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SVP-01-089

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Unit 2
Facility Operating License No. DPR-30
NRC Docket No. 50-265

Subject: Response to Non-Cited Violation

Reference: M. A. Ring (U.S. NRC) to O. D. Kingsley (Exelon Generation Company, LLC)
letter dated June 11, 2001, "QUAD CITIES NUCLEAR POWER STATION NRC
INTEGRATED INSPECTION REPORT 50-254/01-08; 50-265/01-08"

In the referenced inspection report, the NRC issued a non-cited violation (NCV) of 10 CFR 50.9, "Completeness and Accuracy of Information," to Exelon Generation Company (EGC), LLC. The NCV involved the reporting of reactor oversight process performance indicator information. We have carefully reviewed the rationale presented in the referenced inspection report for the NRC's conclusion that a violation of 10 CFR 50.9 occurred. In consideration of this information, we respectfully disagree that a violation of 10 CFR 50.9 occurred because our safety system functional failure performance indicator data was complete and accurate. Accordingly, we are denying the NCV. Attachment 1, "Response to Non-Cited Violation," explains the basis for our denial of the NCV. Attachment 2, "Fulfillment of Needed Safety Function," provides technical information to support our conclusion that the needed safety functions continued to be fulfilled for the equipment involved in the NCV.

In a telephone conversation on July 12, 2001, between Mark Ring (U.S. NRC) and Wally Beck (EGC), the NRC granted an extension to the 30-day time frame for submittal of our response.

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Should you have any questions concerning this letter, please contact Mr. W. J. Beck at (309) 227-2800.

Respectfully,



Timothy J. Tulon
Site Vice President
Quad Cities Nuclear Power Station

Attachments: 1 Response to Non-Cited Violation
 2 Fulfillment of Needed Safety Function

cc: Regional Administrator – NRC Region III
 NRC Senior Resident Inspector – Quad Cities Nuclear Power Station
 Director, Office of Enforcement, United States Nuclear Regulatory Commission

Response to Non-Cited Violation

NON-CITED VIOLATION 50-265/01-08-03

On June 11, 2001, Inspection Report 50-254/01-08; 50-265/01-08 was issued. This Inspection Report included the following Non-Cited Violation (NCV), as stated in the Summary of Findings:

No Color. Inspectors found that the licensee reported safety system functional failure data improperly. The three improperly reported safety system functional failures involved failure of the safe shutdown makeup pump, the Unit 2 emergency diesel generator, and Unit 2 intermediate range nuclear monitors.

Review by the inspectors and by program specialists from the Office of Nuclear Reactor Regulation determined that these three events should have been reported as safety system functional failures. Had these been reported properly in either the January 2001 or April 2001 submittals, the safety system functional failure performance indicator would have shown eight failures for first Quarter 2000 Unit 2 data, and seven failures for fourth Quarter 2000 Unit 2 data which would have indicated performance in the regulatory response or White band. The actual submittals showed performance indicator data in the licensee response or Green band. Because the information was related to a performance indicator that would have changed from Green to White had the complete information been submitted, this was considered a Non-Cited Violation of 10 CFR 50.9 (Section 40A1).

RESPONSE

A submittal was initiated on May 17, 2001, and completed on July 23, 2001, concurrent with the quarterly submittal, revising the NRC performance indicator web page for Quad Cities Nuclear Power Station (QCNPS) to reflect the three events discussed in the subject inspection report as safety system functional failures. As noted in the cover letter and discussed below and in Attachment 2, we conclude the events in question did not constitute safety system functional failures. However, including them in the NRC web page data was considered to be appropriate at the time as it provided a conservative position while this issue was pending resolution. An explanatory note was included in our submittal indicating that our review of the matter continued.

Our review of the matter has concluded that our submittals of performance indicator data in 2000 and in January and April 2001 were complete and accurate and did not result in a violation of 10 CFR 50.9. As described below, we followed the NRC-endorsed guidance in Nuclear Energy Institute (NEI) document NEI 99-02, Revision 0, "Regulatory Assessment Performance Indicator Guideline," to report performance indicator data in our 2000 and January and April 2001 submittals.

NEI 99-02, Revision 0, refers to NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," for determining the reportability of data for the safety system functional failure performance indicator. Under "Clarifying Notes" for the "Safety System Functional Failures" section of NEI 99-02, Revision 0, the following statement is made:

The definition of SSFFs is identical to the wording of the current revision to 10 CFR 50.73(a)(2)(v).

Response to Non-Cited Violation

NEI 99-02, Revision 0, also states:

NUREG-1022: Unless otherwise specified in this guideline, guidance contained in the latest revision to NUREG-1022, "Event Reporting Guidelines, 10 CFR 50.72 and 50.73," that is applicable to reporting under 10 CFR 50.73(a)(2)(v), should be used to assess reportability for this performance indicator.

