



Stephen E. Hedges
Vice President Operations and Plant Manager

November 28, 2005

WO 05-0033

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

Subject: Docket No. 50-482: Licensee Event Report 2005-005-00

Gentlemen:

The enclosed Licensee Event Report (LER) 2005-005-00 is being submitted pursuant to 10 CFR 50.73(a)(2)(ii)(B) regarding an unanalyzed condition from a review of Post Fire Shutdown capabilities that could potentially affect post-fire safe shutdown equipment availability at Wolf Creek Generating Station.

Commitments made by Wolf Creek Nuclear Operating Corporation in the enclosed LER are identified in the Attachment to this letter.

If you have any questions concerning this matter, please contact me at (620) 364-4190, or Mr. Kevin Moles at (620) 364-4126.

Very truly yours,

A handwritten signature in black ink, appearing to read "SEH", followed by a horizontal line.

Stephen E. Hedges

SEH/rlg

Attachment
Enclosure

cc: J. N. Donohew (NRC), w/a, w/e
W. B. Jones (NRC), w/a, w/e
B. S. Mallett (NRC), w/a, w/e
Senior Resident Inspector (NRC), w/a, w/e

IE22

LIST OF COMMITMENTS

The following table identifies those actions committed to by Wolf Creek Nuclear Operating Corporation in this document. Any other statements in this letter are provided for information purposes and are not considered regulatory commitments. Please direct questions regarding these commitments to Mr. Kevin Moles, Manager Regulatory Affairs at Wolf Creek Generating Station, (620) 364-4126.

REGULATORY COMMITMENT	DUE DATE
A detailed evaluation of fire area A-8 will be completed to identify any additional components that fail to meet the requirements of Appendix R.	01/27/2006
Corrective measures resulting in a feasible post fire safe shutdown (PFSSD) methodology for a fire in fire area A-8 will be determined as needed.	07/21/2006
For any corrective measures determined to be needed, a design change package will be developed and implemented.	05/30/2008

LICENSEE EVENT REPORT (LER)

(See reverse for required number of
digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 50 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 infocollect@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.

1. FACILITY NAME

WOLF CREEK GENERATING STATION

2. DOCKET NUMBER

05000 482

3. PAGE

1 OF 3

4. TITLE

Validation of Post Fire Safe Shutdown (PFSSD) Capabilities of Fire Area A-8

5. EVENT DATE

MONTH	DAY	YEAR
09	29	2005

6. LER NUMBER

YEAR	SEQUENTIAL NUMBER	REV NO.
2005	005	00

7. REPORT DATE

MONTH	DAY	YEAR
11	28	2005

8. OTHER FACILITIES INVOLVED

FACILITY NAME	DOCKET NUMBER
	05000
FACILITY NAME	DOCKET NUMBER
	05000

9. OPERATING MODE

1

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

- | | | | |
|---|---|--|--|
| <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) |
| <input type="checkbox"/> 20.2203(a)(1) | <input type="checkbox"/> 20.2203(a)(4) | <input checked="" 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 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 |

10. POWER LEVEL

100

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME

Kevin J. Moles, Manager Regulatory Affairs

TELEPHONE NUMBER (Include Area Code)

(620) 364-4126

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) ☒ NO15. EXPECTED
SUBMISSION
DATE

MONTH	DAY	YEAR

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

On September 29, 2005, conditions were discovered where a postulated design basis fire could cause the loss of a safe shut down success path.

During reviews associated with post fire safe shutdown reanalysis work, Wolf Creek personnel discovered that the ability to perform diverse means (operator manual actions) required to mitigate spurious actuations came into question for Fire Area A-8. This could cause the loss of the centrifugal charging pump's (CCP's) capability to successfully inject borated water into the reactor, due to a potential for gas intrusion into the suction of the pumps. This does not meet Wolf Creek's commitments to 10 CFR 50 Appendix R.III.G as reflected in the approved Fire Protection Plan.

A 1-hour fire watch was implemented in the fire area.

The safety significance for this event is low.

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

Background:

The centrifugal charging pumps (CCPs) [EIS Code: P] are used to inject borated water into the reactor to maintain reactor water inventory, maintain shutdown reactivity margin, and maintain a flow of cooling water to the reactor coolant pump (RCP) seals to prevent damage to the seals. The Volume Control Tank (VCT) provides suction to the CCPs through valves BGLCV112B and C. A fire could cause the VCT outlet valves to fail to close, allowing the VCT hydrogen cover gas to enter the suction of the CCPs. This has the potential to damage the CCPs and cause the loss of high head safety injection.

