GPU Nuclear

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March 16, 1995
C321-95-2084

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Inspection Report 50-219/94-24
Reply to a Notice of Violation

NRC Inspection Report 50-219/94-24 contained three violations of NRC requirements. Attachments I and II to this letter contain the replies to the cited Problem and Violation respectively as required by 10 CFR 2.201.

If you should have any questions or require further information, please contact Mr. Terry Sensue, Oyster Creek Licensing Engineer at 609-971-4680.

Sincerely yours,

John J. Barton
Vice President and Director
Oyster Creek

JJB/TS/jc
cc: Administrator, Region 1
Senior NRC Resident Inspector
Oyster Creek NRC Project Engineer

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ATTACHMENT 1

Problem

A. 10 CFR Part 50, Appendix B, Criteria III, Design Control, requires, in part, that measures be established to assure the applicable regulatory requirements and the design basis for those structures, systems and components to which Appendix B applies are correctly translated into specifications, drawings procedures and instructions. The design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews. In addition, design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design.

Contrary to the above, between September and December 1994, design modifications were performed to the emergency diesel generators, structures, systems and components to which Appendix B applies, and the applicable design basis was not correctly translated into specifications, procedures and instructions (modification documents). Specifically:

1. Modification documents did not detail all of the changes being made, nor were the bases for all of the changes included in the documents. For example, some of the significant circuit modifications were not discussed in the modification documents and could only be identified by performing line-by-line comparison of the old and new elementary drawings. Examples include:

   a. A change involving the control circuit being connected across the battery during cranking and

   b. The failure to document adequately and assess the effects of the modification of switches on emergency diesel generator (EDG) 2 local shutdown panel.

   These examples prevented the performance of a thorough design review and safety evaluation, as well as development of an adequate test plan.

2. The design control measures did not adequately provide for verifying the adequacy of design. Specifically, the design verification for the diesel generator governor upgrade, the diesel generator control changes, and the upgrade modifications, were not adequate in that numerous design deficiencies existed in the original design and were not discovered by the design verifier. For example, the design verifier did not identify the deficiencies set forth above in Item A.1. In addition, the design verifier did not verify that there would be no impacts of the effects of electromagnetic interference on the EDGs newly installed controls. Further, a design verification was not performed for the data acquisition system modification.

3. Numerous field changes were not subject to design control measures commensurate with those applied to the original design, in that the design reviews were not performed for changes implemented by the field change program. For example, appropriate design verifications were not performed for: Field Change (FCN) C111332 which, in part, added a governor shutdown solenoid; FCN C110721 which moved a sensing line tap to correct a low water pressure trip; and FCN C110727 which added relay contacts to allow proper operation of a voltage regulator and automatic synchronizer.

B. 10 CFR Part 50, Appendix B, Criteria XI, Test Control, requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures, which incorporate the requirements and acceptance limits contained in the applicable design documents.

Contrary to the above, following modification of the EDGs between September and December 1994,

1. Testing required to demonstrate that the EDGs would perform satisfactorily in service was not adequately identified in the test plan to demonstrate the satisfactory operation of the EDGs. For example, the test plan did not include all of the surveillance tests required to demonstrate operability of the EDGs; the specified generic circuits continuity tests were not adequate to identify design and installation deficiencies; the test plan did not delineate the circuits that were required to energize, nor the circuit operability tests that were to be performed; and the transient testing necessary to verify proper operation of the new controls, was not identified.

2. Testing required to demonstrate that the EDGs would perform satisfactorily in service was not performed and/or documented in accordance with portions of the written test procedures. For example, all energized circuit operability tests performed in accordance with the station generic test procedures, were not documented, and circuits that were tested during troubleshooting efforts were not tested in accordance with the written procedures nor were the results documented.

GPUN Reply

GPU Nuclear concurs with the problem.

Reason for the Problem

The problem was caused by ineffective project management. This resulted in underestimation of project scope and resources required, missed project milestones, late material deliveries, the subsequent need to alter the original design, and the resultant failure to revise the modification test plan. Additionally, there was incomplete documentation of modification design details. The root cause for the problem is attributed to over reliance on a single highly technically capable individual to perform multiple roles in the course of the project.

