

Dominion Energy Kewaunee, Inc.
N490 Highway 42, Kewaunee, WI 54216-9511



APR 01 2009

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Serial No. 09-211
LIC/JG/RO
Docket No.: 50-305
License No.: DPR-43

DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
LICENSEE EVENT REPORT 2009-003-00

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

Report No. 50-305/2009-003-00

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

If you have any further questions, please contact Mr. Jack Gadzala at (920) 388-8604.

Very truly yours,

Stephen E. Scace
Site Vice President, Kewaunee Power Station

Attachment(s)

Commitments made by this letter: NONE

JE22
NR

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

Mr. P. S. Tam
Sr. Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North, Mail Stop O8-H4A
11555 Rockville Pike
Rockville, MD 20852-2738

NRC Senior Resident Inspector
Kewaunee Power Station

NRC FORM 366 (9-2007)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB: NO. 3150-0104	EXPIRES: 08/31/2010
<h2 style="margin: 0;">LICENSEE EVENT REPORT (LER)</h2> <p style="margin: 0;">(See reverse for required number of digits/characters for each block)</p>		Estimated burden per response to comply with this mandatory collection request: 80 hrs. 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.	

1. FACILITY NAME Kewaunee Power Station	2. DOCKET NUMBER 05000305	3. PAGE 1 OF 4
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4. TITLE
Containment Spray Pump A Inoperable At Degraded Voltage Protection Setpoint

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
01	31	2009	2009	-- 003	- 00	04	01	2009	FACILITY NAME	

9. OPERATING MODE <p style="text-align: center; font-size: 2em;">N</p>	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: <i>(Check all that apply)</i> <table style="width:100%; font-size: small;"> <tr> <td><input type="checkbox"/> 20.2201(b)</td> <td><input type="checkbox"/> 20.2203(a)(3)(i)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(C)</td> <td><input type="checkbox"/> 50.73(a)(2)(vii)</td> </tr> <tr> <td><input type="checkbox"/> 20.2201(d)</td> <td><input type="checkbox"/> 20.2203(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(1)</td> <td><input type="checkbox"/> 20.2203(a)(4)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(B)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(i)</td> <td><input type="checkbox"/> 50.36(c)(1)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ix)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(ii)</td> <td><input type="checkbox"/> 50.36(c)(1)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iv)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(x)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iii)</td> <td><input type="checkbox"/> 50.36(c)(2)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(A)</td> <td><input type="checkbox"/> 73.71(a)(4)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iv)</td> <td><input type="checkbox"/> 50.46(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(B)</td> <td><input type="checkbox"/> 73.71(a)(5)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(v)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(C)</td> <td><input type="checkbox"/> OTHER</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(vi)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(D)</td> <td>Specify in Abstract below or in NRC Form 366A</td> </tr> </table>	<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 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 checked="" 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
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10. POWER LEVEL <p style="text-align: center; font-size: 2em;">100</p>																																					

12. LICENSEE CONTACT FOR THIS LER

NAME Michael J. Rosseau	TELEPHONE NUMBER (include Area Code) 920-388-8209
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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 <input type="checkbox"/> YES <i>(If yes, complete 15. EXPECTED SUBMISSION DATE)</i> <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE <table style="width:100%; font-size: small;"> <tr> <td style="width:33%;">MONTH</td> <td style="width:33%;">DAY</td> <td style="width:33%;">YEAR</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	MONTH	DAY	YEAR			
MONTH	DAY	YEAR					

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

On January 31, 2009, a Dominion Energy Kewaunee (DEK) engineering evaluation determined that at the allowed setpoint of the degraded voltage protection relay, the 1A containment spray pump could potentially trip. A postulated starting of the motor during the lowest voltage conditions possible at the relay setting could result in starting currents that are sufficiently high and last long enough to trip the motor's protective device. Consequently, automatic containment spray pump start to mitigate a design basis accident in accordance with the plant's safety analyses is not assured under all postulated conditions. Based on the potential to trip, the pump was declared inoperable. The containment spray pump breaker settings were adjusted and pump operability was restored.

Kewaunee Power Station (KPS) Technical Specifications (TS) 3.3, "Engineered Safety Features and Auxiliary Systems", requires that two containment spray trains be OPERABLE. The TS allows one containment spray train to be out of service for 72 hours provided the opposite containment spray train remains OPERABLE.

Since the settings were nonconservative since initial installation of the second level undervoltage relays, the 1A containment spray pump was inoperable for longer than the time allowed by TS. Therefore, this condition is being reported pursuant to 10 CFR 50.73(a)(2)(i)(B), as any operation or condition which was prohibited by the plant's TS.

