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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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October 23, 1996

EA 96-125
EA 96-281

Mr. Leon R. Eliason
Chief Nuclear Officer and President
Nuclear Business Unit
Public Service Electric and Gas Company
Post Office Box 236
Hancocks Bridge, New Jersey 08038

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTIES -
$150,000
(NRC Inspection Reports No. 50-354/96-03 and 50-354/96-06)

Dear Mr. Eliason:

This letter refers to the NRC inspections conducted at the Hope Creek Nuclear Generating Station between February 11 and March 30, 1996, and between June 23 and August 3, 1996. The inspection reports were sent to you on April 26, 1996, and August 29, 1996, respectively. Based on the inspections, apparent violations of NRC requirements were identified. On June 11, 1996, a predecisional enforcement conference was conducted with you and members of your staff to discuss five of the apparent violations identified during the first inspection, their causes, and your corrective actions. Regarding the sixth apparent violation, which was identified during the June-August inspection, you were offered the opportunity to either attend an enforcement conference, or provide a response, and you chose to provide a response, dated September 25, 1996.

Based on our review of the inspection findings, related Licensee Event Reports, information provided during the conference, and information provided in your September 25, 1996 response, six violations are being cited and are described in the enclosed Notice of Violation and Proposed Imposition of Civil Penalties (Notice). The first two violations relate to the failure to plan appropriate surveillance testing following completion of maintenance on control rod drives and their associated hydraulic operating systems during the November 1995 through March 1996 refueling outage, as well as previous failures to complete such surveillance testing prior to startups in February 1991 and April 1994. The third and fourth violations involve failures to promptly identify and correct conditions adverse to quality regarding (1) 15 pairs of reactor building ventilation supply duct backdraft isolation dampers being installed in a configuration that deviated from plant design requirements, and (2) control rod withdrawal speeds being in excess of the values assumed in the Updated Final

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Safety Analysis Report (UFSAR). The fifth violation involves the failure to obtain Commission approval prior to making changes to the facility's service water system design that involved an unreviewed safety question. The sixth violation involved the failure to maintain the service water system in accordance with the Technical Specifications (TS) during the period November 1992 to March 1996 in that the safety auxiliary cooling system (SACS) heat exchanger throttle valves (manual flow path valves) were not properly set which resulted in the service water flow rates to the SACS heat exchangers being insufficient for certain design basis requirements.

With respect to the first two violations (Violations I.A and I.B of the enclosed Notice), the inspectors found that maintenance had been performed on control rods during the November 1995 through March 1996 outage, yet appropriate testing had not been planned to be completed in accordance with the TS prior to restart. This maintenance on the control rods had the potential to affect the scram function of 68 control rods which required surveillance testing. As a result of the failure to follow procedures, you violated an administrative procedure which required that the post-maintenance testing be planned prior to restart. Rather than planning to perform the maintenance prior to the restart, your schedule for performing this required surveillance testing, as noted in your Licensee Event Report (LER) 96-007, was at 40% power after plant startup. Toward the end of the 1996 outage, we concluded that if the NRC had not intervened on March 13, 1996, by questioning a control room operator about completion of the control rod testing, a TS Limiting Condition for Operation violation would have occurred. The second violation in Section I involved two separate previous occasions (in February 1991 and April 1994), in which you made mode changes without completing the required control rod testing prior to plant startup.

The third violation (Violation II.A.1 of the enclosed Notice) involved the failure to correct a condition identified in 1992 involving 15 pairs of reactor building backdraft isolation dampers having been installed backwards. At the enforcement conference, you indicated that this condition was first identified by a contractor in 1984-1985. You were notified of this issue in 1992 and corrective action was not taken at that time to correct the problem. You reviewed the issue during your most recent 1995 refueling outage, and you again decided to defer corrective action. With the dampers installed backwards, the "self-sealing" feature of their design could not be assured, and sufficient analyses were not performed to ensure that the licensing bases of the facility were met with this nonconforming condition. These activities represent nonconservative decision making on your part, since you operated the unit for an extensive period with a known degradation, based on a less than fully rigorous engineering and safety analysis.

With respect to the fourth violation (Violation II.A.2 of the enclosed Notice), on March 14, 1996, during control rod withdrawal time testing, several control rods were found to withdraw faster than allowed by procedure HC.OP-FT.BF-0001, "Control Rod Drive Insertion and Withdrawal Speed Test Adjustment and Stall Flows. In each case, the corrective action

consisted of adjusting the rod to the desired speed, with no effort to evaluate the significance of the misadjusted rods during previous operation or determine the cause of the "out of tolerance" rods. Subsequent to questions raised by the NRC inspector, an analysis was performed that concluded the "as-found" rod speeds measured during this 1996 testing were bounded by analysis. However, it was evident during this inspection that your organization lacked an appropriate appreciation of the safety significance of control rod withdrawal speed. In addition, further review identified that on May 10, 1992, a control rod was found to be traveling at a speed in excess of that allowed by the UFSAR and was not corrected until October 12, 1992. It was also travelling in excess of that allowed by a later analysis conducted on March 15, 1996. Therefore, as described in the fourth violation, you operated the plant during this period without taking corrective actions to address a condition outside the design basis.

