

June 17, 2003

Mr. Michael Mulligan  
P.O. Box 161  
Hinsdale, NH 03451

Dear Mr. Mulligan:

Your e-mail dated March 30, 2003, and addressed to Ms. Mindy Landau for Dr. William D. Travers, Executive Director for Operations, has been referred to the Office of Nuclear Reactor Regulation (NRR) pursuant to Title 10 of the *Code of Federal Regulations*, Section 2.206. A copy of your e-mail is enclosed. Noting your request that the Nuclear Regulatory Commission (NRC) take enforcement action against the Quad Cities Nuclear Power Station, Unit 2, (Quad Cities), the staff has processed your request following the guidance in Management Directive 8.11, "Review Process for 10 CFR 2.206 Petitions." You requested the following NRC enforcement-related action:

1. That the plant be given 6 months to fully front-panel-annunciate all primary containment and RHR [residual heat removal] silent relays that can prevent the operation of safety equipment without the immediate observation of the shift.

In addition, you requested the following NRC nonenforcement-related actions:

2. An investigation of other Quad Cities safety systems that may have the same potential for similar issues, including the generic implications for the industry, e.g., core cooling component relays or circuits not annunciated or discoverable by surveillance.
3. An investigation regarding why this issue was not discovered by the NRC, i.e., Region III, including if Region III properly assessed the event and if Region III has adequate resources to discover safety-related problems.
4. A re-evaluation of the effectiveness of the ROP [reactor oversight program] regarding Quad Cities due to an apparent discrepancy between the ROP assessment compared to NRC documents and planned inspection activities.

The staff has concluded that your submittal does not meet the criteria for consideration under 10 CFR 2.206 because your petition presents no significant new information and only raises issues that have already been the subject of NRC staff review and evaluation at the Quad Cities facility and other nuclear power facilities.

Your petition, particularly your requested actions 3 and 4 above, suggests potential NRC misconduct. In addition, you maintain that the agency has inadequately assessed maintenance and component failures and transient events throughout the industry. The staff is treating these concerns as assertions of impropriety by NRC staff and has referred them to the Office of the Inspector General.

Although the staff has concluded that your submittal does not meet the criteria for consideration under 10 CFR 2.206, the staff has reviewed the technical issues and has the following answers to your concerns:

## EVALUATION

### Basis for Request

In your 10 CFR 2.206 petition you cite Licensee Event Report (LER) 265/03-001, "Failure to Reset Residual Heat Removal Injection Valve Containment Isolation Signal due to Inadequate Procedural Development and Review," as the basis for your request that the plant be given six months to fully front-panel-annunciate all primary containment and RHR silent relays that can prevent the operation of safety equipment without the immediate observation of the shift. You expand that specific concern by requesting an investigation of other Quad Cities safety systems that may have the same potential for similar issues, including the generic implications for the industry, e.g., core cooling component relays or circuits whose potential failure is not annunciated or discoverable by surveillance.

To summarize the specific event at Quad Cities, the LER documents that certain relays were energized during a surveillance test on December 18, 2002, which resulted in the containment isolation signal for the "A" and "B" low pressure core injection (LPCI) valves being sealed in. The procedure should have had the operators reset the relays to the de-energized condition after the test, but it did not. The directions to reset the relays had been erroneously left out of the procedure during a procedure revision. The error was discovered on January 9, 2003, during a different surveillance test. The result of leaving the relays in the energized state was that the "A" and "B" low pressure core injection (LPCI) valves would not open automatically upon initiation of a LPCI injection signal. However, the RHR system could be restored by resetting the primary containment isolation by depressing the containment reset buttons on the control room panel. The LER was reviewed and closed by Region III in Inspection Report 50-254 and 50-265/03-03, Section 4OA3.2, dated April 28, 2003. The NRC's evaluation of the event using the significance determination process of Inspection Manual Chapter 0609 resulted in a finding of very low risk significance (green finding). The licensee's use of an inadequate procedure was a violation of Criterion V of 10 CFR Part 50, Appendix B, and the licensee was issued a non-cited violation (NCV 50-265/03-03-04). Among other corrective actions, the licensee subsequently corrected the deficient procedure.

