WOLF CREEK
NUCLEAR OPERATING CORPORATION

Russell A. Smith
Plant Manager

May 17, 2012

WO 12-0042

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

Subject: Docket No. 50-482: Licensee Event Report 2012-002-00, "One Train of Automatic Safety Injection Blocked During Entry Into Mode 3 Due To Procedural Weakness"

Gentlemen:

The enclosed Licensee Event Report (LER) is submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) regarding an entry into Mode 3 with one train of automatic safety injection inoperable on March 19, 2012.

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,

Russell A. Smith

RAS/rlt

Enclosure

cc: E. E. Collins (NRC), w/e
J. R. Hall (NRC), w/e
N. F. O'Keefe (NRC), w/e
Senior Resident Inspector (NRC), w/e

IE22
NRR

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)

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4. TITLE

One Train of Automatic Safety Injection Blocked During Entry Into Mode 3 Due To Procedural Weakness

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
03	19	2012	2012	002	00	05	17	2012	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

Mode 3

10. POWER LEVEL

000

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

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Gautam Sen, Manager Regulatory Affairs	(620) 364-4175

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 March 19, 2012, the unit was in the process of starting up from a forced outage. Procedure STS KJ-001A, "Integrated D/G and Safeguards Actuation Test – Train A," had been performed which actuated the 'A' safety injection (SI) signal. The actuation signal was subsequently reset, but the reactor trip breakers were not closed to allow permissive P-4 to be cleared allowing the 'A' train automatic SI actuation to be operable. On March 19, 2012, at 0327 Central Daylight Time (CDT), entry was made into Mode 3 with the train 'A' automatic SI actuation signal blocked. Changing from Mode 4 to 3 with an inoperable automatic SI actuation signal is prohibited by Technical Specifications. On March 20, 2012, at 0945 CDT, the reactor trip breakers were closed which enabled the train 'A' automatic SI actuation signal.

The cause of the event was inadequate procedural guidance prior to making Mode changes. Procedure GEN 00-002, "Cold Shutdown to Hot Standby," was revised to ensure automatic SI actuation is operable prior to entry into Mode 4.

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PLANT CONDITIONS AT THE TIME OF THE EVENT

Mode 3
Reactor Coolant System (RCS) temperature 350 degrees F
RCS pressure approximately 450 psig
No inoperable structures, components or systems, other than the train 'A' automatic safety injection (SI) actuation signal, contributed to this event on March 19-20, 2012.

BACKGROUND:

When a Safety Injection (SI) signal is received, the SI block circuitry design allows that, after a 60 second delay, the SI signal can be reset/blocked, allowing the operator to take control and recover as appropriate. The block is an overriding block, allowing the reset/block to be inserted, even if the initiating SI signal is still present. The block also prevents automatic SI re-initiation. By design, the block remains until reset by the closing of the reactor trip breakers. Only the automatic SI functions can be blocked, the manual SI function is not affected.

During normal plant refueling outages, procedure STS KJ-001A, "Integrated D/G and Safeguards Actuation Test – Train A," and procedure STS KJ-001B, "Integrated D/G and Safeguards Actuation Test – Train B," are performed for both the 'A' and 'B' Emergency Diesel Generators (DG) [EIIS Code: EK] during Mode 5. During this testing, a Safety Injection (SI) signal is initiated to ensure that the Loss of Coolant Accident (LOCA) sequencer [EIIS Code: JE] goes through all the required actuations. After testing is completed, the SI manual reset buttons for train 'A' and 'B' are depressed which resets both trains of automatic SI actuation. Though procedure STS KJ-001A and B allows restoration of the automatic SI actuation by referring the test performer to procedure OFN EM-024, "Safety Injection Recovery," plant conditions normally do not allow it since the plant is in Mode 5.

Permissive P-4 remains active until the reactor trip breakers [EIIS Code: JC, BKR] are closed. P-4 prevents the automatic re-initiation of SI after manual reset and illuminates the auto SI block status window on control room panel SB069.

Normally, prior to entry into Mode 4, the Solid State Protection System (SSPS) [EIIS Code: JG] is enabled using procedure SYS SB-120, "Enabling/Disabling of SSPS for both 'A' and 'B' trains," which resets the SI actuation logic and relays. After entry into Mode 4 and prior to Mode 3, procedure STS RE-017, "DRPI (Digital Rod Position Indication) Operability Verification," is performed. This procedure requires that the reactor trip breakers be closed and resets the auto SI block. As a result, automatic SI actuation is operable and the Auto SI Block status window on control room panel SB069 is extinguished.

