

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-219/85-39
Docket No. 50-219
License No. DPR-16 Priority -- Category C
Licensee: GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, New Jersey 07054
Facility Name: Oyster Creek Nuclear Generating Station
Inspection At: Forked River, New Jersey
Inspection Conducted: December 2-6 and December 19, 1985

Participating Inspectors:

W. H. Bateman, Senior Resident Inspector
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Approved by:

A. R. Blough
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Section 1A

2/6/86
Date

Inspection Summary:

Special safety inspection conducted by the resident inspectors (36 hours) to review the environmental qualification of the main steam line low pressure switches and associated terminal blocks and terminal boxes.

Results:

One violation was identified concerning environmental qualification of electric equipment important to safety. Three significant unresolved items were identified.

DETAILS

Introduction

The Oyster Creek Nuclear Generating Station has just completed a one month outage (October 18 - November 18, 1985) for environmental qualification of electric equipment important to safety. The outage was successful in completing the planned modifications to satisfy the requirements of 10 CFR 50.49, "Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants."

The licensee previously had requested an extension of the environmental qualification deadline to November 30, 1985 by letters dated February 22 and March 15, 1985 and supplemented by letters dated March 27, March 29, and March 30, 1985 to the Office of Nuclear Reactor Regulation (NRR). The licensee's letter dated March 30, 1985 stated GPU Nuclear's commitment to have the equipment qualified by November 30, 1985, or shut Oyster Creek down on November 30, 1985, and remain shutdown until the equipment is qualified. NRR reviewed the licensee's request and justifications for continued operation and granted the extension to November 30, 1985 in a letter to Vice President and Director, Oyster Creek Nuclear Generating Station dated March 30, 1985. This special inspection was conducted by the resident inspectors to determine if the main steam line low pressure switches and the associated terminal blocks and boxes were properly environmentally qualified prior to and after November 30, 1985.

1. Summary of Events

- A. Surveillance 619.3.008, "Low Pressure Main Steam Line Functional and Calibration Test While Operating," was performed on November 26, 1985 and deviation reports were written to document the environmental qualification discrepancies noted by the surveillance personnel. The surveillance personnel performed the required steps in the surveillance procedure and the requirements of the attached Supplemental System Component Evaluation Work (SCEW) sheet.

In performing the requirements of the supplemental SCEW sheet and Procedure 105.3, "Maintenance of Oyster Creek Environmental Qualified (EQ) Equipment," some discrepancies were noted when checks of the main steam line low pressure switches (RE-23A,B,C, and D) and terminal boxes were completed. The following environmental qualification discrepancies were reported:

- RE-23A Pressure Switch
Cover bolts have no retainers;
One cover bolt missing.

- RE-23A Terminal Box
No cover gasket.
- RE-23B Terminal Box
No cover gasket;
No internal conduit sealing material.
- RE-23C Terminal Box
No cover gasket;
No internal conduit sealing material.
- RE-23D Terminal Box
No cover gasket;
No internal conduit sealing material.

Deviation Reports and Maintenance and Construction Short Forms were written on November 26, 1985 requiring the environmental qualification discrepancies to be completed by December 3. This was later corrected to no later than midnight November 30, 1985.

The potential EQ concern with the RE 23's was addressed at the Plan-of-the-Day meeting prior to November 30 without clear problem definition or resolution. On November 29, the EQ manager in Parsippany was contacted by site personnel for problem resolution and guidance. The direction provided by the EQ manager was essentially to correct the discrepancies prior to November 30, 1985. Difficulty was encountered by the licensee in locating the appropriate materials to effectively seal the terminal boxes in accordance with the guidance provided by the EQ manager in Parsippany. On December 2, at the Plan-of-the-Day meeting, the status of the environmental qualification of the RE-23 switches and associated terminal boxes was addressed and found to be uncorrected.

After the fact, i.e., between December 2 and December 6, 1985, the licensee determined that the RE-23 terminal blocks were environmentally qualified despite the deficiencies in the enclosures (terminal boxes). This issue is discussed later in this report (see Detail 1.B, Unresolved Item 85-39-02) and will be further reviewed in a future NRC inspection. Based on this after-the-fact determination that the blocks were qualified, there appears to be no significant technical concern regarding the failure to correct the terminal box discrepancies by November 30. However, the manner in which the licensee handled this event raises concerns regarding (1) communication and evaluation of EQ qualification information; and (2) coordination of the evaluation and response to EQ deficiencies:

