



Rick L. Gardner  
Plant Manager

April 08, 2010

WO 10-0024

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

Subject: Docket No. 50-482: Licensee Event Report 2010-003-00, "Positive Reactivity Addition in Mode 2 with One Source Range Neutron Flux Channel Inoperable"

Gentlemen:

The enclosed Licensee Event Report (LER) is being submitted in accordance with 10 CFR 50.73, "Licensee event report system," paragraph (a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications (TS). The LER involves the failure to meet the Required Actions of Condition I of TS 3.3.1, "Reactor Trip System (RTS) Instrumentation." On August 23, 2009, Wolf Creek Generating Station (WCGS) transitioned from Mode 3 to Mode 2 with one Source Range Neutron Flux channel inoperable. Additionally, the transitioning from Mode 3 to Mode 2 with one Source Range Neutron Flux channel inoperable is a failure to meet Limiting Condition for Operation (LCO) 3.0.4a.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4156, or Mr. Richard D. Flannigan at (620) 364-4117.

Sincerely,

A handwritten signature in black ink, appearing to read "Rick L. Gardner".

Rick L. Gardner

RLG/rlt

Enclosure: -

cc: E. E. Collins (NRC), w/e  
G. B. Miller (NRC), w/e  
B. K. Singal (NRC), w/e  
Senior Resident Inspector (NRC), w/e

IE22  
NRK

NRC FORM 366 (9-2007)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB: NO. 3150-0104		EXPIRES: 08/31/2010			
<b>LICENSEE EVENT REPORT (LER)</b>  (See reverse for required number of digits/characters for each block)										
1. FACILITY NAME <b>WOLF CREEK GENERATING STATION</b>					2. DOCKET NUMBER <b>05000 482</b>		3. PAGE <b>1 OF 3</b>			
4. TITLE <b>Positive Reactivity Addition in Mode 2 with One Source Range Neutron Flux Channel Inoperable</b>										
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
02	11	2010	2010	- 004 -	00	04	08	2010		05000
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)							
1			<input type="checkbox"/> 20.2201(b)		<input type="checkbox"/> 20.2203(a)(3)(i)		<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> 50.73(a)(2)(vii)	
			<input type="checkbox"/> 20.2201(d)		<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
10. POWER LEVEL  100			<input type="checkbox"/> 20.2203(a)(1)		<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
			<input type="checkbox"/> 20.2203(a)(2)(i)		<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
			<input type="checkbox"/> 20.2203(a)(2)(ii)		<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)	
			<input type="checkbox"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)	
			<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)	
			<input type="checkbox"/> 20.2203(a)(2)(v)		<input type="checkbox"/> 50.73(a)(2)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> OTHER	
			<input type="checkbox"/> 20.2203(a)(2)(vi)		<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)		<input type="checkbox"/> 50.73(a)(2)(v)(D)		Specify in Abstract below or in NRC Form 366A	
12. LICENSEE CONTACT FOR THIS LER										
FACILITY NAME <b>Richard D. Flannigan, Manager Regulatory Affairs</b>								TELEPHONE NUMBER (Include Area Code) <b>(620) 364-4117</b>		
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	
14. SUPPLEMENTAL REPORT EXPECTED						15. EXPECTED SUBMISSION DATE		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO										
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)  <p>On 2/11/2010 the NRC issued violation 2009005-009, "Positive Reactivity Addition Prohibited by technical specifications while in Mode 2." The inspectors identified a noncited violation of Technical Specification 3.3.1, Condition I, for making positive reactivity addition prohibited by technical specifications in Mode 2 because one Source Range Neutron Flux channel was inoperable.</p> <p>A loss of off-site power event on 8/19/2009 caused a reactor trip and turbine trip and the plant entered Mode 3. As a result, power to the Containment Cavity Cooling fans was lost. During this period, Source Range Neutron Flux channel, SEN0031, was reading somewhat lower than Source Range Neutron Flux channel SEN0032, then increased and stabilized significantly higher than SEN0032. On 08/20/2009, the Cavity Cooling Fan was started and SEN0031 indication rapidly returned to near the same relative indication to SEN0032 as existed initially.</p> <p>On 08/22/2009 Wolf Creek entered the mode of applicability when the reactor trip breakers were closed. Wolf Creek entered Mode 2 and the reactor became critical on 8/23/2009. During the reactor startup and power ascension to point of de-energizing the source range instruments above P-6, both source range instruments indicated normally and passed all normal channel checks.</p> <p>This event is of low safety significance. The source range detector was replaced during Refuel Outage 17 in November 2009.</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
		2010	-- 004 --	00	

## PLANT CONDITIONS PRIOR TO EVENT

MODE – 1  
Power – 100

## EVENT DESCRIPTION

On 2/11/2010 the NRC issued violation 2009005-009, "Positive Reactivity Addition Prohibited by technical specifications while in Mode 2." The inspectors identified a noncited violation of Technical Specification 3.3.1, Condition I, for making positive reactivity addition prohibited by technical specifications in Mode 2 because one Source Range Neutron Flux channel [EIS Code: IG] was inoperable.

