

June 20, 2005

NRC-05-076 10 CFR 50.73

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

Kewaunee Nuclear Power Plant Docket 50-305 License No. DPR-43

Reportable Occurrence 2005-008-00

In accordance with the requirements of 10 CFR 50.73, "Licensee Event Report System," the enclosed Licensee Event Report (LER) for reportable occurrence 2005-008-00 is being submitted.

This letter contains no new commitments and no revisions to existing commitments.

Michael G. Caffney

Site Vice President, Kewaunee Nuclear Power Plant Nuclear Management Company, LLC

Enclosure (1)

cc: Administrator, Region III, USNRC Project Manager, Kewaunee, USNRC Resident Inspector, Kewaunee, USNRC INPO Records Center

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ENCLOSURE 1

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LICENSEE EVENT REPORT (LER) 2005-008-00

3 pages follow

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION					APPROVED BY OMB NO. 3150-0104					EXPI	RES 6-30-2007						
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 infocollects@rrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0066), 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.										
FACILITY NAME (1)							DOCKET NUMBER (2)						PAGE (3)				
Kewaunee Nuclear Power Plant							05000305					1 of 3					
TITLE (4) Turbine-	Driven Au	xiliary I	Feedwa	iter Pump In	oper	able	Due	to	Insuffi	cie	nt Net Pos	itive St	uctio	on He	ad		
EVENT DATE (5) LER NUMBER (6) RF						EPORT DATE (7) OTHER F				OTHER FA	CILITIES INVOLVED (8)						
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OPERATING THIS REPORT IS SUBMITTED							PURS	PURSUANT TO THE REQUIREMENTS OF 10 CFR []: (Check all that apply) (11)							oply) (11)		
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driven a	uxiliary fe	eedwa	ter pu	mp would h	nave	bee	en re	enc	dered	inc	perable	due to	ins	uffici	ent n	et positive	

driven auxiliary feedwater pump would have been rendered inoperable due to insufficient net positive suction head following a postulated main steam line break event. Consequently, for greater than the past three years, plant Technical Specifications have not been met for having the turbine-driven auxiliary feedwater train operable with the reactor coolant system heated >350 degrees F. This is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications. The cause of the occurrence is an original system design error. Previous calculations and testing that were performed for auxiliary feedwater flow would be provided by the turbine-driven AFW pump without due consideration of all suction head parameter concerns. Auxiliary feedwater system changes, including suction pressure protection, revised discharge pressure switch settings, and procedure changes are in progress to compensate for the design deficiency. This occurrence is deemed to have minimal safety significance and does not constitute a safety system functional failure.

NRC FORM 366A

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)		LER NUMBER (6)		PAGE (3)	
Kewaunee Nuclear Power Plant	05000305	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 3	
		2005	08	00		

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

EVENT DESCRIPTION

On April 20, 2005, with the plant in refueling shutdown mode, it was determined that the turbinedriven auxiliary feedwater (AFW) [BA] pump [P] would have been rendered inoperable due to insufficient net positive suction head (NPSH), following a postulated main steam line break (MSLB) event. Consequently, for greater than the past three years, plant Technical Specification 3.4.b.1.B has not been met for having the turbine-driven AFW train operable with the reactor coolant system (RCS) [AB] heated >350 degrees F.

EVENT ANALYSIS

During review of design information associated with a planned modification of the AFW system that will correct previously identified AFW system design deficiencies, it was determined that insufficient NPSH exists for each of the plant's three AFW pumps following a MSLB event. The insufficient NPSH results, in part, from the excessive flow (runout) condition of the AFW pumps, as they supply flow to the depressurized steam generator (SG) [SG].

For both the train A and train B motor-driven AFW pumps, the AFW pump discharge pressure switches [PS] would have caused a protective trip of the motor-driven pumps, prior to being rendered inoperable from damage due to low NPSH. Following action to isolate the faulted SG, the motor-driven AFW pumps could have been restarted, supplying flow to the intact SG for continued heat removal. After undergoing a protective trip from their discharge pressure switches, sufficient time is available to manually restart the motor-driven AFW pumps for continued heat removal, due to the inherent cooldown that occurs as the faulted SG blows down in a MSLB event.

However, for the turbine-driven AFW pump, the discharge pressure switch would likely not have caused a protective trip of the pump in time to prevent pump damage. Consequently, in responding to a postulated MSLB, the turbine-driven pump would have been rendered inoperable due to low NPSH.

SAFETY SIGNIFICANCE

This occurrence is deemed to have minimal safety significance and does not constitute a safety system functional failure. Only the turbine-driven AFW pump would have been rendered inoperable by the described condition. Since both of the redundant motor-driven AFW pump trains remained operable, the safety function of the AFW system in responding to a postulated MSLB event could have been met.

NRC FORM 366A

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		2005	08	00		

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CAUSE

The cause of the occurrence is an original system design error. Previous calculations and testing that were performed for AFW system response to a MSLB event were focused on ensuring that adequate AFW flow would be provided by the turbine-driven AFW pump without due consideration of all suction head parameter concerns.

CORRECTIVE ACTIONS

- AFW system design changes, including the addition of a low suction pressure trip feature for the AFW pump trains, revised discharge pressure trip settings and enhanced operating procedure guidance will be implemented to correct the low NPSH issue. These changes will be implemented prior to entering the Technical Specification applicability condition for AFW system operability, which is reactor coolant temperature >350 degrees F.
- 2. Extent of condition reviews continue to be performed regarding the original system design error in order to identify any additional concerns.

PREVIOUS SIMILAR EVENTS

LER 2005-002, Auxiliary Feedwater Pumps Assumed to Fail from Postulated Loss of Primary Water Source – Safe Shutdown and Accident Analysis Assumptions Not Assured – Inadequate Design of Pump Protective Equipment

LER 2005-006, Auxiliary Feedwater Pumps Postulated to Fail Due to Air Ingestion Through Pump Packing

LER 1997-001, NRC Inspection Identifies Two Potential Unreviewed Safety Questions and One Potential Inadequate TS