

WOLF CREEK
NUCLEAR OPERATING CORPORATION

Otto L. Maynard
Vice President Plant Operations

December 7, 1995

WO 95-0170

U. S. Nuclear Regulatory Commission
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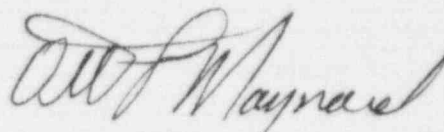
Subject: Docket No. 50-482: Licensee Event Report 95-006-00

Gentlemen:

The attached Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73(a)(2)(iv) concerning an Engineered Safety Features actuation.

If you should have any questions regarding this submittal, please contact me at (316) 364-8831, extension 4450, or William M. Lindsay at extension 8760.

Very truly yours,



Otto L. Maynard

OLM/jad

Attachment

cc: L. J. Callan (NRC), w/a
W. D. Johnson (NRC), w/a
J. F. Ringwald (NRC), w/a
J. C. Stone (NRC) w/a

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P.O. Box 411 / Burlington, KS 66839 / Phone: (316) 364-8831

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)
WOLF CREEK GENERATING STATION

DOCKET NUMBER (2) 05000482
PAGE (3) 1 OF 6

TITLE (4)
Loss of Emergency Bus NB02 Due to Degraded Gasket on Motor Operator Cabinet

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	10	95	95	005	00	12	07	95	FACILITY NAME	DOCKET NUMBER

OPERATING	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
		20.402(b)		20.405(c)	X	50.73(a)(2)(iv)		73.71(b)		
POWER	100%	20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)		
		20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER		
		20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)				
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)				
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)				

LICENSEE CONTACT FOR THIS LER (12)

NAME
William M. Lindsay
Manager Performance Assessment

TELEPHONE NUMBER (Include Area Code)
316-364-8760

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
C	FK	Gasket		No					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, completed EXPECTED SUBMISSION DATE)	X	NO	EXPECTED	MONTH	DAY	YEAR
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ABSTRACT:

On November 10, 1995, at 1942 CST, Wolf Creek Generating Station (WCGS) experienced a seepage of moisture (snow, ice, sleet) into the motor operator cabinet, for air break disconnect 345-163. The cabinet is located in the WCGS switchyard. This intrusion caused a loss of offsite power to the West Bus in the switchyard and a loss of power to the Start-up Transformer that supplies the Engineered Safety Features Transformer, XNB02. The XNB02 Transformer is the power supply for the Emergency Bus, NB02. The loss of power caused the Emergency Diesel Generator "B" to auto-start and load through the actuation of the "B" shutdown sequencer as a result of the Emergency Bus (NB02) bus undervoltage. The Turbine Driven Auxiliary Feedwater Pump also auto-started as a result of the undervoltage. The momentary loss of power to several radiation monitors initiated a Control Room Ventilation Isolation Signal, Containment Purge Isolation Signal and Fuel Building Isolation Signal.

The non-nuclear utility personnel responsible for maintenance of the switchyard responded to the plant and determined that moisture caused open contacts to short and ultimately open air break disconnect 345-163. To prevent a similar occurrence, power was removed from all air break disconnect motor operators. This additional corrective action was completed on November 13, 1995, and remained in place until cabinet inspections were completed.

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TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Wolf Creek Generating Station	05000482	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 6
		95	006	00	

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

PLANT CONDITIONS AT TIME OF EVENT

Plant Operational Condition: Mode 1
Plant Power Level 100%

BASIS FOR REPORTABILITY

On November 10, 1995, at 1942 CST, air break disconnect 345-163 opened causing a loss of offsite power to the West Bus in the Wolf Creek Generating Station (WCGS) switchyard [FK]. Power was subsequently lost to the Start-up Transformer and the Engineered Safety Features (ESF) Transformer, XNB02 [EB-XFMR], which supplies Emergency Bus, NB02 [EB-BUS]. The bus undervoltage caused Emergency Diesel Generator (EDG) [EK-DG] "B" to auto-start and load through the actuation of the "B" Shutdown Sequencer [JE-STC]. The Turbine Driven Auxiliary Feedwater Pump [BA-P] also auto-started as a result of the bus undervoltage. The bus undervoltage was a valid ESF actuation signal. The required four hour report to the NRC Operations Center was made at 2313 CST, pursuant to 10 CFR 50.72 (b)(2)(ii). This event is being reported pursuant to 10 CFR 50.73 (a)(2)(iv) as a condition resulting in automatic actuation of Engineered Safety Features.