### Applicable NRC Requirements and Guidance

The staff concluded that your submittal presents no significant new information and only raises issues that have already been the subject of NRC staff review and evaluation at the Quad Cities facility and other nuclear power facilities.

In general, the NRC has considered the information necessary for control room operators and the format in which the information is presented and has provided applicable requirements and guidance. Criterion XIV of Appendix B to 10 CFR Part 50 requires that measures be established for indicating the operating status of structures, systems, and components of the nuclear power plant, such as by tagging valves and switches, to prevent inadvertent operation. NRC requirements for protection systems are contained, in part, in 10 CFR 50.55a(h)(2), "Protection systems." The NRC has endorsed the requirements of Institute of Electrical and

Electronics Engineers (IEEE) Std. 279-1971 and IEEE Std. 603-1991. IEEE Std. 279-1971 gives general guidance applicable to control room annunciation in Section 4.13, "Indication of Bypasses," that, "If the protective action of some part of the system has been bypassed or deliberately rendered inoperative for any purpose, this fact shall be continuously indicated in the control room." Section 4.14, "Access to Means for Bypassing," goes on to state, "The design shall permit the administrative control of the means for manually bypassing channels or protective functions." These requirements were unchanged from the previous edition of the standard, IEEE Std. 279-1968, which is the licensing basis for Quad Cities.

The licensing basis for Quad Cities, as stated in the updated final safety analysis report (UFSAR), is IEEE Std. 279-1968. Since the construction permits for Quad Cities were issued in 1967, the applicable portion of 10 CFR 50.55a(h)(2) to the facility is, "protection systems must be consistent with their licensing basis or may meet the requirements of IEEE Std. 603-1991 and the correction sheet dated January 30, 1995." The licensee has chosen to comply with the regulation by providing protection systems consistent with their licensing basis. The Quad Cities UFSAR, Section 7.3, "Engineered Safety Feature Systems Instrumentation and Control," includes point-by-point discussion of how particular systems, including core spray, RHR-LPCI, and primary containment isolation, compare to the requirements of IEEE Std. 279-1968. The NRC used the final safety analysis report as the principal document upon which it based its safety evaluation supporting the issuance of the operating license for Quad Cities.

As a result of lessons learned from the Three Mile Island Unit 2 (TMI) Accident in 1979, the NRC imposed additional requirements on licensees regarding control room annunciation, including what information should be provided to the operators and how it should be presented. These requirements were provided, in part, in the NRC action plan developed as a result of the TMI Accident, which was documented in a series of NUREGs (e.g., NUREG-0600, NUREG-0660, NUREG-0718, NUREG-0737). Some of these requirements were codified in 10 CFR 50.34(f), "Additional TMI-related requirements."

Additional guidance regarding some methods acceptable to the NRC for licensees to meet TMI-related requirements was provided, in part, in Generic Letter 82-33, "Supplement 1 to NUREG-0737 - Requirements for Emergency Response Capability." For example, Item I.D.1, "Control Room Design Review," of NUREG-0600 states that licensees will be required to perform a Detailed Control Room Design Review (DCRDR) to identify and correct design deficiencies. The purpose of the review was to determine if the control room provides the operator with the system status information, control capabilities, feedback, and performance aids necessary to accomplish operator functions and tasks effectively. Supplement 1 to NUREG-0737 confirmed and clarified the DCRDR requirement in NUREG-0600. The DCRDR for Quad Cities was reviewed and approved by the NRC in a safety evaluation report forwarded by letter from T. Ross (NRC) to T. Kovich (licensee), dated April 19, 1989.

The NRC also provided guidance regarding control room annunciation in Regulatory Guide (RG) 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," and RG 1.47, "Bypassed and Inoperable Status Indication for Nuclear Power Plant Safety Systems." A RG is an NRC pre-approved method of meeting a regulatory requirement. RGs are, as the name implies, guidance and not requirements. Licensees may choose to commit to a RG, in which case it becomes part of the licensing basis for the facility, or they may choose to meet the regulatory requirement by other methods. In the case of Quad Cities, RG 1.97, but not RG 1.47, is part of

the licensing basis. The staff noted in RG 1.47 that, "It is recognized that automatic indication of inoperability or a bypassed condition is not feasible for all the possible means by which safety-related systems could be completely or partially rendered inoperative." The licensee may choose other means, including administrative means. The administrative means by which the licensee controlled the subject LPCI relays was by procedure. The fact that the procedure was inadequate was a violation of NRC requirements, but the fact that a procedure was used was not a violation.

