



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

April 10, 1997

EA Nos. 96-474  
96-475  
96-494  
96-541

Mr. B. Ralph Sylvia  
Executive Vice President, Generation Business  
Group and Chief Nuclear Officer  
Niagara Mohawk Power Corporation  
Nuclear Learning Center  
450 Lake Road  
Oswego, New York 13126

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTIES  
- \$200,000  
(NRC Inspection Report Nos. 50-220/96-13, 50-410/96-13, 50-220/96-15,  
50-410/96-15, 50-220/96-16 and 50-410/96-16)

Dear Mr. Sylvia:

This letter refers to the NRC inspections conducted between October 7 and November 30, 1996, at the Nine Mile Point Nuclear Station, Units 1 and 2, the findings of which were discussed with you and members of your staff during several exit meetings, the last of which was held on December 20, 1996. These inspections included an inspection of the motor-operated valve (MOV) programs, an engineering inspection, and a routine resident inspection. The related inspection reports were sent to you previously. On February 25, 1997, a Predecisional Enforcement Conference (conference) was conducted with you and members of your staff to discuss the violations, their causes, and your corrective actions.

During the inspections, a number of deficiencies were identified due to: (1) the failure to control reactor pressure vessel (RPV) water level following a scram of the Unit 1 reactor on November 5, 1996, that resulted in inadvertently filling the main steam lines (MSLs) with approximately 30,000 gallons of water; (2) the failure to take adequate corrective action after the Unit 2 suppression pool was cleaned during the refueling outage in the spring of 1995, that resulted in failure to identify debris in the drywell-to-suppression pool downcomers; (3) the inadequate justification for use of a certain design input in calculations used to estimate the ability of four safety-related motor-operated valves (MOVs) on Unit 2 to overcome pressure locking forces; (4) inadequate evaluations and corrective actions associated with the failure of the Unit 2 reactor core isolation cooling (RCIC) turbine lube oil cooler pressure control valve (PCV); and (5) an incorrect setpoint for the Unit 2 control room (CR) chiller condenser water low flow trip.

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cc w/encl:

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Based on the information developed during the inspections, and the information provided during the conference regarding these deficiencies, a number of violations are being cited and are described in the enclosed Notice of Violation and Proposed Imposition of Civil Penalties (Notice). The violations have been categorized into two areas, namely: (1) the failure to identify and/or correct several conditions adverse to quality that existed at your facility, including deficiencies associated with the overfill of reactor water into the MSLs at Unit 1; and (2) the failure to maintain appropriate design controls at the facility.

With respect to the corrective action violations, the overfill event at Unit 1 is particularly disturbing. A lack of sensitivity to the significance of high reactor water level on the part of both plant management and operations personnel, resulted in inadequate control of RPV water level and filling the MSLs with approximately 30,000 gallons of water. Previously, NMP did not adequately respond to industry information to ensure that the combination of training, procedures, and system design were adequate to have prevented an overfill event. When reactor water level increased rapidly following the reactor scram, the system for overfill protection did not prevent this overfill event because of leakage past the feedwater flow control valve (FCV). Operators allowed feedwater injection to continue for approximately 50 minutes and failed to take action to lower and restore water level to the band specified in the scram procedure. The operators were unaware that the wide range (WR) level indication that they were relying on was not accurate for the specific plant conditions and, as a result, failed to maintain RPV water level below the elevation of the MSLs. Even though the inaccuracy of the WR level indication during hot conditions had been previously identified in 1992 on a deviation/event report (DER), the information was not effectively communicated to the operators. The 1992 DER, as well as an actual high RPV water level event at Unit 1 in July 1996, in which operators failed to take action for approximately 15 minutes, provided prior opportunities to emphasize sensitivity to high RPV water level, and the importance of the high level trip function to protect against an overfill event.

