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JUN 13 2012

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

Serial No. 12-413
LIC/NW/R0
Docket No.: 50-305
License No.: DPR-43

DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
LICENSEE EVENT REPORT 2012-003-00

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

Report No. 50-305/2012-003-00

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,

A. J. Jordan
Site Vice President, Kewaunee Power Station

Attachment(s)

Commitments made by this letter: NONE

IE22
NRR

cc: Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
2443 Warrenville Road
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Mr. K. D. Feintuch
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NRC Senior Resident Inspector
Kewaunee Power Station

NRC FORM 366 U.S. NUCLEAR REGULATORYCOMMISSION
(10-2010)

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013

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 FOIA/Privacy Service (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Kewaunee Power Station	05000305	1 OF 4

4. TITLE

Nuclear Instruments Inoperable for Longer Period Than Allowed by Technical Specifications

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
										05000
04	15	2012	2012	-- 003 --	00	06	13	2012	FACILITY NAME	05000

9. OPERATING MODE: NONE

10. POWER LEVEL: 0

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (*Check all that apply*)

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (*include Area Code*)
Patrick G Ehlen	(920) 388-8320

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
X	IG	CBL1	G077	Y						

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (*If yes, complete 15. EXPECTED SUBMISSION DATE*) ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On April 15, 2012, with the reactor defueled, "as found" pressure testing of the nuclear source and intermediate range detector cable for channels N31 and N35 identified a leak in the cable wall near a cable penetration connector. Leakage had previously been identified in this cable in April 2008; however, the source of the leakage was considered to have been from the connector interface (based on past experience). Therefore, the cable was determined to have been functional and the leakage was considered acceptable for continued operation. The April 15, 2012 test indicated that the 2008 leak had been incorrectly characterized. During subsequent activities to repair the leak, a second leak was identified in this cable.

Since the leakage was through the cable wall itself and not from the connector interface, the ability of the cable to function for an extended period in a post-accident environment could no longer be assured. Since there was no longer a reasonable basis for functionality, the cable was considered to have been nonfunctional since initial discovery of the leak in 2008. With the cable nonfunctional, the supported source and intermediate range neutron detectors were inoperable for a longer period than allowed by Technical Specifications. Thus, this event is being reported pursuant to 10 CFR 50.73(a)(2)(i)(B) for any operation or condition prohibited by the plant's Technical Specifications.

NARRATIVE

Event Description:

On April 15, 2012, with the reactor defueled, "as found" pressure testing of the nuclear source and intermediate range detector [IG] cable [CBL1] for channels N31 and N35 identified a leak in the cable wall near a cable penetration connector [CON]. Leakage had previously been identified in this cable in April 2008; however, the source of the leakage was considered to have been from the connector interface (based on vendor past experience). Therefore, the cable was determined to have been functional and the leakage was considered acceptable for continued operation.

The cable pressure testing that had been performed In 2008 was done in support of replacement activities for an o-ring [SEAL] in the cover for a junction box [JBX] associated with the nuclear instrumentation (NI)[IG] cable for source and intermediate range detectors N31 and N35. This pressure testing determined that the cable had a leak rate of 1.5 psi/minute. The vendor leak specification for pressure testing is less than 1.0 psi/10 minutes (with the cable pressurized to 40 psi).

The cable is not normally pressurized; it is only pressurized to periodically test its integrity to verify its environmental qualifications to withstand a post-accident (harsh) environment. The intent of the pressure test was to provide assurance for long-term cable health. Cable wall leakage could result in reduced cable life expectancy by allowing moisture intrusion that could make the detector signal more susceptible to noise. A review of internal operating experience and work history had revealed no unresolved noise-related problems with either N31 or N35. Additionally, all special electrical cable testing was satisfactory. Past experience indicated that the type of leakage that was identified during the 2008 leak test was indicative of cable connector leakage; no effort was made to identify the specific leak location. Therefore, the assessment of the cable performed in 2008 determined it to be functional.

The NI system monitors the neutron flux level outside the reactor. The system includes two source range channels, two intermediate range channels, and four power range channels. The intermediate range overlaps both the source and power ranges and meets accident monitoring requirements of NRC Regulatory Guide RG-1.97. One source and one intermediate range channel was impacted by this cable leak.

Technical Specifications (TS) require source and intermediate range nuclear instrumentation as follows.

TS 3.3.1, Reactor Protection System (RPS) Instrumentation, requires the following:

Two channels measuring source range neutron flux in MODES 2, 3, 4, and 5.

Two channels measuring intermediate neutron flux in MODES 1 and 2.

