



Gary B. Fader
Vice President Technical Services

AUG 2 2002

ET-02-0032

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

Subject: Docket No. 50-482: Licensee Event Report 2002-004-00

Gentlemen:

The enclosed Licensee Event Report (LER) 2002-004-00 is being submitted pursuant to 10 CFR 50.73(a)(2)(ii)(B) regarding an unanalyzed condition from a hot short cable interaction that could potentially affect the water inventory in the Refueling Water Storage Tank at Wolf Creek Generating Station.

Wolf Creek Nuclear Operating Corporation has made no commitments in the enclosed LER.

If you have any questions concerning this matter, please contact me at (620) 364-4034 or Mr. Tony Harris, Manager Regulatory Affairs, at (620) 364-4038.

Very truly yours,

A handwritten signature in black ink, appearing to read "G. B. Fader", written in a cursive style.

Gary B. Fader

GBF/rtr

Enclosure

cc: J. N. Donohew (NRC), w/e
D. N. Graves (NRC), w/e
E. W. Merschoff (NRC), w/e
Senior Resident Inspector (NRC), w/e

JE22

Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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.

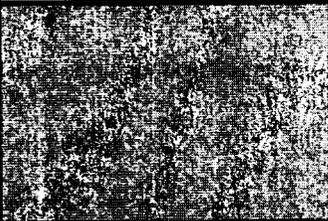
LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME WOLF CREEK GENERATING STATION	2. DOCKET NUMBER 05000482	3. PAGE 1 OF 4
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4. TITLE
Cable Interaction That Could Potentially Affect Refueling Water Storage Tank Inventory

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	07	2002	2002	-- 004 --	00	08	02	2002	Callaway	05000483
									FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE 1	11 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 2. (Check all that apply)				
	20.2201(b)	20.2203(a)(3)(ii)	X	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
10. POWER LEVEL 100	20.2201(d)	20.2203(a)(4)		50.73(a)(2)(iii)	50.73(a)(2)(x)
	20.2203(a)(1)	50.36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)	73.71(a)(4)
	20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)		50.73(a)(2)(v)(A)	73.71(a)(5)
	20.2203(a)(2)(ii)	50.36(c)(2)		50.73(a)(2)(v)(B)	OTHER
	20.2203(a)(2)(iii)	50.46(a)(3)(ii)		50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)	
	20.2203(a)(2)(v)	50.73(a)(2)(i)(B)		50.73(a)(2)(vii)	
	20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)	
	20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME Karl A. (Tony) Harris, Manager Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) (620) 364-4038
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

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

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO		MONTH	DAY	YEAR

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

At 0815 on June 7, 2002, the Wolf Creek Generating Station (WCGS) Shift Manager was notified of a postulated fire event that could cause a cable-to-cable hot short. If cable-to-cable hot shorts are assumed to occur, this event has the potential to cause water in the refueling water storage tank (RWST) to drain to the containment recirculation sump. It was discovered that the control cables for two redundant motor operated valves are routed in the same electrical raceway. The two valves are in the same electrical separation group, but are redundant in their function of conserving water inventory in the RWST. Further investigation determined that the control cables for motor operated valves in the opposite electrical separation group have the same configuration. As an immediate corrective action, fire watches were established in the affected areas.

The cause of this condition is that cable-to-cable interactions were not considered in the initial design of the plant.

The safety significance of this event is low as none of the affected locations contain significant fire loading and any fire occurring in these locations should be extinguished prior to one hour, before a hot short would occur.

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

Background:

Wolf Creek Nuclear Operating Corporation (WCNOC) is in the process of performing an analysis of fire areas as part of a Post-Fire Safe Shutdown project to determine if a fire in a single area could adversely affect the safe shutdown of the plant. During the fire area inspection phase, it was discovered that a potential problem exists with the separation of cables for redundant components required for safe shutdown.

Valves EJHV8811A [BP-ISV] and BNHV8812A [BP-ISV] are motor operated valves that supply Residual Heat Removal (RHR) System [BP] pump suction from the containment recirculation sump and from the refueling water storage tank (RWST), respectively. During a fire in the plant, it is the function of valves EJHV8811A and BNHV8812A to provide a barrier to draining water in the RWST to the containment recirculation sump. Control circuits for these two valves are routed together in the "A" safety injection pump room (Fire Area A-2), the corridor of the auxiliary building [NF] at elevation 1974 ft. (Fire Area A-1) and the corridor of the auxiliary building at elevation 2000 ft. (Fire Area A-8). The same condition exists with the control circuits for valves EJHV8811B and BNHV8812B in the opposite train. Control circuits for these two valves are routed together in the "B" safety injection pump room (Fire Area A-4) and also in the auxiliary building corridor at elevation 1974 ft. A single fire in either pump room or in the auxiliary building corridor at elevation 1974 ft. could cause a hot short that could result in inadvertently draining the water in the RWST to the containment recirculation sump. Water normally available from the RWST to be used for the core cooling injection phase would not be available if this were to occur.

