



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

June 4, 2010

EA-10-056

Mr. Charles G. Pardee  
Senior Vice President, Exelon Generation Company, LLC  
President and Chief Nuclear Officer (CNO), Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

**SUBJECT:** RESPONSE TO DISPUTED NON-CITED VIOLATION - DRESDEN NUCLEAR  
POWER STATION NRC INSPECTION REPORT 05000237/2009-005;  
05000249/2009-005

Dear Mr. Pardee:

On March 12, 2010, Mr. Tim Hanley, Exelon Generation Company (EGC), LLC, Dresden Station Site Vice President, provided a response to a U.S. Nuclear Regulatory Commission (NRC) Inspection Report issued on February 10, 2010, concerning activities conducted at your facility. Specifically, you contested a finding and associated Non-Cited Violation (NCV) contained in the inspection report, namely Green NCV 05000237/2009005-03, regarding unacceptable "Preconditioning of the Unit 2 Emergency Diesel Generator (EDG) Prior to Performing Technical Specification (TS) Surveillance Requirements."

On April 1, 2010, the NRC acknowledged your letter. We have completed our review and determined that the Title 10 of the Code of Federal Regulations, Part 50 (10 CFR 50), Appendix B, Criterion XI, "Test Control" violation occurred as stated in the inspection report. In addition, we identified one additional aspect of unacceptable preconditioning related to the maintenance activities discussed in the report. We consider this additional aspect of unacceptable preconditioning to be an additional example of the subject NCV. The finding and NCV will remain as documented in the inspection report.

In your March 12, 2010, letter, you indicated that:

- Your intent is to meet the NRC guidance on preconditioning;
- You agree with the general facts contained in the inspection report;
- You believe that a perceived potential for preconditioning occurred with the replacement of the EDG governor oil on a 6 year frequency;

- The maintenance performed was acceptable in that it is required preventative maintenance (PM) performed at the vendor recommended frequency and was performed with no expectation to improve the performance of the EDG;
- The PM would not have masked a degraded condition in the EDG governor (note - you have subsequently changed this position).

This was demonstrated by:

- The EDG governor's compensation settings being successfully tested at least twice since the last oil change PM approximately 6 years ago by the under voltage testing that is performed during each refueling outage;
  - As part of the PM, the EDG governor compensation setting is locked in place after the last compensation adjustment, and subsequent drifting of the adjustment has not been observed at Dresden. As described in the Woodward UG-8 Governor Installation and Operational Manual, the compensation needle valve and lever (pointer) are the only adjustable parts of the compensation system. Their settings directly affect governor transient response and stability; and
  - The Nuclear Governor Coordinator at the EDG vendor facility stated that the compensation adjustment is not expected to change over time unless other parameters in the governor change, such as oil viscosity/quality and governor internal clearances and, even then, the changes would not be expected to be dramatic and would not affect operability. Dresden's own experience confirms the vendor's position as a surveillance test failure has not been experienced due to compensation drift.
- Narrowly, your issue is the ambiguity surrounding what constitutes routine PMs. The examples cited in NRC Information Notice 97-16 are activities that were performed repeatedly prior to a required surveillance;
  - NRC Inspection Procedure 62707, "Maintenance Observation," provides the following perspective on PM: "Preventative maintenance activities are not routinely being scheduled to "Precondition" equipment prior to performing surveillance tests in order to help ensure the test is passed satisfactorily. Inspectors should examine the sequence of PM activities to determine if the licensee routinely schedules PMs prior to a surveillance test";
  - When the maintenance activities are not routinely performed before Technical Specification Surveillance Requirements (TSSRs), the preconditioning can be considered acceptable if an appropriate evaluation is performed;
  - It is not practical to schedule an as-found performance of TSSR 3.8.1.10 (i.e., largest single load rejection test) prior to the governor oil/change compensation adjustment and then re-perform an as-left largest single load rejection test as a Post-Maintenance Test (PMT) for the work. The largest single load reject test can only be properly executed

during a refueling outage due to the design of the Dresden 4kV distribution system as the test requires the EDG to carry the emergency bus in isochronous governor mode. In addition to the work-process inefficiencies, the EDG would be subjected to an unnecessary perturbation which is adverse to long-term EDG reliability. EGC's existing practice is consistent with the theme of eliminating overly-harsh EDG operating practices first promulgated under NRC Generic Letter 84-15, and further eliminate unnecessary EDG testing that is advocated in Generic Letter 83-05, and NUREG-1366;

- You would like an opportunity to meet with the NRC to further discuss the potential generic impacts of this violation on other surveillance testing methodologies.

