Wolf Creek
Nuclear Operating Corporation

Robert J. Bayer
Plant Manager

8/27/2020

WO 20-0044

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

Subject: Docket No. 50-482: Licensee Event Report 2020-002-00, "Faulted Supply Fan Motor Causes Diesel Generator Inoperability Longer than Technical Specification Completion Time"

Commissioners and Staff:

The enclosed Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) to report exceeding the Technical Specification Required Action Completion Time for the 'B' emergency diesel generator at the Wolf Creek Generating Station.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4015, or Ron Benham at (620) 364-4204.

Sincerely,

Robert J. Bayer

RJB/rlt

Enclosure: LER 2020-002-00

cc: S. S. Lee (NRC), w/e
S. A. Morris (NRC), w/e
N. O'Keefe (NRC), w/e
Senior Resident Inspector (NRC), w/e

NRC FORM 366 (08-2020) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See Page 3 for required number of digits/characters for each block)
(See NUREG-1022, R.3 for instruction and guidance for completing this form
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APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

1. Facility Name	2. Docket Number	3. Page
Wolf Creek Generating Station	05000 482	1 OF 3

4. Title

Faulted Supply Fan Motor Causes Diesel Generator Inoperability Longer than Technical Specification Completion Time

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	Docket Number
06	28	2020	2020	- 002 -	00	08	27	2020		05000
									Facility Name	Docket Number
										05000

9. Operating Mode	10. Power Level
1	100

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*

10 CFR Part 20	☐ 20.2203(a)(2)(vi)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	**10 CFR Part 73**
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(4)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(i)	**10 CFR Part 21**	☑ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(1)(i)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(i)
☐ 20.2203(a)(2)(iii)	**10 CFR Part 50**	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.77(a)(2)(ii)
☐ 20.2203(a)(2)(iv)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	
☐ 20.2203(a)(2)(v)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	

☐ **OTHER** (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include area code)
Ron Benham, Director Nuclear and Regulatory Affairs	(620) 364-4204

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS		Cause	System	Component	Manufacturer	Reportable to IRIS
X	VJ	MO		Y						

14. Supplemental Report Expected		15. Expected Submission Date	Month	Day	Year
☑ No	☐ Yes (If yes, complete 15. Expected Submission Date)				

16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

On June 25, 2020, at 1348 hours Central Daylight Time (CDT), the supply breaker to the 'B' Emergency Diesel Generator (EDG) room supply fan was found to be tripped. Due to the outside temperature being above 79 deg. F, the 'B' EDG was declared inoperable 12 minutes later at 1400 CDT and Condition B of Technical Specification (TS) Limiting Condition for Operation (LCO) 3.8.1, "AC Sources - Operating" was entered at this time. Troubleshooting determined that the fan motor needed to be replaced. Based on operating experience, it was expected that the replacement and restoration of the motor would take longer than the Completion Time of Required Action B.4.1 which is to restore the EDG to operable status within 72 hours or a plant shutdown would be required. A Notice of Enforcement Discretion request was made to the NRC on June 28, 2020, to grant an additional 22 hours beyond the 72-hour Completion Time such that the Completion Time would expire at 1200 CDT on June 29, 2020. The NRC approved this request at 1240 CDT on June 28, 2020. The 'B' EDG supply fan motor was replaced and the 'B' EDG was returned to service at 0425 CDT on June 29, 2020, and Condition B of TS LCO 3.8.1 was exited at this time.

At the time of the event, the unit was in Mode 1 at 100 percent power. There was no impact to the health and safety of the public as a result of this event.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Wolf Creek Generating Station	05000- 482	2020	- 002	- 00

NARRATIVE

DESCRIPTION OF STRUCTURE(S), SYSTEM(S), AND COMPONENT(S)

Energy Industry Identification System (EIIS) codes and component codes are identified in the text as [XX].

Wolf Creek Generating Station (WCGS) has two independent and redundant Class 1E 4.16 kV buses [EB] that supply emergency AC power to safety related systems and components. Under normal operating conditions, the Class 1E buses are provided with power from the preferred (offsite) system through two independent and redundant sources. Each Class 1E 4.16 kV AC bus also has an emergency diesel generator (EDG) [DG] on standby which automatically starts and powers essential safety related loads on its respective buses in the event that there is loss of power to that bus.

The ventilation system for the diesel generator building [VJ] functions to provide combustion air makeup rate and an environment suitable for the operation of the EDGs. The exhaust air flow path also provides combustion air for the diesels regardless of the mode of operation of the supply air system. The system is automatically activated when the room temperature exceeds 90 deg. F, and automatically shuts down when room temperature falls below 85 deg. F. When the ventilation system is in operation, the supply fans take suction from the outside air and supply air directly to their respective EDG room for maximum cooling requirements. The EDG ventilation system is not in and of itself required by Technical Specifications (TS). However, the system does support operability of the EDGs.