- (i) The information available on November 30, i.e., known EQ deficiencies with the terminal boxes had not been corrected as of midnight November 30, indicated that 10 CFR 50.49 requirements may not have been met. However, no evaluation regarding equipment operability, Technical Specification Limiting Condition for Operation applicability, or justification for continued operation was performed. The appropriate people to make such evaluations were apparently unaware until December 2 of the failure to correct the deficiencies by midnight of November 30.
- (ii) 10 CFR 50.72 requires the licensee to notify the NRC Emergency Operations Center within four hours of any event or condition that alone could have prevented the fulfillment of the safety function of systems that are needed to mitigate the consequences of the accident. The terminal box EQ deficiencies involved all four subchannels of protection logic. The logic isolates main steam lines on indications of a line break. Based on the information available on November 30, the licensee should have questioned the ability of the protective feature to function in a harsh environment and made a four-hour report. No report was made nor is there evidence one was considered.
- (iii) On December 5, 1985, in a telephone conference call among licensee corporate EQ personnel, site Technical Functions personnel, NRC Region I personnel, and the NRC resident inspectors, the licensee stated that the terminal blocks were qualified despite the enclosure deficiencies that had existed. In that call, the licensee failed to make it clear that the determination of qualification was, in part, based on:
 - (a) an assumption that the blocks were manufactured by either General Electric, Weidmuller, or States; and
 - (b) analysis done after November 30, that, for the specific RE-23 application, the specific deficiencies in terminal boxes A through D would not invalidate the environment qualification of Weidmuller blocks. GE and States blocks are qualified exposed, whereas Weidmuller generally requires an enclosure.

Based on item (i) through (iii) above, the inspector considers the adequacy of the licensee's management controls over EQ program information and evaluations to be unresolved (219/85-39-01).

- B. During the above noted December 5 conference call, the licensee agreed to provide to NRC Region I a copy of the SCEW sheet for the RE-23 terminal blocks.

In subsequent conversations the same day with the EQ Manager, the NRC resident inspectors found that the exact manufacturer of the terminal blocks was unknown and field inspection would be necessary to determine what SCEW sheet to send to NRC Region I. The inspection determined the terminal blocks to be manufactured by "Stanwick Electric" and not by one of the three manufacturers previously known to the licensee and evaluated for environmental qualification at Oyster Creek. No SCEW sheets for Stanwick terminal blocks were included in the Master EQ List as of December 5.

The licensee contacted Stanwick Electric Company to determine if they had performed any EQ testing on the terminal blocks. Stanwick Electric had not performed any EQ testing but stated that some nuclear utilities had performed such testing. The licensee discovered that Duke Power had performed environmental qualification testing on Stanwick Electric terminal blocks.

The licensee analyzed the information and concluded the blocks could be qualified for the Oyster Creek application. The licensee developed a SCEW sheet for the Stanwick Electric terminal block and provided a copy to NRC Region I. The sheet, dated December 17, 1985, was reviewed by a NRC Region I specialist inspector. The sheet indicates the block is qualified for 96 hours after a High Energy Line Break. Although the sheet was generally in order, the inspector questioned the operating time specification of less than one hour. Also, since the sheet is summary in nature, inspector review of area environmental profiles and equipment test reports will be necessary to fully verify qualification. Therefore, pending a more in-depth review by NRC, the qualification of the subject terminal block for its use at Oyster Creek is unresolved (219/85-39-02).

2. Additional Concerns

- A. The licensee had established environmental qualification files and system component evaluation work (SCEW) sheets for the important to safety electric equipment. Although this has been accomplished, the licensee did not have a SCEW sheet for the Stanwick Electric terminal block, nor was the terminal block listed on the Master EQ List. 10 CFR 50.49 and GPUN Technical Functions procedure 5000-ADM-7317.01 require, in part, that the licensee prepare a record of the qualification of electric equipment important to safety to permit verification that each item is qualified for its application and meets its specified performance requirements when it must perform its safety function.

The licensee first determined the presence of Stanwick Electric terminal blocks during the course of this inspection and later performed an analysis to environmentally qualify these components for use at Oyster Creek. The licensee had no previously established record of Stanwick terminal blocks for Oyster Creek. Failure to adequately identify electrical equipment important to safety and prepare a record of qualification is a violation. (219/85-39-03)

- B. Another area of concern was the inability of the EQ audit group to appropriately identify this EQ discrepancy. The licensee established an EQ program in accordance with the requirements of 10 CFR 50.49 and promulgated Technical Functions Procedure 5000-ADM-7317.01 (EP-31), Revision No. 0-01, "Equipment Environmental Qualification," to assure compliance with applicable regulations. EP-31 requires nuclear assurance to audit records and files required to implement and sustain systems, procedures, and programs established to ensure the proper control of environmentally qualified equipment. The audit group did not identify the presence of Stanwick Electric terminal blocks at Oyster Creek. The adequacy of EQ audits is an unresolved item pending NRC review of GPUN Environmental Qualification Program. (219/85-39-04)

3. Unresolved Items

Unresolved items are items 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 1.A, 1.B, and 2.B above.

4. Exit Interview

Prior to the issuance of this special inspection report, a telephone conference was held with licensee management to discuss the findings discussed herein. The licensee stated that of the subjects discussed at the exit interview, no proprietary information was included.