your energy partner
OPPD
Omaha Public Power District

444 South 16th Street Mall
Omaha NE 68102-2247

May 12, 2005
LIC-05-0055

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

References: 1. Docket No. 50-285
2. Letter from NRC (B. S. Mallett) to OPPD (R. T. Ridenoure) dated April 15, 2005 (NRC-05-0049)

SUBJECT: NRC Inspection Report 050000285/2005010, Reply to a Notice of Violation

Reference 2 transmitted a Notice of Violation (NOV) to the Omaha Public Power District (OPPD). The NOV resulted from failure to promptly identify and correct a condition adverse to quality resulting in emergency diesel generator 2 being inoperable for a period of approximately 29 days, a violation of plant technical specifications. Attached is the OPPD response to this NOV.

OPPD agrees that there was a failure to promptly identify and correct a failure of a fuse in the emergency diesel generator excitation circuit. The failure resulted in emergency diesel generator 2 being inoperable from July 21 to August 19, 2004, a period of 29 days, exceeding Technical Specification 2.7 allowed outage time of 7 days during any month when the reactor coolant system temperature was greater than 300 degrees F.

This letter does not contain any regulatory commitments. If you should have any questions, please contact me.

Sincerely,

D. J. Bannister
Manager – Fort Calhoun Station

DJB/DDD/ddd

Attachment

c: B. S. Mallett, NRC Regional Administrator, Region IV
J. D. Hanna, NRC Senior Resident Inspector

REPLY TO A NOTICE OF VIOLATION

Omaha Public Power District
Fort Calhoun Station

Docket No. 50-285
License No. DPR-40
EA-05-038

During an NRC inspection conducted from August 20, 2004, through February 24, 2005, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

> **10 CFR Part 50, Appendix 6, Criterion XVI, requires, in part, that measures shall be established to ensure that conditions adverse to quality, such as failures, malfunctions, etc., are promptly identified and corrected.**
>
> **Fort Calhoun Technical Specification 2.7(1), Minimum Requirements, states, in part, that the reactor shall not be heated up or maintained at temperatures above 300°F unless the following electrical systems are operable: two emergency diesel generators (DG-1 and DG-2). Technical Specification 2.7(2), Modification of Minimum Requirements, states, in part, that the minimum requirements may be modified under certain conditions. Item 2.7(2)(j) states that either one of the emergency diesel generators may be inoperable for up to 7 days (total for both) during any month, provided certain conditions are met.**
>
> **Contrary to the above, on July 21 , 2004, during surveillance testing of an emergency diesel generator, DG-2, the licensee failed to promptly identify and correct a condition adverse to quality. Specifically, the licensee failed to identify the failure of Fuse 2FU in the emergency diesel generator excitation circuit. The failure to promptly identify this failure and correct it resulted in DG-2 being inoperable from July 21 to August 19, 2004, a period of 10 days in July and 19 days in August. This exceeded the total allowed time in Technical Specification 2.7 for either emergency diesel generator to be inoperable during any month.**

This violation is associated with a White significance determination process finding.

OPPD Response

1. Reason for the Violation

As directed by the monthly surveillance test, diesel generator 2 (DG-2) was started and loaded between 0848 and 0857 on the morning of July 21, 2004. Following the required one hour fully loaded run, at approximately 1015, the diesel was unloaded in preparation for shutdown and conclusion of the test. At 1018 the DG-2 output breaker was opened, and as indicated on the plant computer alarm records, two computer alarms were received. While the diesel was still running, a diesel generator-low frequency alarm

occurred at 1018 followed by a diesel generator low voltage alarm at 1019. The plant computer indicated that output voltage dropped from its normal value of approximately 4200 VAC to approximately 2200 VAC. With DG-2 still running, and excitation on the field, these plant computer alarms provided an indication that a problem existed with DG-2 output voltage. However, no control room or local DG-2 control board panel alarms were noted to have been received at this time.

Members of the operating crew and staff have indicated that these plant computer alarms are expected during the shutdown of the diesel generators. Therefore, when these plant computer alarms were received they were acknowledged and treated as a normal system response. Subsequent review of the performance of the surveillance on October 27, 2004, determined that these alarms are not activated following the opening of the output breaker, rather they are received later when the generator field collapses as a result of shutting down the diesel generator. Control board/panel indications for diesel generator output voltage are available in multiple locations and would have read approximately 2200 VAC during the diesel generator shutdown on July 21, 2004. Therefore, the earliest opportunity for the discovery of the failed fuse condition was determined to involve operator responses to plant computer alarms for DG-2 low output frequency and low output voltage which occurred following the opening of the DG-2 output breaker on July 21, 2004.

Procedural guidance in effect at the time, with regards to acknowledging plant computer alarms, places the burden on the individual operator to recognize whether the alarm is explainable, and if not, to further investigate the cause. This differs from the expectations related to control panel alarms where specific written guidance exits in the form of alarm response procedures.

A comprehensive root cause analysis (RCA) was conducted and determined the following reasons for the failure to identify that DG-2 was inoperable on July 21, 2004:

> The root cause was determined to be a lack of formality or rigor in validating computer alarms, which occur during the performance of routine evolutions, such as surveillance testing.

Additionally, the RCA identified several contributing causes, which include:

1. The plant computer alarm display currently provides indications on a wide variety of computer alarms, as well as information concerning changes in state of a wide variety of monitored equipment such as valve and breaker positions. It is surmised that the number of alarms and changes of state flags that are presented to the operator during the course of a shift could present a challenge for maintaining appropriate attention levels due to information overload.

2. The operability of DG-2 was based upon the successful completion of OP-ST-DG-0002. In this case, fuse failure had occurred at point in time after the necessary data for determining operability had been obtained. This feature of the

event helped to create the mindset that the fuse failure identified through the surveillance testing conducted on August 18, 2004 had occurred at that point in time rather than on July 21, 2004. The engineering assessment activities initiated on August 18, 2004 did not consider all the available historical information from the test performed in July. This omission, or lack of consideration, is also considered a contributing cause for the delay in eventually recognizing the correct unavailability time period for DG-2.

2. Corrective Steps Taken and Results Achieved

a. During the initial acceleration and running of DG-2 on August 18, 2004, in accordance with the monthly surveillance test, the DG-2 output voltage indicated approximately 2200 VAC instead of the expected 4200 VAC. DG-2 was shutdown, and through troubleshooting discovered fuse 2FU failed open. Fuse 1FU, which works with fuse 2FU to protect the rectifier bridge was tested and found to have continuity. No other signs of degradation in the related component circuitry were found. Subsequently, the fuse set was replaced, the monthly surveillance was then performed successfully, and DG-2 was declared operable. This was completed on August 18, 2004.

b. FCS personnel conducted a root cause analysis to determine the reason for the missed DG-2 inoperability on July 21, 2004. This was completed on November 17, 2004.

3. Corrective Steps That Will Be Taken To Avoid Further Violations

a. Appropriate steps were added in the diesel generator operating instructions and surveillance test procedures to verify correct voltage is present prior to shutting down the diesel generators. This was completed on November 30, 2004.

b. The Annunciator Response Procedure, ARP-1, was revised to require operators to acknowledge all computer alarms during normal operation, and for the shift manager or control room supervisor to acknowledge awareness of the alarm. This was completed on December 15, 2004.

c. The DG-2 inoperability event of July 21 to August 18, 2004 and the root cause analysis of this event were included as operating experience in operator requalification training during training rotation 1 in 2005. This was completed February 16, 2005.

4. The Date When Full Compliance Will Be Achieved

Fort Calhoun Station is currently in full compliance.