TS 3.8.1, "AC Sources - Operating" requires two offsite sources of AC power and two EDGs be operable in Modes 1, 2, 3, and 4. In the event one EDG is inoperable, Condition B is entered. Required Action B.4.1 is to restore the EDG to operable status within 72 hours. If this is not completed, Condition H requires the plant to be placed in Mode 3 within 6 hours and Mode 5 within 36 hours.

PLANT CONDITIONS PRIOR TO EVENT

Prior to the event, which began on June 25, 2020, WCGS was in Mode 1 operating at 100 percent power. No other structures, systems, or components (SSCs) were inoperable at the start of this event which contributed to this condition.

EVENT DESCRIPTION

On June 25, 2020, at 1348 hours Central Daylight Time (CDT), control room personnel noticed no indicating lights on the panel for the 'B' EDG supply fan. Turbine watch was dispatched and reported that the supply breaker for the supply fan to the 'B' EDG room was discovered to be tripped. At 1400 hours CDT, the 'B' EDG was declared inoperable and TS 3.8.1 Condition B for one EDG inoperable was entered. During the hotter months of the year, the 'B' EDG room supply fan is required to be in service to support operability of the 'B' EDG. Troubleshooting was performed and determined that the cause of the fan trip was a fault with the 'B' EDG supply fan motor, and that the motor needed to be replaced. Based on operating experience with this type of motor, it was determined that the corrective actions necessary to restore the supply fan to service such that the EDG could be returned to operable status could not be completed within the 72-hour Completion Time of Required Action B.4.1 of TS 3.8.1.

On June 28, 2020, Wolf Creek Nuclear Operating Corporation (WCNOC) requested a Notice of Enforcement Discretion (NOED) for an additional 22 hours beyond the 72-hour Completion Time for TS 3.8.1 Required Action B.4.1. At 1240 hours CDT, on June 28, 2020, the NRC exercised enforcement discretion to not enforce compliance with TS 3.8.1 Required Action B.4.1 for a total period of 94 hours, to expire at 1200 hours CDT, on June 29, 2020.

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

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		YEAR	SEQUENTIAL NUMBER	REV NO.
Wolf Creek Generating Station	05000- 482	2020	- 002	- 00

NARRATIVE

At 0425 hours CDT, on June 29, 2020. the 'B' EDG was restored to operable status after successful replacement and testing of the 'B' EDG supply fan motor. Therefore, Required Action B.4.1 to restore the 'B' EDG to operable status was completed prior to the expiration of the extended Completion Time.

BASIS FOR REPORTABILITY

The 'B' EDG was inoperable for approximately 86 hours and 25 minutes which is longer than the 72-hour Completion Time allowed by TS 3.8.1 Required Action B.4.1. Therefore, this event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as an event or condition prohibited by TS.

CAUSE

The probable cause of the failure is that damage to an untrimmed strip of Nomex phase insulation resulted in a phase-to-phase fault which generated high fault current. This fault current heated some of the copper to the point it melted, which resulted in the winding trip to ground.

CORRECTIVE ACTIONS

The faulted supply fan motor was replaced. Electrical offline AWA testing for the opposite train supply fan motor is planned to be performed during the next scheduled 'A' EDG maintenance outage. The next 'A' EDG maintenance outage is currently scheduled for October of 2020.

SAFETY SIGNIFICANCE

During the time the 'B' EDG supply fan motor was out of service, the 'B' EDG was prevented from auto starting due to foreign material barriers placed over the engine. Restoration of the 'B' EDG could have been performed in approximately 30 minutes if it became necessary. Engineering evaluated the possibility of running the 'B' EDG without the presence of its supply fan. It was determined that while this may shorten the life of some of the equipment in the "B' EDG room, there was reasonable assurance that the 'B" EDG and the safety related equipment in the room would have been able perform their safety functions continuously for 7 days without the use of the supply fan.

Both offsite power sources remained operable during the time the 'B' EDG was inoperable. In addition, the station blackout diesel generators were available, and these can provide reliable power to either Class 1E 4.16 kV bus. Due to the ability to restore the 'B' EDG within a short time, the operability of both redundant offsite sources of power, and the availability of the SBO DGs, there was no adverse impact on the public health or safety.

OPERATING EXPERIENCE/PREVIOUS EVENTS

A review of the past three years at WCGS identified no other examples of failures of EDG supply fans or their motors. For completeness, a search for previous instances in which a NOED was granted for TS 3.8.1 and an LER submitted was expanded beyond the previous three years. A NOED was approved by the NRC in 2013 for the purposes of replacing a cylinder head bolt on the 'B' EDG which required longer than the 72-hour TS Completion Time to restore the EDG to operable status. Though the 'B' EDG was returned to operable status within the extended completion time granted by the NOED, LER 2013-001-00 was submitted to document that a condition prohibited by TS still occurred.