DESCRIPTION OF THE EVENT:

During a forced outage, a portion of procedure STS KJ-001A was performed as a required retest for maintenance conducted on the 'A' DG in March 2012 while in Mode 5. After the testing was completed, both SI manual reset buttons for train 'A' and 'B' were depressed. Due to the reactor trip breakers being open, the auto SI block status window was lit. The 'B' train of automatic SI actuation was not blocked since it had never been actuated.

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Prior to entry into Mode 4, both trains of SSPS were enabled which reset the actuation logic and relays. As this was a forced outage, procedure STS RE-017 was not required to be performed and the reactor trip breakers were not closed. Entry was made into Mode 3 on March 19, 2012, at 0327 CDT, with the 'A' train of automatic SI actuation signal being inoperable. On March 20, 2012, during a main control board walkdown, a licensed operator noticed the auto SI block status light lit. For the Mode the plant was in, this light should not have been lit. Approximately 30 hours after entry into Mode 3, on March 20, 2012, at 0945 CDT, the reactor trip breakers were closed, resetting the 'A' train SI block, making the 'A' train of automatic SI actuation operable.

BASIS FOR REPORTABILITY:

This event is reportable under 10 CFR 50.73(a)(2)(i)(B) as an operation or condition prohibited by Technical Specifications (TS). The plant transitioned from Mode 4 to Mode 3 on March 19, 2012, with TS Table 3.3.2-1, Function 1.b, Automatic Action Logic and Actuation Relays, inoperable. Therefore, Limiting Condition for Operation (LCO) 3.0.4 was not met when the plant transitioned from Mode 4 to Mode 3.

ROOT CAUSE:

Inadequate procedural guidance existed to ensure that required signals are available in the Modes of applicability, and prior to Mode changes.

Procedure STS KJ-001A did not contain a step to either have the operators restore automatic SI actuation by closing the reactor trip breakers or making an Equipment Out of Service log (EOL) entry to restore automatic SI actuation as a Mode 3 restraint. STS KJ-001A does direct the operator to procedure OFN EM-024, "Safety Injection Recovery." The first step of OFN EM-024 directs the operator to determine whether automatic SI capability will be restored. Automatic SI capability could not be restored with the plant in Mode 5.

Additionally, procedure GEN 00-002, "Cold Shutdown to Hot Standby," did not contain a step to ensure that the auto SI block logic is reset, or the reactor trip breakers are closed, prior to Mode 3 entry.

During past outages this issue had not been identified due to performing procedure STS RE-017 in Mode 4 prior to entry into Mode 3. This procedure requires the reactor trip breakers to be closed which resets the auto SI block logic.

CORRECTIVE ACTIONS:

Procedure GEN 00-002, "Cold Shutdown to Hot Standby," was revised on March 26, 2012, to ensure that the auto SI block status window is not lit prior to entry into Mode 4. This action ensures automatic SI actuation is operable.

STS KJ-001A and B will be revised to either close the reactor trip breakers or to make an EOL entry to reset auto SI block prior to entry into Mode 4.

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SAFETY SIGNIFICANCE:

Prior to entering Mode 3 both trains of automatic SI actuation are required. During this event, only the train 'B' automatic SI actuation was available. Had a train 'B' automatic SI been actuated, the procedure network requires that control room personnel manually actuate the train 'A' SI. Manual SI actuation was not blocked and would have functioned.

The safety significance of this event was low. The automatic SI signal was available for train 'B,' and a manual SI signal could have been actuated for train 'A.'

The Wolf Creek Generating Station Probabilistic Risk Assessment model was used to gauge the risk of the block of the automatic SI actuation signal. The results show a low value for Incremental Conditional Core Damage Probability, which indicates low risk significance. At the time of the event, the capability for manual SI was still available during the block of the automatic signal. The core decay heat at the time of the event was quite low since the plant had been shut down since January 13, 2012. The RCS pressure at the time the reactor trip breakers were closed was approximately 1900 psig. The probability of a Large Loss of Coolant Accident (LOCA), Medium LOCA, or Steam Generator Tube Rupture would be less than the nominal probability assumed in the At-Power risk model.

OPERATING EXPERIENCE/PREVIOUS SIMILAR OCCURRENCES:

None