Beyond the corrective action issues, this event raises concerns about operator knowledge of some fundamental aspects of plant design and operating procedures. Operator knowledge deficiencies associated with RPV level instrumentation limitations, feedwater system operation, and procedural requirements, combined with weak diagnostic activities and failure to fully understand integrated plant response resulted in failure to take timely action to comply with operating procedures. The NRC is concerned that your evaluation of the event did not address the broader implications of these weaknesses in operator knowledge and abilities. At the conference you acknowledged that operator performance was unsatisfactory and, while you indicated that you took corrective action to provide training on high reactor vessel level events, you did not indicate that any action was taken to assess whether the type of knowledge and performance deficiencies revealed during this event may exist in other areas of Unit 1 operator knowledge and ability.

These failures that contributed to the November 1996 overfill event represent a violation of NRC requirements and are described in Section I.A of the enclosed Notice. Even though there was only minor equipment damage as a result of this event, the failure to have adequate controls in place to prevent an overfill event, despite the prior opportunities to identify the need for such controls, is a significant regulatory concern since it had the potential to cause a serious safety event. Water hammer and two-phase flow caused by flooding of the MSLs

can result in the main steam isolation valves (MSIVs) or the turbine pressure control valves being damaged which could render them inoperable. More severe transients could lead to a MSL break due to increased dead weight and seismic loading. As such, the fundamental weaknesses in operator performance, as well as management's failure to provide appropriate oversight by clear communication of the expectations for control of plant parameters, represents a significant regulatory concern. Therefore, the violation is classified at Severity Level III in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions " (Enforcement Policy), NUREG-1600.

In addition to the failure to take adequate corrective actions to preclude the overfill event, other instances of failure to promptly identify and correct conditions adverse to quality were identified, which could have resulted in degradation or inoperability of safety-related equipment. These findings are described in Sections I.B, I.C, and I.D of the enclosed Notice. For example, between 1991 and 1996, the RCIC turbine lube oil cooler PCV was failed open, resulting in the downstream piping and lube oil cooler being routinely exposed to operating pressures above the design pressure of 150 psig. During the 5 year period, you depended upon a downstream relief valve for pressure control. Other failures included not identifying debris in the downcomers at Unit 2, as well as a deficiency with the Unit 2 control room chillers. Failure to promptly identify and correct conditions which could degrade safety equipment also represents a significant regulatory concern; and, therefore, the three violations are classified in the aggregate as a Severity Level III problem in accordance with the Enforcement Policy.

The violations described in Section II of the enclosed Notice relate to inadequate design control at your facility and indicate significant weaknesses in your engineering programs. Lack of rigor in technical evaluations, personnel errors, and lack of management oversight and verification led to questionable design decisions for safety-related MOVs, long-standing deficient conditions (RCIC and CR chillers), and incorrect equipment modifications (RCIC orifice). With respect to the MOV issue, at the time of the inspection, you were using motor-actuator run efficiency in calculations used to estimate the ability of high pressure core spray (HPCS), RCIC, and containment spray MOVs to overcome pressure locking forces. The use of run efficiency in this case represented a deviation from the guidelines published by the motor-actuator manufacturer. At the conference you contended that the use of motor-actuator run efficiency (in lieu of pull-out efficiency) in the short duration unwedging portion of the opening stroke may have been acceptable. Notwithstanding the qualitative merits of the discussion, the limited nature of the data makes it insufficient for the purpose of design input. Therefore, uncertainty exists as to whether the unmodified valves would have functioned in a pressure locking condition. Further NRC review is not warranted since the valves have been modified.

In any case, we concluded that at the time of the inspection, the use of motor-actuator run efficiency in lieu of pull-out efficiency was not adequately validated. The NRC is concerned that, had the inspectors not raised this issue during the inspection, the calculations would not have been revised and the valves would not have been modified. Failure of the HPCS and RCIC discharge valves to open due to pressure locking could have made the high pressure injection function unavailable in an accident situation. Additionally, with respect to design control, an incorrect trip setpoint for the CR chillers led to the chillers being inoperable, contrary to the Technical Specifications and calculation errors could have led to degradation



of the RCIC system. Failure to have sufficient controls in place to ensure that design functions are performed correctly, including verifying the adequacy of the design, is indicative of a programmatic problem; therefore, these four violations are classified in the aggregate as a Severity Level III problem in accordance with the Enforcement Policy.