A contributing cause to the problem was ineffective management oversight evidenced by a decision to proceed with the modification based on motivation to resolve long standing deficiencies without careful consideration of the impacts that the design changes would cause.

Corrective Actions Taken and the Results Achieved

All activities on Emergency Diesel Generator (EDG) #1 were suspended. A review team was formed to assess the condition of EDG #1 and determine actions to address identified deficiencies as well as develop an action plan to prevent similar problems from occurring on EDG #2. Startup & Test activities were reviewed and revised to assure all elements of the modification were adequately tested. In addition, an independent assessment team was formed to evaluate the design process and its implementation for EDG #1, and an independent design verification for the modifications to both EDG #1 and EDG #2 was conducted.

Corrective Steps Taken to Avoid Further Problems

Revisions to the modification process plan and implementing procedures are scheduled to be issued by the end of the first quarter 1995. These enhancements include: (1) establishing clear roles and responsibilities for all personnel performing activities in the project management process; (2) establishing a certification program for project managers; (3) establishing a mentoring program for inexperienced project managers by partnering them with experienced personnel; and (4) establishing specific reviews by senior management for any projects that fail to meet established planning milestones. Training on these enhancements is scheduled to be completed by the end of the second quarter 1995.

A review of 15 modifications completed during the 15R outage showed that there were no process problems of the type that occurred during the diesel generator modifications. Included in the review was an evaluation of the modification testing conducted and no similar problems to the DG testing discrepancies were identified. However, several changes were made to Startup and Test procedures to enhance management expectations in this area. This review further confirms the problems associated with the DG modification was an isolated event and that the corrective actions outlined above will prevent a recurrence.

Date When Full Compliance was Achieved

Full compliance was achieved on **November 25, 1994** when the design verifications for the EDG modifications were completed.

ATTACHMENT II

Violation

10 CFR 50.63, Loss of all alternating current (AC) power, requires, in part, that each light-water-cooled nuclear power plant must be able to withstand for a specified duration, and recover from, a station blackout. The alternate AC power source will constitute acceptable capability to withstand station blackout provided an analysis is performed that demonstrates that the plant has this capability from the onset of the station blackout until the alternate AC source and required shutdown equipment are started and lined up to operate.

Contrary to the above, in May, 1994, the control circuits of the alternate AC power sources (combustion turbines) were modified such that an acceptable capability did not exist to withstand station blackout. Specifically, a modification was made to the combustion turbines' control circuits which resulted in a turbine trip signal on the loss of power. As a result, between May and November 1994, the alternate AC power source combustion turbines could not be started either locally or remotely from the Control Room in the event of a station blackout and, consequently, the plant did not have alternate AC power source needed to withstand station blackout during this period.

GPUN Reply:

GPU Nuclear concurs with the violation.

Reason for the Violation

The cause of the violation was a failure to establish agreements and controls between GPUN and JCP&L to assure that modifications performed to the Forked River Combustion Turbines (CTs) would not affect their ability to function as intended for Station Blackout (SBO).

Corrective Actions Taken and the Results Achieved

The CTs gas leak detection circuit was modified and an uninterruptable power supply was installed on the circuit. Both CT #1 and CT #2 were successfully, functionally tested by GPUN Startup & Test Department.

Corrective Steps Taken to Avoid Further Violations

Agreements were reached between GPUN and JCP&L to ensure: (1) the GPUN System Engineer (SE) will be notified of proposed design changes to the CTs which potentially affect their operability; (2) the SE will provide concurrence for detailed design engineering for CT modifications which affect operability; (3) modifications which may affect the operability of the CTs shall be post modification tested by JCP&L and the test procedure shall be reviewed by GPUN Startup and Test Department. SU&T will review the results of the testing or personally witness the testing and provide written concurrence that SBO capability is unaffected; and (4) the SE will also review the results of the testing or personally witness the testing and provide written concurrence the SBO capability is unaffected.

The interface with JCP&L has been improved and GPUN will on a periodic basis continue to reinforce our agreements and understanding.

Date When Full Compliance Was Achieved

Full compliance was achieved on **December 22, 1994,** when the functional testing for the modifications to both CTs were completed.