Additionally, under Frequently Asked Questions (FAQs) in the safety system functional failures section of NEI 99-02, Revision 0, the NRC-approved responses to FAQs 8, 9 and 10 all say, "If the situation is reportable per 10 CFR 50.73 (a)(2)(v) it should be counted as a SSFF." The NRC-approved response to FAQ 143 states, "The intention of NEI 99-02 is to report only those failures meeting the 10 CFR 50.73(a)(2)(v) reporting criteria as applied to a specific plant."

We previously determined that the events in question were not reportable under 10 CFR 50.73(a)(2)(v). 10 CFR 50.73(a)(2)(v) requires reports for any event or condition that

...alone ['alone' is deleted in the latest revision] could have prevented the fulfillment of the safety function of structures or systems that are needed to: (A) Shut down the reactor and maintain it in a safe shutdown condition, (B) Remove residual heat, (C) Control the release of radioactive material, or (D) Mitigate the consequences of an accident.

As discussed in Attachment 2, these events did not result in a failure that could have prevented the fulfillment of a needed safety function. Therefore, these events were not reportable under 10 CFR 50.73(a)(2)(v). In accordance with the guidance described above in NEI 99-02, these events were not initially counted in the data for the safety system functional failure performance indicator. They were subsequently added to the NRC web page as a conservative measure pending ultimate resolution of this issue.

Note that changes made to NUREG-1022 (revised in October 2000), 10 CFR 50.73 (revised in October 2000 with an effective date of January 2001) and NEI 99-02 (revised in April 2001) did not have an effect on the outcome of the performance indicator data reporting issues discussed in this letter.

SUMMARY

In conclusion, we followed the NRC endorsed guidance to report safety system functional failure performance indicator data in our January and April 2001 submittals and the data submitted was complete and accurate.

Fulfillment of Needed Safety Function

INOPERABLE INTERMEDIATE RANGE MONITORS (IRMs) EVENT

This event involved having two IRMs out of four in the same trip system inoperable with the reactor in Mode 5 (i.e., refueling). All control rods were fully inserted with an out-of-service card on the rod motion control switch. During part of this time period, fuel movements were being made.

The safety function of the IRMs is to monitor neutron flux levels during startup and shutdown between the source range monitor (SRM) range and the average power range monitor (APRM) range and to generate trip signals to prevent fuel damage from abnormal operating transients in the intermediate power range.

The design basis of the IRMs is stated in QCNPS Updated Final Safety Analysis Report (UFSAR) Section 7.6.1.4.1 as:

- A. Detect and indicate neutron flux level in a range between the SRM detection capability and the power range instrumentation capability (approximately 10^8 - 10^{12} nv); and
- B. Generate trip signals to prevent fuel damage from a single operator error or a single equipment malfunction.

Also, the applicable Technical Specifications (TS) Bases state:

The IRMs monitor neutron flux levels from the upper range of the source range monitor (SRM) to the lower range of the average power range monitors (APRMs). The IRMs are capable of generating trip signals that can be used to prevent fuel damage resulting from abnormal operating transients in the intermediate power range.

This event would not have prevented the fulfillment of a needed safety function for the following reasons:

1. The scram function of the IRMs is not credited in any UFSAR Chapter 15 accident analysis; therefore, there is no needed safety function for the IRMs.

As described in the referenced letter, the term "needed" in 10 CFR 50.73(a)(2)(v) means only those systems for which the UFSAR explicitly claims credit to shut down the reactor and maintain it in a safe shutdown condition, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident. The Chapter 15 accident analyses at QCNPS (i.e., control rod drop, loss of coolant, main steam line break, one recirculation pump shaft seizure, fuel handling accidents, mislocated fuel assembly, misoriented fuel assembly, and spent fuel cask drop) do not credit the IRM function. Therefore, there is no needed safety function associated with the IRMs.

The referenced letter also concludes that a system failure is not reportable simply by virtue of the inclusion of that system in TS. Therefore, the TS requirement of the IRMs to be operable in Mode 5 does not by itself make the failure of the IRMs reportable per 10 CFR 50.73(a)(2)(v).

2. At the time of this event, there were at least two operable IRMs in each trip system (i.e., two in the 'A' trip system and four in the 'B' trip system). Therefore, had the IRM scram

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function of the IRMs been called upon, the redundancy designed into the system would have assured that a scram signal would have been generated.

3. Throughout this event the reactor was in Mode 5, all control rods were at the full-in position and there was an out-of-service card on the rod motion control switch. Therefore, the safety function of having all control rods insert into the core as a result of an IRM generated scram signal was met.