Plant Conditions Prior to the Event:

MODE – 1
 Power – 100 Percent
 Normal Operating Temperature and Pressure

Event Description:

At 0815 on June 7, 2002, the Shift Manager was notified of a postulated fire event that could cause a cable-to-cable hot short. This event has the potential to cause the RWST to drain to the containment recirculation sump. During the fire area inspection phase of the Post-Fire Safe Shutdown project, it was discovered that the control cables for two redundant motor operated valves, EJHV8811A and BNHV8812A, are routed together in the "A" safety injection pump room and in the auxiliary building corridors at elevations 1974 ft. and 2000 ft. The two valves are in the same electrical separation group, but are redundant in their function of conserving water inventory in the RWST. Further investigation determined that the control cables for motor operated valves EJHV8811B and BNHV8812B in the other electrical separation group have the same configuration since they are routed together in the "B" safety injection pump room and in the auxiliary building corridor at elevation 1974 ft. A fire in any one of these areas has the potential to damage the control cables to the EJHV8811A/B valves causing the valves to spuriously open due to a hot short. Fire damage to the control cables to the BNHV8812A/B valves could result in the valves not responding to a close signal due to an open circuit. This condition would cause the water in the RWST to drain to the containment recirculation sump.

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

Basis for Reportability:

A fire in any one of the subject fire areas (A-1, A-2, A-4 and A-8) has the potential to damage the control cables for valves EJHV8811A/B in a manner that causes the valve to spuriously open and to damage the corresponding control cables for valves BNHV8812A/B in a manner that causes the valves to not respond to a signal to close. This would result in a flow path from the RWST through the open valves and into the containment recirculation sump. The post-fire safe shutdown function would be affected because the RWST function is required for hot shutdown.

Based on information known at the time of discovery, WCNOG made an eight hour Emergency Notification System call in association with 10 CFR 50.72(b)(3)(ii)(B) and 10 CFR 50.72(b)(3)(v)(A), (B) and (D). Further evaluation and a review of NUREG-1022, "Event Reporting Guidelines 10CFR50.72 and 50.73," determined that this condition is reportable pursuant to 10 CFR 50.72(b)(3)(ii)(B) / 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.

This condition does not meet the reporting requirements of 10 CFR 50.72(b)(3)(v)(A), (B) or (D), or 10 CFR 10.73(a)(2)(v)(A), (B) or (D), since there is a reasonable expectation that the safety function of preventing water from draining from the RWST would have been fulfilled by valves EJHV8811A/B in the event of a fire.

Root Cause:

The control cable configuration for valves EJHV8811A/B and BNHV8812A/B are per original plant design. Cable-to-cable hot shorts associated with the event in question were not analyzed as part of the Bechtel Fire Hazards Analysis. Therefore, the cause of this condition is due to cable-to-cable interaction not being considered in the initial plant design and specifically in relation to the routing of cables in the safety injection pump rooms and in the auxiliary building corridors at elevations 1974 ft. and 2000 ft.

Corrective Actions:

A continuous fire watch was established in Fire Areas A-1, A-2, A-4 and A-8 until procedure OFN KC-016, "Fire Response," was changed to add steps 11 through 21 to prevent draining the water in the RWST to the containment recirculation sump. After the procedure was changed, an hourly fire watch was established to monitor the safety injection pump rooms and the auxiliary building corridors at elevations 1974 ft. and 2000 ft.

Long-term corrective actions are under evaluation and could involve either rerouting the cables or wrapping them with fire protective material.

Safety Significance:

The safety significance of this event is low based on the following:

Once the control rods insert during a reactor shutdown, the plant is immediately in a safe shutdown condition (i.e., hot standby). In order to maintain a safe shutdown condition in the plant, the Chemical and Volume Control System [CB] is required for boration and inventory makeup with the centrifugal charging pump (CCP) taking suction from the RWST.

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

Boration is not required until xenon levels decrease, which is approximately 10 hours after reactor shutdown. If the RWST inventory were lost to the containment recirculation sump, the CCP would not have a direct suction path to the water.

Makeup from the RWST to the RCS would be required to maintain the plant in a hot standby condition if the pressurizer level was decreasing or if positive reactivity was added. The safe shutdown methodology at WCGS relies on isolating the reactor such that very little makeup water would be needed assuming no Reactor Coolant System (RCS) [AB] cooldown.

Time would be available to take compensatory measures if the RWST water level was decreasing. If EJHV8811A or EJHV8811B were to inadvertently open, it would take approximately 55 minutes for the RWST to drain to the lo-lo alarm set point and approximately 94 minutes for the tank to completely drain. These times assume a flow rate of 4190 gallons per minute from the RWST to the containment recirculation sump as shown in calculation M-BN-21 revision 0.

In addition, it has been shown through industry testing that cable-to-cable hot shorts do not occur unless cables are subjected to a significant fire for up to one hour. Since none of the affected fire areas contain significant fire loading, significant fires are not expected. Any fire occurring in the affected fire areas should be extinguished before one hour, and the hot short condition should not occur. If the hot short condition did occur, the fire should be extinguished and a plant operator could then manually close valves BNHV8812A/B as described in procedure OFN KC-016. This would prevent the loss of RWST inventory. Even assuming that the entire inventory of the RWST drained to the containment recirculation sump, manual actions by the plant operators as described in procedure EMG ES-12, "Transfer to Cold Leg Recirculation," provide assurance that systems can be aligned to take suction from the sump and supply water to the suction of at least one CCP.

Based on all of these considerations, the safety significance of this event is low.

Previous Events:

An occurrence of a similar event was reported via licensee event report (LER) 1999-009-00. In LER 1999-009-00, it was determined that there was 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. A 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 re-verifies the design criteria and phase two completes the post-fire safe shutdown analysis review. The problem identified in this LER was found during phase two.