With respect to the fifth violation (Violation II.B of the enclosed Notice), changes were made to the facility (as described in the UFSAR) involving unreviewed safety questions, without prior Commission approval. Specifically, in February 1996, you implemented a design change which would automatically open the main backwash valve for the service water system strainers whenever the associated service water pump started, and leave the valve open as long as the pump was running, rather than maintain that valve in the normally closed position. Prior to the modification, the valve would automatically open for short periods either via a timer or a high differential pressure across the strainers, in order to backwash the strainers. This modification constituted an unreviewed safety question because it reduced the margin of safety, as defined in the TS basis, in that it decreased the amount of station service water system flow available for the SACS by diverting some of the flow away from the heat exchangers in order to backwash the strainers.

Prior to implementation of the modification, you identified via calculations, that with the valve open, backwash flow through the service water (SW) pump discharge strainers was 2500 gallons per minute (gpm) which was much greater than the 430 gpm assumed in the UFSAR. Although your staff completed an Action Request to correct the UFSAR, you did not consider this discrepancy important for the purposes of this modification because a flow balance had been performed in 1992 which had verified adequate flow through the SACS heat exchangers with the backwash valve fully open. However, in the revised safety evaluation completed after implementation of the modification, you stated that you discovered that flow measurements taken during post-modification testing did not compare favorably to SW flow benchmarks, thereby invalidating the earlier assumption regarding the amount of backwash flow not being important. Rather than close the valve, you allowed the condition to continue and compensated for it in the revised 10 CFR 50.59 safety evaluation done to support the modification, by administratively limiting the ultimate heat sink (UHS) temperature to 84.6 degrees F, a value less than the TS limit of 88.6 degrees F. This temporary reduction in UHS water temperature was made to ensure design basis heat removal requirements could be met until a complete service water flow balance could be conducted following plant restart.

You approved this design change in March 1996 and continued to control the system with this administrative limit substituted for a TS limit, rather than closing the valve, or obtaining a change to the TS.

At the enforcement conference, you maintained that an administrative limit could be substituted for the TS limit for the UHS, since the administrative limit was more conservative than the TS limit. In support of this contention, you referenced a previous WNP-2 case where conservative administrative limits were used in lieu of a TS. You stated that the licensee in that case took the position that "a proposed change that involves the need to control plant operation in a manner more conservative than that required by the TS does not require NRC approval prior to implementation." Notwithstanding your contention, while the inspection guidance in NRC Generic Letter (GL) 91-18 acknowledges the use of administrative controls when degradations are discovered at a facility, that guidance was not intended to condone the use of such controls when a degradation is either created or perpetuated by a licensee's actions, since this condition would be under direct licensee control. Thus, since you created the condition by opening the valves, and then perpetuated the condition by making the modification permanent, the circumstances involved an unreviewed safety question arising from a change in the plant operation, rather than a corrective measure to promptly resolve a nonconforming condition in the existing plant design. The NRC position on this matter is stated in NRC Inspection Manual, Part 9900, issued April 9, 1996, which states a licensee may change the design of its plant, as described in the FSAR, in accordance with 10 CFR 50.59; however, whenever such a change involves an unreviewed safety question, or change in the TS, the licensee must obtain a license amendment prior to operating the plant with the nonconforming condition. With regard to your reliance upon the WNP-2 case, the NRC cited the licensee in that case for a violation involving converting safety-related service water system motor operated valves to manually operated valves. The statement by the licensee that a "proposed change that involves the need to control plant operation in a manner more conservative than that required by the TS does not require NRC approval prior to implementation" does not reflect the position of the NRC relative to unreviewed safety questions. Rather, that statement simply reflected that licensee's view.

The NRC is concerned that your independent oversight groups also failed to identify these problems even though opportunities to do so were available in both the past and the present time frame. The independent oversight groups, like the Quality Assurance/Nuclear Safety Review Group and the Station Operations Review Committee, are expected to provide additional assurance that deficiencies either leading to, or resulting from, poor decisions are discovered and corrected. While these issues were ultimately corrected in a manner to avoid significant safety consequences, these actions were completed in response to the NRC's identification of the problems. For the issues that are the subject of these violations, your independent review was neither sufficient nor timely.

These first five violations represent a significant regulatory concern because they indicate that management did not aggressively assure (1) appropriate planning for the testing of equipment following maintenance, (2) timely identification and correction of problems concerning safety related equipment, and (3) appropriate evaluation prior to making changes to the facility. Given the significance of the findings, in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600, the first two violations are classified in the aggregate as a Severity Level III problem, the third and fourth violations are also classified in the aggregate as a Severity Level III problem, and the fifth violation is individually classified at Severity Level III.

