WOLF CREEK
NUCLEAR OPERATING CORPORATION

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,

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
NRR

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2010

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)

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4. TITLE

Positive Reactivity Addition in Mode 2 with One Source Range Neutron Flux Channel Inoperable

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
										05000
02	11	2010	2010	- 004 -	00	04	08	2010	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

1

10. POWER LEVEL

100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☐ 50.73(a)(2)(i)(A)
- ☒ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Richard D. Flannigan, Manager Regulatory Affairs	(620) 364-4117

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

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.

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.

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.

This event is of low safety significance. The source range detector was replaced during Refuel Outage 17 in November 2009.

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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 [EIIS 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 [EIIS 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.

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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