In accordance with the Enforcement Policy, a base civil penalty in the amount of \$50,000 is considered for each Severity Level III violation or problem<sup>1</sup>. Since Nine Mile Point has been the subject of escalated enforcement actions within the last 2 years,<sup>2</sup> 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 for each of the Severity Level III issues. Although you identified the WR level indication deviation/event report that was not dispositioned adequately, the NRC identified the remainder of the corrective action problems. Therefore, credit was not warranted for *Identification* for either of the Severity Level III issues related to corrective actions in Section I. With respect to the design control problem, the NRC identified three of the four violations; therefore, credit was not warranted for *Identification* for the Severity Level III design control problem.

With respect to *Corrective Action*, credit was not warranted for the corrective action violation associated with the November 1996 overfill event because despite though your staff having provided training on high RPV level events and reinforced management expectations for control of RPV water level, you did not address the broader aspects of the operator performance problems as discussed above. Credit was warranted for *Corrective Action* for the other corrective action problem and the design control problem, because subsequent to identification of the issues by NRC inspectors, Niagara Mohawk Power Corporation (NMPC) initiated prompt and comprehensive corrective actions. These corrective actions, which were discussed during your presentation at the conference, included, but were not limited to: (1) revising your corrective action program, including establishing qualification requirements for personnel who perform root cause evaluations; (2) revising procedures and guidelines to incorporate lessons learned from the various problems and reinforcing the lessons learned with plant personnel; and (3) reviewing related items, such as calculations and trip setpoints, to identify similar problems.

Therefore, to emphasize the importance of identification and correction of significant conditions adverse to quality, quality design control, and appropriate management oversight of all areas of licensed activities, I have been authorized, after consultation with the Director, Office of Enforcement to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalties (Notice) in the total amount of \$200,000 (a penalty of \$100,000 (twice the base) for the corrective action violation associated with the overfill event and a base penalty of \$50,000 for each of the other Severity Level III problems).

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<sup>1</sup> While the existing base amount for a Severity Level III violation was increased to \$55,000 on November 12, 1996, the base amount being issued in the case is \$50,000 since the violations occurred prior to the date of the base civil penalty amount increase.

<sup>2</sup> A \$80,000 civil penalty was issued on August 23, 1996 (EA 96-116) and a \$50,000 civil penalty was issued on June 18, 1996 (EA 96-079).

With respect to the RCIC lube oil cooler PCV, the NRC identified the design control and corrective action violations after your staff had determined, in July 1996, that a safety evaluation to determine that the change did not involve an unreviewed safety question should have been performed when the PCV was left in the failed open position, a condition contrary to the Updated Final Safety Analysis Report (UFSAR). Since the failure to perform the safety evaluation, contrary to 10 CFR 50.59, was identified by your staff and corrective action was taken by restoring the valve to a configuration consistent with the UFSAR, this violation is being treated as a Non-Cited Violation (NCV) consistent with Section VII.B.1 of the Enforcement Policy.

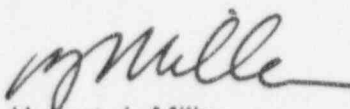
Also, another apparent violation listed in the engineering inspection report, namely a violation of 10 CFR 50.71 for failure to update the UFSAR to reflect that the RCIC lube oil PCV valve type had been changed prior to initial startup in 1987, is considered a minor violation and is being treated as Non-Cited Violation (NCV) consistent with Section IV of the Enforcement Policy. Additionally, the NRC has determined that the concerns about RCIC operability and the procedure for drywell closeout that were discussed at the enforcement conference did not constitute violations of NRC requirements.

The NRC is still considering escalated action regarding the deficiencies identified with the implementation of your maintenance rule program at Unit 1 that were discussed at the enforcement conference. Enforcement action for these violations will be covered by separate correspondence at a later date.

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 Nos. 50-220; 50-410  
License Nos. DPR-63; NPF-69

Enclosure: Notice of Violation and Proposed Imposition of Civil Penalties

Niagara Mohawk Power Corporation

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