In accordance with the Enforcement Policy, a base civil penalty in the amount of $50,000 is considered for a Severity Level III problem or violation. Because your facility has been the subject of escalated enforcement actions within the last 2 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. Credit is not warranted for *Identification* because you did not identify the violations, other than Violation I.B. Credit is warranted for *Corrective Action* because at the time of the enforcement conference, your actions were considered both prompt and comprehensive. These actions, which were discussed during your presentation at the conference, include, but are not limited to the following: (1) performing an inclusive review of work activities to verify TS compliance, including an Operations Department review of work order activities performed during the outage, departmental reviews of TS requirements under their control, and Independent Quality Assurance/Nuclear Safety Review (QA/NSR) assessment; (2) developing a conditional TS surveillance list; (3) incorporating the post-maintenance event into the licensed operator requalification training; (4) setting all rods to within UFSAR assumed values before completing plant startup from RF06; (5) revising the control rod speed verification testing procedure to be consistent with the UFSAR, and reducing withdrawal speed acceptance criteria from 20% to 10%; (6) performing stroke timing of rods at each Refuel Outage; (7) completing a comprehensive root cause investigation of these concerns; and (8) providing training on the importance of maintaining the design and licensing basis of the facility.

Notwithstanding these corrective actions and consistent with the Enforcement Policy, to emphasize the importance of (1) appropriate planning for the testing of equipment following maintenance, (2) timely identification and correction of problems identified concerning safety related equipment, and (3) appropriate evaluation prior to making changes to the facility, I have been authorized, after consultation with the Director, Office of Enforcement, to issue the enclosed Notice in the amount of $150,000 (a $50,000 base civil penalty for each of the three Severity Level III violations or problems).

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[1]A $100,000 civil penalty was issued on December 12, 1995 (EA 95-216), based on an inspection that ended August 24, 1995.

With respect to the sixth violation set forth in Section III of the enclosed Notice, you had identified, as described in LER 96-009, that Hope Creek had operated in an unanalyzed condition due to inappropriate service water throttle valve settings. The NRC recognizes that during the period this condition existed, the service water system flow path did in fact provide sufficient cooling to the SACS heat exchangers. Nonetheless, the NRC is concerned that you failed to ensure that following a design change activity to replace the throttle valves during refueling outage 4 in November 1992, appropriate testing was not completed to establish the required throttle valve position and flow to the SACS heat exchangers for all design basis requirements, including expected tide conditions, pump degradation, and worst case ultimate heat sink temperatures.

This violation also represents a significant regulatory concern, and, therefore, is also classified at Severity Level III in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600.

Because your facility has been the subject of escalated enforcement actions within the last two years, 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. Credit is warranted for *Identification* because you did identify the violation as part of an extensive review of the Service Water System in response to the violation concerning the Service Water backwash valve identified in Item II.B. Credit is also warranted for *Corrective Action* because the actions you took were considered both prompt and comprehensive. These actions, which were described in your LER and your September 25, 1996 letter, include, but are not limited to the following: (1) repositioning of the throttle valves to ensure adequate system performance during all postulated design basis conditions; (2) performance of a flow balance to support a design change for the Service Water backwash strainer design change, which verified proper throttle position; (3) enhanced procedures clarifying the requirements for field verification of plant conditions against the assumptions in the engineering evaluations; (4) review of a sampling of engineering evaluations to determine whether appropriate acceptance criteria had been provided; (5) conduct of a Configuration Baseline Document validation review of the Service Water System and the SACS; and (6) plans to conduct a Service Water System Operational Performance Inspection in October and November 1996 to confirm the validity of the design and licensing basis reviews which have been completed.

Therefore, to encourage prompt identification and comprehensive correction of violations, I have been authorized, after consultation with the Director, Office of Enforcement, not to propose a civil penalty for this violation.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. After

reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC 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). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR. If redactions are required, a proprietary version containing brackets placed around the proprietary, privacy, and/or safeguards information should be submitted. In addition, a non-proprietary version with the information in the brackets redacted should be submitted to be placed in the PDR.

Sincerely,

Hubert J. Miller
Regional Administrator

Docket No. 50-354
License No. NPF-57

Enclosure: Notice of Violation and
Proposed Imposition of Civil Penalties

cc w/encl:
L. Storz, Senior Vice President - Nuclear Operations
E. Simpson, Senior Vice President - Nuclear Engineering
E. Salowitz, Director - Nuclear Business Support
C. Schaefer, External Operations - Nuclear, Delmarva Power & Light Co.
P. MacFarland Goelz, Manager, Joint Generation, Atlantic Electric
M. Bezilla, General Manager - Hope Creek Operations
J. Benjamin, Director - Quality Assurance & Nuclear Safety Review
D. Powell, Manager - Licensing and Regulation
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Nuclear Safety Information Center (NSIC)
NRC Resident Inspector - Hope Creek

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