DESCRIPTION OF EVENT

At 1942 CST, on November, 10, 1995, a degraded gasket allowed moisture (snow, ice, sleet) to intrude into the motor operator cabinet [CAB] for air break disconnect [DISC] 345-163. The cabinet is located in the WCGS switchyard. The moisture caused open contacts to short which energized the motor and opened air break disconnect 345-163. The disconnect opened with the line energized. Air break disconnect 345-163 is an electrically operated switch designed to be operated, either locally or remotely, under no load conditions. When air break disconnect 345-163 opened, power from the switchyard was lost to the Start-up Transformer and ESF Transformer (XNB02), which supplies the Emergency Bus (NB02). Three breakers (345-70, 345-40, and 345-110) [BKR] opened in the switchyard on the differential relay trip completely de-energizing the West Bus (Reference Figure 1).

Due to the ring bus configuration of the switchyard, the grid distribution transmission lines were not de-energized and no power outages to the public resulted. Equipment response to the event was as designed and all emergency systems operated as expected. The loss of power to XNB02 caused the "B" EDG to start and load through the "B" Shutdown

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Sequencer. The loss of NB02 voltage caused an Auxiliary Feed [BA] Actuation System (AFAS) Signal. The AFAS Signal started the Turbine Driven Auxiliary Feedwater Pump and caused a Steam Generator [AB-SG] Blowdown and Sample Isolation. The momentary loss of power to several radiation monitors [IL-MON] caused the following signals to be activated: Control Room Ventilation Isolation, Containment [NH] Purge Isolation and Fuel Building [ND] Isolation.

At the time of the event, NB02 was the only load on the Start-up Transformer, approximately 2 MW. The Unit Auxiliary Transformer carries the majority of the load while WCGS is at power. The WCGS Control Room Operators responded to the event through established Off-Normal and Alarm Procedures.

On November 11, 1995, at 0030 CST, WCGS Electrical Maintenance personnel, with support from Western Resources System Operations personnel (non-nuclear), inspected all affected switchyard equipment and transformers. There was no apparent damage. At 0435 CST, a Western Resources System Operations relay team responded to WCGS to aid investigation efforts. They discovered a worn gasket on the motor operator cabinet door for air break disconnect 345-163. The degraded gasket allowed moisture to intrude into the cabinet shorting out the contacts and ultimately causing air break disconnect 345-163 to spuriously open. At 0622 CST, Western Resources System Operations personnel repaired the motor operator door gasket. At 0644 CST, the "B" EDG was removed from NB02, thereby restoring the normal electrical distribution lineup.

Technical Specification 3.8.1.1 action (a) was entered due to the loss of one of the required circuits between the Offsite Distribution System and the Onsite Class 1E Distribution System. The required verification of the other circuits between distribution systems within one hour and restoration of the lost circuit within 72 hours was completed satisfactorily.

The "B" Motor Driven Auxiliary Feedwater Pump (AFP) [BA-P] started during the loading of the "B" EDG through the "B" Shutdown Sequencer. Operators removed the "B" AFP from service and placed it in pull-to-lock. Placing "B" AFP in pull-to-lock was required because the Shutdown Sequencer was "locked in" until normal power was restored and the Shutdown Sequencer reset. Technical Specification 3.7.1.2 action (a) was entered and required restoration within 72 hours. On November 11, 1995, at 0638 CST, the "B" AFP was restored to service.

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Root Cause

The root cause of this event was equipment failure. A degraded door gasket allowed moisture (snow, ice, sleet) to intrude into the motor operator cabinet for air break disconnect 345-163. The moisture caused open contacts to short in the motor operator circuitry which subsequently led to a loss of power to the West Bus.

Corrective Actions

As an immediate corrective action, the motor operator cabinet door gasket was repaired. To prevent a similar occurrence, power was removed from all air break disconnect motor operators. This additional corrective action was initiated on November 11, and completed by November 13, 1995. This action remained in place until inspections on the cabinets could be completed.

A Western Resources System Operations crew re-inspected the motor operator cabinet door gasket and air break disconnect 345-163 on November 15, 1995. All other motor operator cabinet doors in the WCGS switchyard were inspected for similar degradation. No similar degradations were found. Minor repairs were made to other cabinet doors and gaskets. The crew also went through the circuitry for air break disconnect 345-163 and found everything functional.

Western Resources System Operations personnel perform a winterization inspection of the switchyard every fall. At the time of the event, this inspection had not been done for the 1995-1996 winter season. Performance Improvement Request 95-2716 was initiated to evaluate the gasket failure. As part of the scope of the evaluation, the inspections performed by Western Resources System Operations personnel will be reviewed to determine if the gaskets require inspection on a more frequent basis. System Engineering will complete their evaluation of this event by December 13, 1995.

Safety Significance

There were no safety related systems out-of-service or safety related components being tested prior to or during this event that impacted the ability of the operators to safely respond to the loss of offsite power. All plant systems responded as designed. At no

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time did conditions develop that may have posed a threat to the safety of the plant or a threat to the health and safety of the public.

Similar Occurrences

There have been no previous occurrences in which degradation of a gasket on a motor cabinet door caused a loss of offsite power and actuation of engineered safety features.

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Figure 1

