



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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KING OF PRUSSIA, PENNSYLVANIA 19406-1415

June 15, 1998

EA No. 98-220

Mr. Michael B. Roche
Vice President and Director
GPU Nuclear, Incorporated
Oyster Creek Nuclear Generating Station
Post Office Box 388
Forked River, New Jersey 08731

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY
- \$55,000
(NRC Inspection Report No. 50-219/98-80)

Dear Mr. Roche:

This letter refers to the NRC engineering team inspection conducted between February 23, 1998, and April 2, 1998, at the Oyster Creek Nuclear Generating Station, the findings of which were discussed with your staff at exit meetings on March 20, and April 8, 1998. The inspection focused on a review of the automatic depressurization system (ADS) and the containment spray system (CSS), as well as a review of the safety evaluation and corrective action programs. During the inspection, three apparent violations were identified involving the inability of three of the five Automatic Depressurization System (ADS) electromatic relief valve (EMRV) solenoids to function under certain design basis accident conditions, thereby rendering those three ADS valves inoperable. On May 29, 1998, a predecisional enforcement conference (conference) was conducted with Mr. Levine, you, and other members of the GPU staff, to discuss the violations, their causes, and your corrective actions.

Based on the findings of the inspection and information provided during the conference, two violations are being cited and are described in the enclosed Notice of Violation and Proposed Imposition of Civil Penalty (Notice). The violations involve: (1) failure of your engineering design control measures to ensure sufficient voltage for the EMRV solenoids to ensure they would function during a postulated small break loss of coolant accident (SBLOCA), concurrent with a loss of offsite power (LOOP) and a worst case single failure, thereby resulting in the three ADS valves being inoperable, contrary to the Technical Specifications; the Technical Specification required that all five ADS valves be operable when reactor water temperature is greater than 212°F and pressurized above 110 psig; and (2) failure to verify that the EMRV solenoid voltage was in accordance with the environmental qualification (EQ) documentation to ensure the EMRVs were environmentally qualified as required.

These violations represent a significant NRC concern because three of the five EMRVs are required to be operable for ADS to accomplish its design basis function of depressurizing the reactor during a small break loss of coolant accident to allow for the low pressure safety emergency core cooling systems to inject water into the reactor vessel. When questioned by

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the NRC during the inspection, your staff indicated that you did not have any established minimum required operating voltage, nor a minimum available voltage at the solenoid terminals during a design basis accident scenario, and therefore, you could not certify that the EMRVs (and the related ADS) would operate in a design basis accident scenario. Subsequently, analysis and testing was performed on site and at Wyle laboratories which showed that a minimum voltage of 80 volts direct current (Vdc) was required in an accident environment to ensure proper operation of the EMRV solenoid valves. However, based on the in-rush currents quantified from this testing, and voltage drop calculations, you determined that the available voltage to three of the five solenoids would be less than 80 Vdc during the postulated condition and therefore, the valves would not have operated.

The NRC is also concerned that the voltage requirement in the Equipment Qualification (EQ) documentation for the five ADS valves, was not representative of the actual application as installed in the Oyster Creek Station. Specifically, there was no analysis performed to validate the specified EQ documentation number of 105 Vdc.

At the enforcement conference, you admitted the violations and you noted that the primary causes of this condition were: (1) the failure by your engineering process to include voltage analysis information into the EQ process; (2) the failure to treat voltage considerations as rigorously as other EQ parameters, such as radiation, heat, and humidity; and (3) the failure to establish clear responsibility for ensuring that qualification criteria meet the installed configuration. Although you had planned to perform more detailed dc voltage calculations that may have identified the design deficiency, the fundamental cause of the deficiency was your failure to develop design calculations to support voltage requirements at the component level. You also indicated that the potential safety consequences were minimal because at least three EMRVs would have operated for all but one low probability ADS event sequence; the isolation condensers, although not part of your ECCS, would mitigate the impact of a SBLOCA; and the increased peak cladding temperatures (PCTs) resulting from this deficiency would be expected to remain below the design basis accident PCTs. Nonetheless, the violations represent a significant regulatory concern because they indicate breakdowns in your design control process as well as your process for assuring appropriate qualification of components. Therefore, these violations, set forth in the enclosed Notice, are classified in the aggregate as a Severity Level III problem in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. Although you had an opportunity to identify these violations during your design review in response to an NRC 50.54(f) letter issued on October 9, 1996, the violations were not identified until the NRC found them during the subject inspection.

In accordance with the Enforcement Policy, a base civil penalty in the amount of \$55,000 is considered for a Severity Level III problem. Since Oyster Creek has been the subject of escalated enforcement actions within the last two years,¹ the NRC considered whether credit was warranted for *Identification* and *Corrective Action* in accordance with the civil penalty assessment process in Section VI.B.2 of the Enforcement Policy. No credit is warranted for identification because the violations were identified by the NRC. Credit is warranted for

¹ e.g., A Notice of Violation was issued on November 17, 1997 for violations classified in the aggregate at a Severity Level III relating to design control and corrective actions (Reference: EA 97-421).

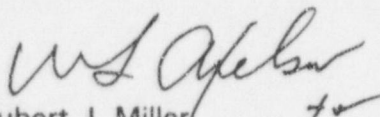
corrective actions because your actions, once the violations were identified, were considered prompt and comprehensive. Those actions, as described at the conference, include: (1) EMRV circuit modifications to ensure the required voltage is available to the solenoids; (2) review and revision of appropriate EQ files to document qualifiability of EQ components for several electrical performance parameters, including voltage, frequency, and load; (3) plans to review and revise engineering EQ procedures to include all required parameters; (4) plans to train engineering staff on the revised procedures; and (5) plans to conduct a self assessment of the EQ program using a "vertical slice" approach.

Therefore, to emphasize the importance of appropriate equipment qualification at the facility, as well as appropriate design controls, to ensure that equipment is maintained in accordance with the technical specifications, I have been authorized, after consultation with the Director, Office of Enforcement, to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalty in the base amount of \$55,000.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be placed in the NRC Public Document Room (PDR).

Sincerely,


Hubert J. Miller
Regional Administrator

Docket No. 50-219
License No. DPR-16

Enclosure: Notice of Violation and Proposed Imposition of
Civil Penalty

cc w/encl:

M. Laggart, Manager, Licensing and Vendor Audits

G. Busch, Manager, Nuclear Safety and Licensing

State of New Jersey

DCS
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GPU Nuclear Incorporated

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NRC Resident Inspector - Oyster Creek