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CONTINUATION SHEET**

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NARRATIVE

Event Description:

On January 31, 2009, a Dominion Energy Kewaunee (DEK) engineering evaluation determined that at the allowed setpoint of the degraded voltage protection relay [27], the 1A containment spray [BE] pump [P] could potentially trip. A postulated starting of the motor [MO] during the lowest voltage conditions possible at the relay setting could result in starting currents that are sufficiently high and last long enough to trip the motor's protective device [FU].

The evaluation was based on accident load sequencing, which starts the containment spray pump coincident with one containment fan coil unit [BK, FCU]. Due to the postulated initial low voltage and timing of motor starts, which temporarily depress voltage, individual acceleration of motor loads is lengthened. Spray pump 1A acceleration time would have been lengthened enough such that the large current drawn during acceleration could result in a time-current combination that challenged the protective device settings.

Consequently, automatic containment spray pump start to mitigate a design basis accident in accordance with the plant's safety analyses is not assured under all postulated conditions. Based on the nonconservative settings, the pump was declared inoperable.

Kewaunee Power Station (KPS) Technical Specifications (TS) 3.3, "Engineered Safety Features and Auxiliary Systems", provide operability requirements for the containment spray system.

TS 3.3.c.1.A.1 states:

Two containment spray trains are OPERABLE with each train comprised of:

- (i) ONE containment spray pump.

TS 3.3.c.1.A.3, which allows conditions of inoperability to exist during the time intervals specified, states:

One containment spray train may be out of service for 72 hours provided the opposite containment spray train remains OPERABLE.

Upon discovery that the settings were nonconservative, the containment spray pump breaker settings were adjusted and pump operability was restored within the time required by TS. Electrical bus [BU] distribution characteristics associated with the opposite train spray pump were sufficiently more conservative (with respect to degraded voltage) such that the existing setpoints were adequate to provide motor protection for the 1B pump and allow for pump start during the accident load sequencing. Therefore, the 1B spray pump was not affected by this condition.

The settings were nonconservative since initial installation of the second level undervoltage relays; therefore, the 1A containment spray pump was inoperable for longer than the time allowed by TS. Consequently, this condition is being reported pursuant to 10 CFR 50.73(a)(2)(i)(B), as any operation or condition which was prohibited by the plant's TS.

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Event and Safety Consequence Analysis:

The containment cooling function is provided by two systems: containment fan coil units and containment spray system. The containment fan coil units and containment spray system protect containment [NH] integrity by limiting the temperature and pressure that could be experienced following a Design Basis Accident. The Limiting Design Basis accidents relative to containment integrity are the loss-of-coolant accident and steam line break. During normal operation, the fan coil units are required to remove heat lost from equipment and piping within the containment. In the event of the Design Basis Accident, either of the following combinations will provide sufficient cooling to limit containment pressure to less than design values: four fan coil units or two fan coil units plus one containment spray pump.

The degraded voltage relays are provided for detecting a sustained degraded voltage condition on the electrical bus. The time delay associated with the degraded voltage relays ensures that engineered safeguards equipment operates within the time delay assumptions of the accident analyses. Degraded voltage conditions can result in motors failing to start due to blown control power fuses and/or protective device actuation caused by the large starting surge currents that develop when starting a motor under low voltage conditions.

The condition in which the containment spray pump's acceleration time could have challenged the protective device settings on accident sequencing existed only if the containment spray pump were to start coincidentally with the start of a containment fan coil unit. Therefore, during the times when both containment fan coil units were already running, the containment spray pump would have started appropriately without challenging its protective device settings. Additionally, neither the opposite train containment spray pump nor the containment fan coil units were impacted by this condition. Therefore, this condition did not constitute a safety system functional failure.

Additionally, the probability of a containment spray pump start being required to mitigate a design basis accident, coincident with the conditions needed to sufficiently depress voltage to actuate the pump motor's protective device, is very low. Therefore, there was minimal safety significance associated with this event.

Cause:

This condition appears to have been created by incompatible breaker settings following initial installation of the second level undervoltage protection relays. The cause of this condition was due to the difference in electrical distribution system installation attributes (e.g., length of interconnecting electrical cabling) for train A electrical distribution than for train B. These attributes allowed for a sufficiently lower voltage to be delivered to the A containment spray pump, such that the originally calculated settings were nonconservative.

Corrective Actions:

As immediate corrective action, the containment spray pump motor protective relay settings were adjusted to setpoints that were determined to provide appropriate protection. This restored pump operability.

As part of a broader corrective action for degraded grid voltage protection concerns in general, station electrical calculations were initiated to determine more accurate electrical distribution system performance characteristics and verify protective feature settings.

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Similar Events:

A review of Licensee Event Reports covering the past three years identified the following similar events.

LER 2007-007-00, Unexpected Safety Injection Response with Safeguards Buses Connected to the Reserve Auxiliary Transformer