Therefore, this event is not reportable in accordance with 10 CFR 50.73(a)(2)(v), and not reportable as a safety system functional failure under the Reactor Oversight Process performance indicators.

UNIT 2 DIVISION II EMERGENCY DIESEL GENERATOR VENT FAN SWITCH EVENT

This event involved the discovery of the power select switch for the Unit 2 Division II Emergency Diesel Generator (EDG) vent fan in the alternate position. This would have resulted in the vent fan, upon a start signal being received by the Unit 2 Division II EDG, being powered by the Unit 1 Division II emergency bus which is fed by the Unit 1 Division II EDG following a loss of offsite power (LOOP). Normally the Unit 2 Division II EDG vent fan is powered by the Unit 2 Division II emergency bus, which is fed by the Unit 2 Division II EDG following a LOOP.

From UFSAR Section 8.3.1.6, the safety function of the Unit 2 Division II EDG is to provide a sufficient and independent power source to assure safe reactor shutdown under emergency conditions during a LOOP concurrent with a design basis accident.

With the Unit 2 Division II EDG vent fan power select switch in the alternate position, the Unit 2 Division II EDG would start and load in response to a LOOP concurrent with a design basis accident. The vent fan would take power from the Unit 1 Division II emergency bus, whether that bus was powered by its normal power supply or was powered by the Unit 1 Division II EDG.

This event would not have prevented the fulfillment of a needed safety function because the Unit 1 Division II EDG was operable throughout the event and capable of providing power to the Unit 2 Division II EDG vent fan, if required. This utilization of the Unit 1 Division II EDG for power to a support system (i.e., the Unit 2 Division II EDG vent fan) would not constitute a lack of independence between Unit 2 Division I and Unit 2 Division II. Additionally, the load rating of the Unit 1 Division II EDG was verified as having sufficient margin to supply the Unit 2 Division II EDG vent fan.

Therefore, this event is not reportable in accordance with 10 CFR 50.73(a)(2)(v), and not reportable as a safety system functional failure under the Reactor Oversight Process performance indicators.

SAFE SHUTDOWN MAKEUP PUMP

This event involved an erratic safe shutdown makeup pump (SSMP) controller, such that the SSMP would not have been capable of providing the flow required by TS.

The safety function of the SSMP is to provide an inventory control function to satisfy the requirements of 10 CFR 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," as described in the Safe Shutdown Analysis and in UFSAR Section 5.4.6.5.

Fulfillment of Needed Safety Function

UFSAR Section 5.4.6.5.1, "Design Basis," states:

The purpose of the safe shutdown makeup pump (SSMP) system is to provide cooling water to the Unit 1 or Unit 2 reactor core in the event that the reactor becomes isolated from the main condenser simultaneously with a loss of the feedwater system. To achieve this purpose, the SSMP system was designed to supply makeup water to the reactor core at the same capacity as the RCIC system; specifically, 400 gal/min over a reactor pressure range of 1135-165 psia.

UFSAR Section 5.4.6.5.2, "Design Description," states:

The SSMP system was installed as a common backup to the Unit 1 and Unit 2 RCIC systems to satisfy the requirements of 10 CFR 50, Appendix R, Section III.G, "Fire Protection of Safe Shutdown Capability." The system bypasses fire zones which could theoretically disable the RCIC system; this is discussed in Section 3.0 of the Safe Shutdown Report (Fire Protection Reports, Volume 2).

As described in the referenced letter, the term "needed" in 10 CFR 50.73(a)(2)(v) means only those systems for which the UFSAR explicitly claims credit to shut down the reactor and maintain it in a safe shutdown condition, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident. The UFSAR Chapter 15 accident analyses at QCNPS (i.e., control rod drop, loss of coolant, main steam line break, one recirculation pump shaft seizure, fuel handling accidents, mislocated fuel assembly, misoriented fuel assembly, and spent fuel cask drop) do not credit the function performed by the SSMP.

The referenced letter also concludes that a system failure is not reportable simply by virtue of the inclusion of that system in TS. Therefore, the TS requirement of the SSMP to be operable does not make the failure of the SSMP reportable per 10 CFR 50.73(a)(2)(v).

Therefore, this event is not reportable in accordance with 10 CFR 50.73(a)(2)(v), and not reportable as a safety system functional failure under the Reactor Oversight Process performance indicators.

REFERENCE

Memorandum from S. C. Black (U.S. NRC) to G. E. Grant (U.S. NRC) dated March 15, 2001, "TASK INTERFACE AGREEMENT (TIA) 99-030 FROM REGION III REGARDING THE REPORTABILITY OF REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM FAILURES (TAC NO. MA7367)"