Your second requested action related to "relays or circuits not announced or discoverable by surveillance." Note that the erroneously energized relays were discovered by the licensee due to an unexpected condition observed by the operators during a surveillance test. The NRC requires complete testing of safety-related logic circuits to ensure that they will function as designed when called upon, as required by 10 CFR 50.36(c)(3) and as discussed in Generic Letter 96-01, "Testing of Safety-Related Logic Circuits." Actions requested of the licensee by Generic Letter 96-01 were reviewed and approved by the NRC for Quad Cities by letter to I. Johnson (licensee) from R. Pulsifer (NRC) dated July 14, 1997, for Unit 2, and by letter to O. Kingsley (licensee) from R. Pulsifer (NRC) dated January 12, 1999, for Unit 1.

The staff considers that NRC requirements are being met regarding the information necessary for control room operators and the format in which the information is presented. Neither the NRC staff's evaluation nor industry operational data since the requirements and associated guidance were issued, indicates that the currently installed control room annunciation, including bypassed and inoperable status indication, pose a risk-significant safety concern.

The above referenced documents have been entered into the Agencywide Documents Access and Management System (ADAMS) and may be accessed through the NRC's Public Electronic Reading Room on the Internet at [www.nrc.gov](http://www.nrc.gov). If there are problems in accessing the documents located in ADAMS, contact the NRC Public Document Room (PDR) Reference staff at 1-800-397-4209, 301-415-4737 or by email to [pdr@nrc.gov](mailto:pdr@nrc.gov).

## CONCLUSION

Based on the above, the NRC staff has concluded that your submittal dated March 30, 2003, does not meet the criteria for consideration under 10 CFR 2.206 because your petition presents no significant new information and only raises issues that have already been the subject of NRC staff review and evaluation at the Quad Cities facility, other nuclear power facilities, and on a generic basis, for which the issues have been resolved and the resolutions are applicable to Quad Cities. No additional NRC enforcement-related action is warranted based upon the information you have presented. In addition, your assertions of impropriety by NRC staff have been referred to the Office of the Inspector General.

If a violation of NRC requirements is found during NRC inspections or brought to the attention of the NRC by either plant personnel or other individuals, there are basically two mechanisms used by the NRC to address the problem based upon its effect on plant safety and risk. If the violation is of very low safety significance, it will be discussed in an inspection report with no formal enforcement action. The utility is expected to deal with the violation through its corrective action program, correcting the violation and taking steps to prevent a recurrence. If the NRC risk evaluation finds that the violation has a higher risk significance, a Notice of Violation will be issued to the licensee which may or may not involve a civil penalty. A Notice of

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Violation requires the licensee to respond formally to the NRC with its actions to correct the violation and what steps it will take to prevent the violation from occurring again. Both mechanisms involve a public process and all documentation is available for public review.

In summary, the NRC staff concludes that no violation of NRC requirements exists at the Quad Cities Nuclear Power Station, Unit 2, which warrants additional NRC enforcement-related action beyond that documented in NRC Inspection Report 50-254 and 50-265/03-03, dated April 28, 2003. Your concerns related to control room annunciation of inoperable safety-related equipment have been previously addressed and evaluated by the staff. For the aforementioned reasons, therefore, the NRC does not intend to review your concerns under the 10 CFR 2.206 petition process.

Thank you for bringing these issues to the attention of the NRC.

Sincerely,

**/RA/**

John A. Zwolinski, Director  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-265

Enclosure: As stated

cc w/Enclosure: See next page

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Sincerely,

/RA/

John A. Zwolinski, Director  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-265

Enclosure: As stated

cc w/Enclosure: See next page

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