



SEP 01 2006

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

Serial No. 06-618  
KPS/LIC/MH:RO  
Docket No. 50-305  
License No. DPR-43

**DOMINION ENERGY KEWAUNEE, INC.**  
**KEWAUNEE POWER STATION**  
**LICENSEE EVENT REPORT 2005-012-02**

Dear Sirs:

Pursuant to 10 CFR 50.73, Dominion Energy Kewaunee, Inc., hereby submits the following Licensee Event Report applicable to Kewaunee Power Station.

Report No. 50-305/2005-012-02

This report has been reviewed by the Plant Operating Review Committee and will be forwarded to the Management Safety Review Committee for its review.

If you have any further questions, please contact Ms. Mary Jo Haese at (920) 388-8277.

Very truly yours,



Leslie N. Hartz  
Site Vice President, Kewaunee Power Station

Attachment

Commitments made by this letter: NONE

JE22

cc: Regional Administrator, Region III  
U.S. Nuclear Regulatory Commission  
2443 Warrenville Road  
Suite 210  
Lisle, IL 60532-4352

Mr. D. H. Jaffe  
Project Manager  
U.S. Nuclear Regulatory Commission  
Mail Stop O-7-D-1  
Washington, D. C. 20555

NRC Senior Resident Inspector  
Kewaunee Power Station

**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@nrc.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.

<b>FACILITY NAME (1)</b> Kewaunee Power Station	<b>DOCKET NUMBER (2)</b> 05000305	<b>PAGE (3)</b> 1 of 3
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**TITLE (4)**  
Residual Heat Removal Pump Run-out Upon Loss of Instrument Air While Aligned for Sump Recirculation

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
06	10	2005	2005	-- 012 --	02	09	01	2006	FACILITY NAME	DOCKET NUMBER	
<b>OPERATING MODE (9)</b>		<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR .: (Check all that apply) (11)</b>									
N		20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)	
<b>POWER LEVEL (10)</b>		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 Specify in Abstract below or in NRC Form 366A	
		20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)			
		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)			X 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)			

**LICENSEE CONTACT FOR THIS LER (12)**

<b>NAME</b> Mary Jo Haese - Licensing	<b>TELEPHONE NUMBER (Include Area Code)</b> (920) 388-8277
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**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

**SUPPLEMENTAL REPORT EXPECTED (14)**

YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO	<b>EXPECTED SUBMISSION DATE (15)</b>	MONTH	DAY	YEAR

**ABSTRACT**

On June 10, 2005 with the Kewaunee Power Station in refueling shutdown mode, a possible run-out condition of the residual heat removal (RHR) pumps was identified. The possible run-out condition exists upon loss of instrument air (IA) to the RHR flow control valves (RHR-8A (B)). These flow control valves are fail-open air operated valves that are not supplied by a safety related IA source. This issue would have been a concern if the internal containment spray (ICS) pump operation would be required during the post loss of coolant accident (LOCA) containment sump recirculation phase.

This is reportable in accordance with 10 CFR 50.73(a)(2)(vii) as a condition causing one independent train in multiple systems to become inoperable. The cause of this condition is inadequate consideration of component failure modes for the accident scenario of RHR supplying ICS while in containment sump recirculation. This resulted in a failure to recognize the consequences of the RHR-8A (B) valve failing open while ICS is being supplied from RHR during containment sump recirculation. Station procedures were revised to prevent aligning RHR to ICS for all design basis events. This report does not involve a safety system functional failure.

**LICENSEE EVENT REPORT (LER)**  
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Kewaunee Power Station	05000305	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 3
		2005	-- 012	-- 02	

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

**Event Description:**

On June 10, 2005 with the Kewaunee Power Station in refueling shutdown mode, a possible run-out condition of the residual heat removal (RHR) pumps [BP] [P] upon loss of instrument air (IA) [LD] to the RHR flow control valves (RHR-8A (B)) [FCV] was identified. These valves are fail-open air operated valves that are not supplied by a safety related IA source. This issue would have been a concern only if the internal containment spray (ICS) pump [BE] [P] operation had been required during the post loss of coolant accident (LOCA) containment sump recirculation phase.

At the time of discovery, the large break LOCA accident scenario with maximum safeguards available (2 trains emergency core cooling (ECCS) and spray running) may have required spray flow for 15 minutes or more after the refueling water storage tank (RWST) emptied. This would have required providing internal containment spray flow from the discharge of an RHR pump taking suction from the containment sump. System alignments were identified that may have led to RHR pump run-out if RHR-8A or RHR-8B had failed open due to loss of instrument air.

These alignments were not tested in preoperational testing, and no other test or calculation has been located to determine the RHR pump flow rate in this alignment. Reviews of test results and calculations indicate that RHR pump flow rates in these alignments could have reached or exceeded run-out conditions.

However, only one train of RHR would be aligned to provide internal containment spray flow. If the alignment results in run-out and failure of the RHR pump, the second train of RHR would be available, as it would not be aligned to internal containment spray.

**Event Analysis and Safety Significance:**

This is reportable in accordance with 10 CFR 50.73(a)(2)(vii) as a condition causing one independent train in multiple systems to become inoperable, specifically RHR and ICS.

KPS procedures in place at the time of discovery were reviewed to determine if RHR-8A and RHR-8B failing open would have prevented the accomplishment of the residual heat removal safety function. The review determined that only one train of RHR would have been lined up to a single ICS pump at any given time. Therefore, only one RHR pump could be subjected to a possible run-out condition. In addition, if one RHR pump had been incapacitated due to run-out, there was no procedural guidance that would have aligned the other RHR pump to ICS. Therefore, the failure of both RHR flow control valves only had the potential to incapacitate one RHR pump due to run-out.

This report does not involve a safety system functional failure.

**Cause:**

The cause of this condition is inadequate consideration of component failure modes for the accident scenario of RHR supplying ICS while in containment sump recirculation. This resulted in a failure to recognize the consequences of the RHR-8A(B) valve failing open while ICS is being supplied from RHR during containment sump recirculation.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
<b>Kewaunee Power Station</b>	<b>05000305</b>	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	<b>3 of 3</b>
		<b>2005</b>	<b>-- 012</b>	<b>-- 02</b>	

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

**Corrective Actions:**

1. Technical Specification TS 3.3.c.1.A.1.(ii) was changed (License Amendment 184) to delete the words "and from the containment sump" from the last sentence. This removed the requirement that the ICS pumps must be capable of taking suction from the containment sump.
  
2. Station procedures were revised to prevent aligning RHR to ICS for all design basis events. For some beyond design basis events, when multiple failures result in a challenge to containment integrity, RHR may still be aligned to ICS. Additional procedure changes were made to minimize the possibility of damage to RHR pumps due to run-out. Procedure changes include:
  - a. Verifying RHR-8A(B) are closed with a contingency action to not start ICS flow if RHR-8A(B) cannot be closed (due to a loss of IA).
  - b. Providing contingency actions that can be taken from the control room to reduce/stop ICS flow, i.e., stopping the ICS pump, if RHR pump cavitation or run-out conditions are observed after establishing ICS flow.

**Similar Events:**

None