

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Russell A. Smith
Plant Manager

March 25, 2011

WO 11-0014

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

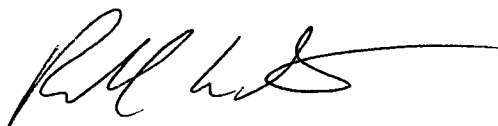
Subject: Docket No. 50-482: Licensee Event Report 2010-010-01, "Inadequate Analysis Results in a Component Cooling Water Train to be Declared Inoperable"

Gentlemen:

Enclosed is a supplemental Licensee Event Report (LER) to LER 2010-010-00, "Inadequate Analysis Results in a Component Cooling Water Train to be Declared Inoperable." The supplemental report provides information on the long-term resolution of the issue.

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/rit

Enclosure

cc: E. E. Collins Jr (NRC), w/e
J. R. Hall (NRC), w/e
G. B. Miller (NRC), w/e
Senior Resident Inspector (NRC), w/e

JE22
NRR

(10-2010)

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: 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.

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4. TITLE
Inadequate Analysis Results in a Component Cooling Water Train to be Declared 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
09	22	2010	2010	- 010	- 01	03	25	2011		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE Mode 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)									
10. POWER LEVEL 100%	<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 checked="" 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 checked="" 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 Gautam Sen, Manager Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) (620) 364-4175
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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 <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR

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

The Wolf Creek Generating Station (WCGS) Component Cooling Water (CCW) system consists of two trains with two 100 percent capacity pumps per train, each supplying cooling water flow to the independent safety loads and a common service loop. On September 22, 2010 a question was raised about the analysis of a postulated pipe break in the non-seismic portion of the common service loop, to Radwaste. Review of the analysis determined that the net positive suction head for the CCW pump could be jeopardized, making the CCW train aligned to Radwaste inoperable.

The train of CCW connected to the service loop was declared inoperable on September 22, 2010, at 1317. As interim action, the CCW train was restored to operable status on September 23, 2010, at 0241, by isolating the Radwaste portion of the service loop from the rest of the service loop. Long-term resolution of this issue is the installation of a design modification.

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NARRATIVE

PLANT CONDITIONS PRIOR TO EVENT

Mode 1
100% power

EVENT DESCRIPTION

The Component Cooling Water (CCW) [EIS Code: CC] system consists of two trains with two 100 percent capacity pumps per train, each supplying cooling water flow to the independent safety loads and a common service loop. An independent surge tank is connected to the suction of each train via a 4-inch line. The common service loop provides flow to the non-essential or non-safety related loads such as Reactor Coolant Pump [EIS code: AB-P] motor coolers and is constructed of ASME Section III Class 3 piping except for the portion that supplies cooling water to Radwaste. The Radwaste section of piping is automatically isolated via valves EGHV0069A and EGHV0070A (supply to Radwaste); and valves EGHV0069B and EGHV0070B (return from Radwaste) upon the receipt of a Safety Injection Signal (SIS), high flow indication in the non-safety related piping, or a low CCW surge tank level. The automatic isolation occurs within 10 seconds of receiving the signal. The Radwaste section is also isolated if the service loop is isolated. During normal operation only one train of CCW is connected to the common service loop. This train has one pump in operation supplying cooling flow to the common service loop and supplying Radwaste. The other three CCW pumps are normally secured.

An issue was brought up by an NRC inspector during the Component Design Basis Inspection (CDBI) at Wolf Creek Nuclear Operating Corporation (WCNOC) postulating a pipe break initiated by an external or seismic event in the non-safety related section downstream of automatic isolation valves mentioned above, Radwaste. The original design architect of WCGS analyzed a break in the supply side pipe in 1985 with a determination that the break would be isolated in sufficient time to ensure adequate net positive suction head (NPSH) would be available for the CCW pumps. Upon further review, several nonconservative assumptions were identified in the calculation. The determination at this point is that the CCW surge tanks may not keep up with the break flow rate and water column separation could occur that will jeopardize the required CCW pump NPSH and could result in the system ingesting large volumes of air that could challenge pump operability.

As a result of this issue, the CCW train connected to the service loop portion that supplies cooling water to Radwaste was considered to be inoperable. Technical Specification (TS) 3.7.7 was entered on September 22, 2010 at 1317. The TS was exited on September 23, 2010 at 0241 by isolating the Radwaste from the CCW train using temporary procedure TMP 10-028, "Isolating CCW to Radwaste."

Periodically the common service loop was transferred to the opposite CCW train. During the short period of time for this transfer both CCW trains are aligned to the service loop. If the Radwaste portion of the service loop were inservice, then both CCW trains would be inoperable.

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BASIS FOR REPORTABILITY

TS 3.7.7 requires two trains of CCW to be operable in Modes 1 through 4. Since plant startup, one train of CCW has been aligned to the service loop with Radwaste making that train inoperable. The amount of time that the service loop Radwaste portion is aligned to the CCW train exceeds the allowed outage time in TS 3.7.7. Therefore this issue is reportable per 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

When the service loop, with the Radwaste portion inservice, is transferred to the opposite CCW train, both trains are aligned to the service loop for a short period of time. During this short period of time, both trains of CCW are inoperable. Additionally, when one train of CCW is out of service and the other train is aligned to the service loop, with the Radwaste portion inservice, both trains are inoperable. This condition is reportable per 10 CFR 50.73(a)(2)(v)(B) and (D) as a safety system functional failure.

This condition is considered an unanalyzed condition that significantly degraded plant safety and is reportable per 10 CFR 50.73(a)(2)(ii)(B).

ROOT CAUSE

This is a legacy issue that has existed since plant startup. The original calculation performed to support the Component Cooling Water System Pipe Break had nonconservative assumptions.

CORRECTIVE ACTIONS

A temporary procedure, TMP 10-028, "Isolating CCW to Radwaste," is in place to provide instructions for isolating and restoring CCW flow to Radwaste. The temporary procedure is an interim action to ensure technical specification compliance.

Long-term resolution of this issue is the installation of a design modification. The design modification separates the non-seismic portion of the common service loop to Radwaste and safety related portions of the CCW system. This separation eliminates the effect of a pipe break in the non-seismic portion of the system on the safety related portion. With no effect on the safety related portion during a pipe break, the CCW system remains operable. The design modification is scheduled for Refueling Outage 19 (Fall 2012).

SAFETY SIGNIFICANCE

The CCW System provides a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient. During normal operation, the CCW System also provides this function for various nonessential components, as well as the spent fuel storage pool. The CCW System serves as a barrier to the release of radioactive byproducts between potentially radioactive systems and the Essential Service Water System, and thus to the environment.

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The safety significance for this issue is low. When one train of CCW is aligned to Radwaste, the likelihood is low for an event that would cause a break in Radwaste that would make the CCW train inoperable. In this case, a second train of CCW is available and operable.

Also, during the short period of time when both trains of CCW are aligned to Radwaste, the likelihood is low for an event that would cause a break in Radwaste.

OPERATING EXPERIENCE/PREVIOUS EVENTS

None