specification required certain documentation by the supplier regarding embedment depth, ultimate loads, and where applicable, ASME code compliance for any new orders of anchors. The anchors existing in stock from the old purchase order were not required to have and did not have such documentation.

The in-stock Kwik-bolts were purchased under a Bechtel purchase order for Millstone Unit 2 which invoked Bechtel Specification No. 7604-C-61, Specification for Miscellaneous Anchor Bolts. The supplier, McCullock Industries,

Inc., provided certification stating that ¼", 3/8" and ½" bolts were manufactured from AISI 1141 L steel; 5/8", 3/4", 1" and 1¼" bolts were manufactured from 1144 stressproof steel. Gripping segments were manufactured from AISI 1050 steel. Plating is zinc and chromate. Pullout values were equal or exceeded values shown under Federal GSA Specification FF-S-325. The inspector had no further questions about this item.

No items of noncompliance were found.

7. Intake Structure - Concrete Activities Observed

a. Placement Preparation

The circulating water pumphouse west counterforted wall was observed in preparation for placement of structural concrete fill. Rock mapping of the cleaned rock was completed and the quality of the founding rock was approved by the geotech engineer. The inspector verified the adequacy of controls installed to prevent ground water flow into the area to be concreted, rock crevices to be filled and installation of reinforcing steel for the foundation mat key excavated in the rock. These requirements and control criteria for concrete placement were obtained during the inspector's review of S&W drawings No. EC-14A-5, 14C-5, 14U-3 and 14V-1, the specifications and approved field changes No. F-S-3404 and 3433.

b. Mixing, Delivering, Placing

The inspector observed concrete placement by 3 cu. yd. buckets for the intake structure's west wall, pour #C-5120 using 4000 psi concrete mix #402. He determined work and inspection activities are being accomplished according to applicable specifications, codes, standards and procedures in the following areas:

-- proper mix specified and delivered

-- duration of concrete mixing

-- use of bucket placement was controlled to prevent concrete segregation
-- concrete testing verified acceptance criteria - performed by qualified personnel, using calibrated equipment

-- temperature control of concrete mix

-- adequate crew, placement technique and consolidation

-- finishing and curing

Batch Plant Operation

Batch plant operation and QC inspection were observed and noted for the following:

-- accuracy of weight scales.

-- qualified inspector verified batched weights, moisture compensation, and confirmed batch tickets for ingredient weights of specified concrete mix #402.

-- truck delivered batches met requirements at placement for slump, temperature,air and unit weight.

-- batch plant and delivery fleet maintenance records and weight scale calibration indicate conformance to requirements of specifications.

-- aggregate stock piles were segregated, the materials sampled and found to meet ASTM requirements.

-- concrete mix water and cement were pre-tested and certified.

No item of noncompliance was identified.

8. Significant Deficiency Reported by Licensee Under 10 CFR 50.55(e)

The inspector observed on-going activities within the incomplete Auxiliary Building. These were identified by constructor and licensee personnel as corrective actions for the significant deficiencies found in design of the reinforced concrete structure. The purpose of this inspection was to follow-up on licensee's report under 10 CFR 50.55(e) dated July 30, 1980 on Millstone Unit No. 3, Deficiencies in Design and Construction, and to review and evaluate the corrective actions available at the site. This report stated that the Auxiliary Building structural analysis review, following the previously reported finding of a significant deficiency in the Service Building rock anchor design (also reported under 10 CFR 50.55(e), on January 3, 1980), disclosed a deficiency in the shear walls design for transfer of horizontal seismic forces down through the structure to the mat. The inspector observed and was informed that modifications to the existing walls and mat of the Auxiliary Building are not finalized. He reviewed several files of E&DCRs covering details for installation and anchorage of about 17 extra steel columns between each of the building's first two floors, this is the extent of the construction at this time. He was informed these modifications could affect piping, etc., therefore a "Hold" has been placed on their installation.

The inspector identified at the exit interview that due to the incomplete status of the corrective actions the July 30, 1980 licensee report of this

significant deficiency did not fully meet 10 CFR 50.55(e) requirements. Therefore, licensee would be requested by the NRC to amend his report of July 30, 1980.

9. Review of Procedures Regarding Engineering and Design Change Reports/ Incorporation of Changes into Final Documents

A review was performed of S&W procedure EAP 6.3 (Rev.3), Preparation, Review, Approval and Control of E&DCRs to ascertain conformance to Appendix B, 10 CFR 50, Criteria III Design Control. Conjunctively the inspector also reviewed S&W administrative procedure NEAM-38 (Rev.5), Authorization of Engineering and Design Changes/Millstone 3, for information regarding incorporation of changes, arising from approved field changes and dispositioned nonconformances, into As-Built drawings. The latter identified that a document shall be revised and reissued within 6 months after the sixth E&DCR has been issued against the document, unless approval of an extension is granted by the project engineer.

Licensee commits in PSAR Quality Assurance Section 17.1.1.6 Design Document Control to periodically update by the Engineer - Constructor (E-C) of drawings and specifications and identifies that the E-C will provide as-built drawings in the final documentation. S&W procedure NEAM-38 appears not to fulfill the PSAR commitment. This matter was discussed with licensee and E-C personnel from their respective home offices and was identified as an unresolved item for reason that NEAM-38 potentially prevents revisions to documents that do not undergo more than six E&DCRs; the inspector was also informed by the E-C that as-built drawings are not being periodically updated.

This is an unresolved item (80-07-01).

10. 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. An unresolved item identified during the inspection is discussed in Paragraph 9.

11. Exit Interview

The inspectors met with licensee's representatives (denoted in Paragraph 1) at the conclusion of the inspection on October 9, 1980. The inspectors summarized the findings of the inspection. The licensee acknowledges the inspectors comments.