#### NRC Staff's Review:

We reviewed the information you provided to determine if the NCV was properly characterized. The NRC staff members that reviewed your basis for contesting the NCV were independent of the initial inspection effort. After careful consideration, we have concluded that the violation occurred as stated in the inspection report. In addition to the example contained in the inspection report, the staff identified that EGC did not consider an additional aspect of EDG preconditioning. Specifically, the EDG governor's oil had been changed prior to the TSSR test without an assessment as to how the as-found oil quantity and quality would/could affect the TSSR test results. For example, a change in oil viscosity would affect the governor's response to a load change. The underlying performance deficiency involved in these examples involved preconditioning the EDG in a manner such that the as-found condition was not preserved and a latent condition adverse to quality could have been masked or bypassed. Although it is generally recognized that PMs are set up with a frequency that is adequate to ensure component reliability, unexpected conditions adverse to quality occur. The purpose of a TSSR test is to detect these latent issues that may have developed within the specified testing frequency.

Below, we have addressed the information that you stated supported your basis for acceptable preconditioning. Our conclusions were based on the requirements of 10 CFR 50, Appendix B, Criterion XI, "Test Control." Our NRC Part 9900 Preconditioning Technical Guidance provides our inspectors with guidance on evaluating the acceptability of preconditioning Structures, Systems, and Components (SSCs) before performing operability, surveillance, or conformance testing. However, this guidance was not used in a deterministic fashion, but rather as a part of our overall assessment. This Technical Guidance is publicly available and can be utilized by licensees to ensure unacceptable preconditioning does not occur (NRC Manual Chapter Part 9900, Technical Guidance, "Maintenance – Preconditioning of SSC before Determining Operability," dated 9/28/1998). We recognize that following this guidance is not mandatory.

- We understand your intent to meet the NRC's guidance on preconditioning. The staff's current guidance is contained in the NRC Manual Chapter Part 9900 Technical Guidance. NRC Inspection Procedure 62707, "Maintenance Observation" is not a required baseline inspection and was not utilized by the inspectors that originally documented the issue. However, this inspection procedure was reviewed and considered by the inspectors after we understood you used it as a basis for your position.

- We understand that you did not identify any factual discrepancies for the NRC to reconsider.
- We understand that you had performed the work activities in concert with no expectations to precondition the EDG. Our guidance recognizes that preconditioning may be inadvertent, however, the nature of the performance deficiency was that you should have had suitable test controls in accordance with 10 CFR 50, Appendix B, Criterion XI, "Test Control," to ensure that the TSSR tests properly tested the as-found EDG condition.
- Through conversations with your staff, we understand you have changed your position and now recognize that the PM could mask or bypass a degraded condition. We agree with this conclusion. You concluded that the cause of the failed TSSR test was due to maintenance activities involving a governor compensation that was performed incorrectly just prior to the test. This testing failure (and review of the specific job steps) demonstrates that the prior maintenance activity clearly changed the as-found conditions. The PMT for the oil change involves starting the EDG, stroking the fuel rack to full travel 10 to 12 times to remove trapped air from governor passages, and performing an EDG governor compensation adjustment. A note in the maintenance procedure describes: "The objective of the compensation adjustment is to find the particular setting for the compensation needle valve and compensation adjustment pointer at which the engine will return quickly to speed after a speed disturbance with only a slight overshoot or undershoot." The TSSR test, in part, tests how quickly the EDG responds to this change of speed (i.e., load change). The true as-found condition is, therefore, preconditioned following the governor adjustment. As a result, the TSSR test is not testing the as-found condition, but rather testing the as-left maintenance condition. In addition to the governor compensation, we identified a second example of unacceptable preconditioning. The EDG governor oil is changed out without any assessment of how the as-found condition of the oil would have affected the machine's performance (e.g., oil viscosity, oil quality, biological fouling, etc.). Although it is generally recognized that PMs are set up with a frequency that is adequate to ensure component reliability, unexpected conditions adverse to quality can occur. The inspectors noted that a change in oil viscosity would directly affect the machine's response to a load.
- We understand your review that this preconditioning issue can be narrowed to the ambiguity surrounding what constitutes routine PMs. We disagree that a decision on preconditioning can be narrowed to a definition of routine PMs. Our view is that non-routine preconditioning may be acceptable if an acceptable engineering evaluation is performed. As noted elsewhere in this letter, we did not consider your evaluation acceptable.
- NRC Inspection Manual Part 9900 Technical Guidance states, "Except where there is a need to protect personnel or prevent equipment damage, preventive maintenance should not be performed before TS surveillance testing. To the greatest extent possible, SSCs should be tested in the as-found condition in order to determine if they would be capable of performing their intended function and to collect as-found performance or

condition baseline data.” In the cases in which the licensee chooses to precondition SSCs, the effects on equipment performance or condition should be documented in an engineering evaluation. This engineering evaluation should be performed in advance of the surveillance. Although the evaluation in the Technical Guidance is not an NRC requirement, the licensee did not provide an adequate explanation (either documented in the corrective action program, or verbally discussed with the inspectors).