Plant Conditions Prior to the Event:

MODE – 1

Power – 100 percent

Normal Operating Temperature and Pressure

Event Description:

The compliance strategy for post fire safe shutdown (PFSSD) at the Wolf Creek Generating Station is being reviewed to validate and rebaseline the analysis. The validation project has reconstituted a complete set of data for components/equipment and cables credited for coping with a "post-fire safe shutdown scenario" in accordance with our commitments to 10CFR50, Appendix R and the Wolf Creek Updated Safety Analysis Report (USAR) Appendix 9.5B Fire Hazard Analyses in selected areas. The event identified by this LER was found during the re-validation of the fire area, A-8.

The Wolf Creek commitment to 10CFR50, Appendix R, Section III.G states the following:

Redundant trains of systems required to achieve and maintain hot standby are separated by 3-hour rated fire barriers, or the equivalent provided by III.G.2, or else a diverse means of providing the safe shutdown capability exists and is unaffected by the fire.

Diverse means has been interpreted by Wolf Creek to mean manual operator actions which are deemed feasible. One operator outside the control room who is not on the fire brigade was assumed to be available to perform diverse means actions. It was also assumed that one of the four available operators in the control room could exit the control room temporarily to perform some actions.

Due to the unpredictable nature of fire and the unknown point of origin, several Train A components in fire area A-8 including the Train A motor driven auxiliary feedwater pump, are affected.

Because of the number of time-critical actions that could be required to mitigate a design-basis fire in area A-8, the available operations staff may be challenged if all spurious actuations occur at nearly the same time. Specifically, the VCT outlet valves (BGLCV112B and C) may fail to close. This could allow the hydrogen cover gas from the VCT to enter the CCPs, damage the pumps, and cause the loss of high head safety injection.

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

Basis for Reportability:

A fire in Fire Area A-8 has the potential to damage the centrifugal charging pumps and cause a loss of the capability to borate the reactor. Based on this information, WCNOG made an eight hour Emergency Notification System call in accordance with 10 CFR 50.72(b)(3)(ii)(B).

This condition is also reportable pursuant to 10 CFR 50.73(a)(2)(ii)(B) for any event or condition that resulted in the nuclear power plant being in an unanalyzed condition that significantly degraded plant safety.

Root Cause:

This is a historical problem rooted in changes to the standards over time, and in non-validated assumptions made by the Architect-Engineer for their Electrical Fire Hazards Analysis at the time of construction and insufficiently documented at that time. Due to the historical nature of these facts, a specific root cause cannot be determined.

Corrective Actions:

A detailed evaluation of fire area A-8 will be completed to identify any additional components that fail to meet WCGS commitments to Appendix R. Corrective measures will be determined as needed. Any necessary design change package(s) will be developed and implemented.

The current validation effort is currently being re-assessed to determine if any additional fire areas should be reviewed.

Safety Significance:

This issue is of low safety significance due to the extreme conservative assumptions made for all of these failures to occur. There is a low loading of self-sustaining combustibles located in fire area A-8. A fire of the severity required to damage components and cables located over 80 feet apart is only postulated. The assumption that all of the spurious maloperations occur at time zero is also postulated since affected components and cables are located at various distances from one another. The reactor trip function will work correctly and the primary system can be isolated. The reported condition is outside Wolf Creek's licensing basis for protection of components required for safe shutdown following a fire since all mitigating actions may not be complete before damage occurs to the charging pumps.

Operating Experience/Previous Events:

LER 1999-009-00 determined an inadequate separation of cables for valves and level transmitters for the volume control tank. In the event of a fire, a potential existed for gas intrusion into the suction of the centrifugal charging pump. While corrective actions have been taken to address these conditions, an additional corrective action for LER 1999-009-00 was to validate the post fire safe shutdown analysis and to provide necessary correction to the Updated Safety Analysis Report (USAR). The validation consists of two phases: phase one reverified the design criteria and phase two completes the post-fire safe shutdown analysis review.

LERs 2002-004-00, 01, and 02 identified cable separation issues during the phase two portion of the validation process.