A loss of off-site power event on 8/19/2009 caused a reactor trip and turbine trip and the plant entered Mode 3. As a result, power to the Containment Cavity Cooling fans was lost. During this period, Source Range Neutron Flux channel, SEN0031, was reading somewhat lower than Source Range Neutron Flux channel SEN0032, then increased and stabilized significantly higher than SEN0032.

On 08/20/2009, a Containment Cavity Cooling fan [EIS Code: VA-FAN] was started and SEN0031 indication rapidly returned to near the same relative indication of SEN0032, as existed initially. Later on 08/20/2009, procedure STS IC-231, "Channel Operational Test Nuclear Instrumentation System Source Range N-31 Protection Set 1," was completed satisfactorily. This surveillance injects a test signal and verifies the Source Range Neutron Flux Trip bistable functions when the trip setpoint is exceeded. Channel checks in accordance with surveillance requirement (SR) 3.3.1.1 between SEN0031 and SEN0032 indicated satisfactory agreement.

Outside of the short period of time when the cavity cooling fans were unavailable, SEN0031 performed as expected without deviation. It passed all surveillances and no anomalies were noted during its operation. SEN0031 was energized, as expected, shortly after the Loss of Offsite Power and the instrument functioned continuously until de-energized during startup on 8/23/2009. The abnormally high indication was confined solely to the period shortly after cavity cooling was lost, and indication recovered and acted as expected approximately one hour after cavity cooling was restored.

On 08/22/2009, Wolf Creek entered the mode of applicability when the reactor trip breakers were closed. Wolf Creek entered Mode 2 and the reactor became critical on 8/23/2009. During the reactor startup and power ascension to point of de-energizing the source range instruments above P-6, which exited the mode of applicability, both source range instruments indicated normally and passed all normal channel checks.

During the startup, both channels of Source Range Neutron Flux indication were used to generate a 1/M plot per procedure GEN 00-003, "Hot Standby to Minimum Load," and both were found to be acceptable. This further demonstrated that SEN0031 was functioning normally, as there was good agreement between the 1/M plots.

At the beginning of Refuel Outage 17, Electrical Characterization and Diagnostic (ECAD) Tests were performed 10/10/09 through 10/13/09 that assessed the condition of the detector circuits. The Source Range Neutron Flux channels have been operating normally over the last few years and the ECAD data indicated that the circuit condition had remained essentially constant over the same period.

**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.	3    OF    3
		2010	-- 004 --	00	

**BASIS FOR REPORTABILITY**

This condition is being reported based on NRC issuance of noncited violation 2009005-009, "Positive Reactivity Addition Prohibited by technical specifications while in Mode 2." Additionally, during a review of this event, it was identified that the transitioning from Mode 3 to Mode 2, and closing the reactor trip breakers, with one Source Range Neutron Flux channel inoperable is a failure to meet Limiting Condition for Operation (LCO) 3.0.4a.

This condition is being reported per 10 CFR 50.73(a)(2)(i)(B) as an operation or condition prohibited by Technical Specifications.

**CAUSE**

The most probable cause of the behavior for SEN0031 following loss of cavity cooling was increased temperature of the detector and associated cabling resulting in increased count rate indication. The violation occurred, because after cavity cooling was restored and SEN0031 indication returned to normal, Wolf Creek did not consider SEN0031 to be inoperable prior to entering the mode of applicability.

**CORRECTIVE ACTIONS**

Source range detector SEN0031 was replaced during Refueling Outage 17 in November 2009.

**SAFETY SIGNIFICANCE**

The safety significance of this condition is low. Outside of the short period of time when the Containment Cavity Cooling fans were unavailable, SEN0031 performed as expected without deviation. It passed required surveillances and no anomalies were noted during its operation. During the subsequent reactor startup and power ascension to point of de-energizing the Source Range Neutron Flux channels above P-6, which exited the mode of applicability, both Source Range Neutron Flux channels indicated normally and required channel checks were satisfactory. SEN0032 was able to perform its Source Range High Flux Trip function during the modes of applicability, and there is no indication that SEN0031 would not have been able to perform its Source Range High Flux trip function.

**OPERATING EXPERIENCE/PREVIOUS EVENTS**

None