- You did not perform an evaluation prior to the maintenance activity. During our review of the contested NCV, you performed the evaluation, “Evaluation of Preconditioning Acceptability.” This evaluation concluded that the maintenance practice does by-pass or mask the as-found condition (i.e., EGC answered “Yes” to question 3 of 5 of the Part I questions). Part II of evaluation concluded that this was acceptable based on the need to prevent equipment damage. In addition, the governor compensator adjustment, if improperly performed, will adversely affect the outcome of the surveillance test, but is unlikely to improve performance of the surveillance test. We do not agree with this conclusion. We concluded that a degraded governor could be enhanced by having its oil changed and response tuned in accordance with the prescribed maintenance activities. Comprehensively, the evaluation did not provide an adequate basis to justify the maintenance activities preconditioning the TSSR test and did not provide an adequate basis to conclude that the preconditioning was acceptable.
- You stated that the TSSR tests can only be properly executed during a refueling outage due to the design of the Dresden’s 4kV distribution system. Our staff has not implied nor made any suggestions as to the Mode in which the TSSR tests are or will be performed. Our expectation is that these tests and types of tests be performed in a safe manner and in accordance with 10 CFR 50, Appendix B, Criterion XI, “Test Control,” and other applicable licensing basis requirements. We concluded that your example of work progress inefficiencies is not an acceptable basis to precondition the EDG.
- You had stated that performing an additional test would subject the EDG to an additional perturbation and adversely affect long-term EDG reliability. Affecting long-term reliability is not the standard of our guidance, but rather the standard is to protect equipment from damage. EGC has not made an adequate case for protecting the equipment from damage consistent with the examples presented in our guidance.
- You requested an opportunity to meet with the NRC to further discuss the potential generic impacts of this violation on other surveillance testing methodologies. We now understand that you no longer request this meeting, at this time, based on discussions with your staff.

#### NRC Conclusion:

Technical Specification surveillance and American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code in-service testing (testing) are performed to verify that operability and performance (or condition) characteristics of SSCs have not degraded below specific acceptance criteria during a specified period. The NRC expects surveillance and testing processes of SSCs to be evaluated in an as-found condition. However, we recognize

that preventive maintenance activities are sometimes performed immediately before testing, and these activities may involve manipulations of the SSCs that would constitute preconditioning the equipment rather than testing it in the as-found condition. Whether such preconditioning is acceptable, depends on the circumstances.

We have concluded that the station unacceptably preconditioned the Unit 2 EDG by performing preventative maintenance and post-maintenance testing activities prior to performing required TSSR testing on November 13, 2009, as documented in NRC Inspection Report 05000237/2009005; 05000249/2009005. In addition, the staff identified that, in addition to the example discussed in the inspection report, EGC unacceptably preconditioned the EDG governor by changing the oil without ensuring the as-found testing condition was properly preserved.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

*/RA/*

Cynthia D. Pederson  
Deputy Regional Administrator

Docket No. 50-237; 50-249  
License No. DPR-19; DPR-25

cc: Distribution via ListServ

DISTRIBUTION:  
See next page

that preventive maintenance activities are sometimes performed immediately before testing, and these activities may involve manipulations of the SSCs that would constitute preconditioning the equipment rather than testing it in the as-found condition. Whether such preconditioning is acceptable, depends on the circumstances.

We have concluded that the station unacceptably preconditioned the Unit 2 EDG by performing preventative maintenance and post-maintenance testing activities prior to performing required TSSR testing on November 13, 2009, as documented in NRC Inspection Report 05000237/2009005; 05000249/2009005. In addition, the staff identified that, in addition to the example discussed in the inspection report, EGC unacceptably preconditioned the EDG governor by changing the oil without ensuring the as-found testing condition was properly preserved.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

*/RA/*

Cynthia D. Pederson  
Deputy Regional Administrator

Docket No. 50-237; 50-249  
License No. DPR-19; DPR-25

cc: Distribution via ListServ

DISTRIBUTION:  
See next page

\*OE concurrence provided via 05/27/10 e-mail from P. Hernandez

DOCUMENT NAME: G:\1-Secy\1-Work In Progress\EA-10-056 Dres Contested Final Letter.doc

Publicly Available       Non-Publicly Available       Sensitive       Non-Sensitive

To receive a copy of this document, indicate in the concurrence box "C" = Copy without attach/encl "E" = Copy with attach/encl "N" = No copy

OFFICE	RIII	RIII	RIII	RIII	
NAME	MRing:cms	SWest	SOrth	OE*	CPederson
DATE	05/03/10	05/10/10	06/02/10	5/27/10	06/04/10

**OFFICIAL RECORD COPY**

Letter to C. Pardee from C. Pederson dated June 4, 2010

SUBJECT: RESPONSE TO DISPUTED NON-CITED VIOLATION - DRESDEN NUCLEAR  
POWER STATION NRC INSPECTION REPORT 05000237/2009-005;  
05000249/2009-005

DISTRIBUTION:

Susan Bagley

RidsNrrDorLpl3-2

RidsNrrPMDresden Resource

RidsNrrDirslrib Resource

Cynthia Pederson

Steven Orth

Jared Heck

Allan Barker

Carole Ariano

Linda Linn

DRPIII

DRSIII

Patricia Buckley

Tammy Tomczak

[ROPreports Resource](#)