



Russell A. Smith
Plant Manager

August 24, 2011

WO 11-0065

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

Subject: Docket No. 50-482: Licensee Event Report 2011-007-00, "Manual Reactor Trip due to Failed Controller Cards in the 'B' Feedwater Pump Turbine Control System"

Gentlemen:

The enclosed Licensee Event Report is being submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A) regarding a Reactor Trip and an Engineered Safety Features Actuation at the Wolf Creek Generating Station.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4156, or Mr. Gautam Sen at (620) 364-4175.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell A. Smith".

Russell A. Smith

Enclosure

cc: E. E. Collins (NRC), w/e
J. R. Hall (NRC), w/e
G. B. Miller (NRC), w/e
Senior Resident Inspector (NRC), w/e

Handwritten initials "IE22" and "NRK" in black ink.

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION (10-2010)		APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013 Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.																																					
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)																																							
1. FACILITY NAME WOLF CREEK GENERATING STATION		2. DOCKET NUMBER 05000 482	3. PAGE 1 OF 3																																				
4. TITLE Manual Reactor Trip due to Failed Controller Cards in the 'B' Feedwater Pump Turbine Control System																																							
5. EVENT DATE <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>MONTH</th> <th>DAY</th> <th>YEAR</th> </tr> <tr> <td style="text-align: center;">06</td> <td style="text-align: center;">26</td> <td style="text-align: center;">2011</td> </tr> </table>		MONTH	DAY	YEAR	06	26	2011	6. LER NUMBER <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>YEAR</th> <th>SEQUENTIAL NUMBER</th> <th>REV NO.</th> </tr> <tr> <td style="text-align: center;">2011</td> <td style="text-align: center;">- 007 -</td> <td style="text-align: center;">00</td> </tr> </table>	YEAR	SEQUENTIAL NUMBER	REV NO.	2011	- 007 -	00	7. REPORT DATE <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>MONTH</th> <th>DAY</th> <th>YEAR</th> </tr> <tr> <td style="text-align: center;">08</td> <td style="text-align: center;">24</td> <td style="text-align: center;">2011</td> </tr> </table>	MONTH	DAY	YEAR	08	24	2011																		
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FACILITY NAME Gautam Sen, Manager Regulatory Affairs		TELEPHONE NUMBER (Include Area Code) (620) 364-4175																																					
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT																																							
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) <p>On June 26, 2011, Wolf Creek Generating Station (WCGS) was at 82 percent power during a reactor startup when the 'B' Main Feedwater pump tripped at 1609 CDT. The control room operators manually tripped the reactor. All control rods fully inserted and the Reactor Trip System and the Engineered Safety Feature Actuation System performed as expected. The cause of the trip was the failure of one or both of two controller cards in the Main Feedwater turbine control system. Two controller cards in the main turbine control system were replaced.</p> <p>The safety significance of this event is low. This event is bounded by analyses as reported in the WCGS Updated Safety Analysis Report Section 15.2.7, "Loss of Normal Feedwater Flow." There were no adverse effects on the health and safety of the public.</p>																																							

LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
WOLF CREEK GENERATING STATION	05000 482	YEAR	SEQUENTIAL NUMBER	REV NO.	2 OF 3
		2011	-- 007	-- 00	

PLANT CONDITIONS AT THE TIME OF THE EVENT

Mode 1
82% power

DESCRIPTION OF THE EVENT

On June 26, 2011 the Wolf Creek Generating Station (WCGS) was in the process of power ascension at approximately 82 percent power, following Refueling Outage 18. The "B" Main Feedwater (MFW) pump [EIS Code: SJ-P] unexpectedly tripped at 1609 CDT. The reactor was manually tripped with no complications. No structures, systems, or components were inoperable that contributed to the event.

Plant data showed that prior to the trip of the "B" Main Feedwater pump (MFP) the feed flow increased and the suction pressure for the MFP decreased. This rapid increase in generator feedwater flow rate and corresponding decrease in MFP suction pressure are an indirect indication that the MFP was accelerating in speed at the time of the trip. Extensive troubleshooting was conducted on the MFP, which identified an intermittent failure on one or both of two controller cards in the main feedwater turbine control system. The failure of the controller cards resulted in the turbine accelerating and tripping the MFP.

The reactor was manually tripped due to the loss of the "B" Main Feedwater pump, prior to an automatic trip occurring on low steam generator [EIS Code: SG] levels. All control rods fully inserted and all safety equipment performed as designed. The Reactor Trip System (RTS) and the Engineered Safety Feature Actuation System (ESFAS) [EIS Code: JE] performed as required. An Auxiliary Feedwater actuation signal occurred due to trip of both of the Main Feedwater pumps from a turbine trip and low SG levels. All auxiliary feedwater pumps started and operated as expected.

BASIS FOR REPORTABILITY

The reactor trip signal and actuation of the ESFAS instrumentation described in this event is reportable per 10 CFR 50.73(a)(2)(iv)(A), which requires reporting of "Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section." Paragraph (B)(1) of 10 CFR 50.73(a)(2)(iv) includes "Reactor protection system (RPS) including: reactor scram or reactor trip." Paragraph (B)(6) of 10 CFR 50.73(a)(2)(iv) includes "PWR auxiliary or emergency feedwater."

ROOT CAUSE

The cause of the 'B' MFP trip was a failure of one or both of two controller cards in the main feedwater turbine control system.

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		2011	-- 007 --	00	

The controller cards are obsolete and no longer have vendor support. The equipment reliability program had targeted the controller cards for replacement. This original turbine control system is currently scheduled for replacement by a new MFP digital control system in Refueling Outage19 (Fall 2012).

CORRECTIVE ACTIONS

Two controller cards in the main feedwater turbine control system were replaced.

The main feedwater turbine control system, for both MFPs, is currently scheduled for replacement by a new MFP digital control system in Refueling Outage19 (Fall 2012).

SAFETY SIGNIFICANCE

The safety significance of this event is low. This event is analyzed as reported in WCGS Updated Safety Analysis Report (USAR) Section 15.2.7, "Loss of Normal Feedwater Flow." Results of the analysis show that a loss of normal feedwater does not adversely affect the core, the reactor coolant system, or the steam system, since the auxiliary feedwater capacity is such that reactor coolant water is not relieved from the pressurizer relief or safety valves.

There were no adverse effects on the health and safety of the public.

OPERATING EXPERIENCE/PREVIOUS SIMILAR OCCURRENCES

LER 2010-005-00 described a reactor trip due to a trip of a main feedwater pump caused by the failed transfer of an inverter to its alternate power supply.

LER 2010-006-00 described a reactor trip due to a trip of a main feedwater pump caused by a failed servo valve in the main feedwater speed control system.