TS 3.3.3 Post Accident Monitoring (PAM) Instrumentation, requires the following:

Two channels measuring intermediate range neutron flux in MODES 1, 2, and 3.

TS 3.9.2 Nuclear Instrumentation (for Refueling Operations) requires the following:

Two source range neutron flux monitors shall be operable in MODE 6.

The original cable leak from 2008 was not properly characterized until April 15, 2012, during the "as found" pressure testing in preparation for repair activities (at which time the leak was identified to be through the cable wall rather than at the cable connector). During post-maintenance testing following repair of the initial cable wall leak, additional leakage through the cable wall was identified.

Since the leakage was through the cable wall itself and not from the connector interface, the ability of the cable to function for an extended period in a post-accident environment could no longer be assured. Since there was no longer a reasonable basis for functionality, the cable was conservatively considered to have been nonfunctional since initial discovery of the leak in 2008. With the cable nonfunctional, the supported source and intermediate range neutron detectors were inoperable for a longer period than allowed by Technical Specifications. Thus, this event is being reported pursuant to 10 CFR 50.73(a)(2)(i)(B) for any operation or condition prohibited by the plant's Technical Specifications.

Event and Safety Consequence Analysis:

Intermediate range neutron flux indication is used for post accident monitoring (PAM), as required by TS 3.3.3. This indication is a non-Type A, Category 1 variable, which is provided to verify reactor shutdown. The intermediate range covers the full range of flux that may occur post accident. Neutron flux is used for accident diagnosis, verification of subcriticality, and diagnosis of positive reactivity insertion. As a non-Type A variable, intermediate range neutron flux indication assists operators in minimizing consequences of accidents. However, the second channel remained Operable and alternate means of providing required information to operators was available. TS 3.3.3, Condition B, requires submitting a report, in accordance with TS 5.6.4 (PAM Report), if one required PAM channel is inoperable in excess of 30 days. This report was not submitted for intermediate range neutron flux indication N35 (since the condition was not recognized).

The condition of the NI cable did not impact NI Operability during conditions of normal plant operation. The cable would only have become degraded under extended post-accident (harsh) conditions. Therefore, this condition would likely have impacted the ability to monitor source and intermediate neutron flux only in the latter (recovery) stages following a design basis accident (DBA), when the reactor has been shut down with control rods inserted.

Since a postulated accident capable of degrading the cable cannot occur in MODE 6, the cable remained functional (and the associated NI remained Operable) for purposes of meeting TS 3.9.2 (which is only applicable in MODE 6).

The purpose of the RPS is to initiate a reactor shutdown so as to maintain safety limits during all anticipated operational occurrences and mitigate the consequences of design basis accidents. The intermediate range neutron flux trip is only required in MODES 1 and 2. Following a DBA, the unit will not be in either of these two MODES. Therefore, the cable remained functional (and the associated NI remained Operable) for purposes of intermediate range NI meeting TS 3.3.1.

The source range neutron flux trip is required in MODES 2 through 5. This Function ensures that protection is provided against an uncontrolled rod withdrawal accident from a subcritical condition during startup. This trip Function provides redundant protection to the Power Range Neutron Flux - Low trip Function. In MODES 3, 4, and 5, administrative controls also prevent the uncontrolled withdrawal of rods. The NI source range detectors do not provide any inputs to control systems. This Function also provides protection for boron dilution and control rod ejection events. In MODES 3, 4, and 5 with all rods fully inserted and the rod

control system not capable of rod withdrawal, and in MODE 6, the outputs of the Function to RPS logic are not required Operable. The cable would not have degraded sufficiently to preclude it from performing its function in response to these events. Therefore, the cable remained functional (and the associated NI remained Operable) for purposes of source range NI meeting TS 3.3.1.

Based on the above, there was minimal safety consequence associated with this condition.

Cause:

The cable leakage was due to breaching of the stainless steel flexible hose that protects the detector cable.

This condition was mischaracterized in 2008 as a cable connector leak due to reliance on vender operating experience that indicated the observed leakage was typical of cable connector leaks. Consequently, no additional evaluation was performed.

Corrective Actions:

This condition was identified with the reactor defueled (when the cable and its associated detectors were not required).

As immediate corrective action, a MODE change restraint was implemented to prevent entry into MODE 6 until cable repairs were completed and compliance with TS LCO 3.9.2 (requiring two source range neutron flux monitors to be operable) was met.

The N31 and N35 cable assembly was replaced, thereby eliminating the leakage and restoring the associated detectors to Operable status.

Similar Events:

A review of Licensee Event Reports covering the previous three years did not identify any similar events.