

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Wolf Creek Generating Station	DOCKET NUMBER (2) 0 5 0 0 0 4 1 8 1 2	PAGE (3) 1 OF 0 1 3
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TITLE (4)
Reactor Trip Caused By Main Turbine High Vibration

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)																																																																																																																																				
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)																																																																																																																																		
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9)</td> <td style="width:15%;">1</td> <td colspan="10">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)</td> </tr> <tr> <td rowspan="5">POWER LEVEL (10)</td> <td>1 0 0</td> <td>20.402(b)</td> <td>20.405(a)(1)(i)</td> <td>20.405(a)(1)(ii)</td> <td>20.405(a)(1)(iii)</td> <td>20.405(a)(1)(iv)</td> <td>20.405(a)(1)(v)</td> <td>20.405(c)</td> <td>50.38(c)(1)</td> <td>50.38(c)(2)</td> <td>50.73(a)(2)(i)</td> <td>50.73(a)(2)(ii)</td> <td>50.73(a)(2)(iii)</td> <td>50.73(a)(2)(iv)</td> <td>50.73(a)(2)(v)</td> <td>50.73(a)(2)(vii)</td> <td>50.73(a)(2)(viii)(A)</td> <td>50.73(a)(2)(viii)(B)</td> <td>50.73(a)(2)(ix)</td> <td>73.71(b)</td> <td>73.71(c)</td> <td>OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>												OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)										POWER LEVEL (10)	1 0 0	20.402(b)	20.405(a)(1)(i)	20.405(a)(1)(ii)	20.405(a)(1)(iii)	20.405(a)(1)(iv)	20.405(a)(1)(v)	20.405(c)	50.38(c)(1)	50.38(c)(2)	50.73(a)(2)(i)	50.73(a)(2)(ii)	50.73(a)(2)(iii)	50.73(a)(2)(iv)	50.73(a)(2)(v)	50.73(a)(2)(vii)	50.73(a)(2)(viii)(A)	50.73(a)(2)(viii)(B)	50.73(a)(2)(ix)	73.71(b)	73.71(c)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)																																																																																															
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LICENSEE CONTACT FOR THIS LER (12)

NAME Merlin G. Williams - Superintendent of Regulatory, Quality and Administrative Services	TELEPHONE NUMBER AREA CODE: 3 1 1 6 3 1 6 4 1 - 1 8 1 8 1 3 1 1
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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

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On January 20, 1987, at approximately 1800 CST, a reactor trip occurred from 100 percent power as a result of turbine high vibration turbine trip. A Feedwater Isolation Signal, an Auxiliary Feedwater Actuation Signal, and a Steam Generator Blowdown and Sample Isolation Signal occurred as designed following the reactor trip. The required safety related equipment performed as designed. Prior to the event, the unit was in Mode 1, Power Operation, at 100 percent power.

To prevent additional unnecessary challenges of reactor protection systems, the turbine high vibration trip circuitry has been modified from a trip function to an alarm function. Further evaluation of the turbine vibration trip circuitry is being conducted to determine if any other changes will be required. The modification in circuitry has no adverse impact on the nuclear safety of the unit.

There was no damage to plant equipment or release of radioactivity as a result of this event. At no time did conditions develop that may have posed a threat to the health or safety of the public.

Two other instances of turbine high vibration turbine trips are discussed in Licensee Event Report 87-005-00.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

Introduction

On January 20 1987, at approximately 1800 CST, a reactor trip occurred from 100 percent power as a result of Main Turbine [TA-TRB] vibration reaching the high trip setpoint. A Feedwater Isolation Signal (FWIS), an Auxiliary Feedwater Actuation Signal (AFAS), and a Steam Generator Blowdown and Sample Isolation Signal (SGBSIS) occurred as designed following the reactor trip. The required safety related equipment performed as designed. This event is being reported pursuant to 10CFR 50.73(a)(2)(iv) as an automatic actuation of Engineered Safety Feature (ESF) equipment.

Description of Event

Prior to the trip, the unit was in Mode 1, Power Operation, at 100 percent power with the Reactor Coolant System [AB] at normal operating temperature (588 degrees Fahrenheit) and pressure (2249 psig). Feedwater flow was being provided by Main Feedwater Pumps (MFP) [SJ-P] 'A' and 'B', in automatic control. Each Main Feedwater Control Valve [SJ-FCV] was open and in automatic control.

A high turbine vibration turbine trip signal was received at approximately 1800 CST. This signal is believed to have been caused by exciter bearing #12 vibration increasing above the trip setpoint of 7 mils.

The turbine trip at 100 percent power (P-9) resulted in a reactor trip. With the reactor trip breakers open, the decrease in the Reactor Coolant System average temperature below 564 degrees Fahrenheit (P-4) initiated a FWIS. An AFAS, and a SGBSIS were then received. This was caused by a Steam Generator [AB-SG] low level due to the FWIS.

The operators performed Emergency Operating Procedures E-0, Reactor Trip or Safety Injection, and ES-02, Reactor Trip Recovery, and stabilized plant conditions. Proper functioning of safety equipment was verified and the cause of the turbine trip identified. The affected equipment was re-aligned to normal configuration, with restoration from the AFAS, SGBSIS, and FWIS completed at 1932 CST on January 20.

Root Cause

The root cause of this reactor trip and ESF actuation was turbine vibration. Although the cause of this vibration has not been positively identified, efforts to reduce the vibration have been successful, and the vibration is now within acceptable limits.

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

Actions to Prevent Recurrence

To prevent additional unnecessary challenges of reactor protection systems, the high vibration turbine trip circuitry was modified to provide an alarm function rather than a trip function. This modification was completed under Temporary Modification 87-011-AC on January 21. Detailed procedural guidance has been provided to the operators if a turbine high vibration alarm occurs. Further evaluation of the high vibration turbine trip is being conducted to determine if any other changes will be required. The change from a trip function to an alarm has no adverse impact on the nuclear safety of the unit.

Additional Information

There was no damage to plant equipment or release of radioactivity as a result of this event, and at no time did conditions develop that may have posed a threat to the health or safety of the public.

Two turbine vibration problems were reported in Licensee Event Report (LER) 87-005-00. The AFAS reported in LER 87-005-00 was caused by breaking condenser [SG-COND] vacuum to slow the turbine during high vibration.

**WOLF
CREEK**
NUCLEAR OPERATING
CORPORATION

February 19, 1987

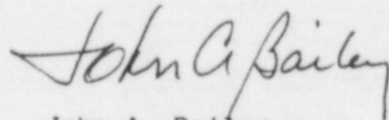
U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Letter: ET 87-0063
Re: Docket No. 50-482
Subj: Licensee Event Report 87-004-00

Gentlemen:

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

Yours very truly,



John A. Bailey
Vice-President Engineering
and Technical Services

JAB:jad

Enclosure

cc: PO'Connor (2)
JCummins
RMartin

EE22
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