September 20, 2004

NRC-04-107
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 2004-002-00

In accordance with the requirements of 10 CFR 50.73, "Licensee Event Report System", the enclosed Licensee Event Report (LER) for reportable occurrence 2004-002-00 is being submitted.

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

Thomas Coutu

Thomas Coutu
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

IE22

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 6-30-2007

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.

LICENSEE EVENT REPORT (LER)

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

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TITLE (4)

Missed Technical Specification Surveillance for Leak Testing In-Core Detectors Prior to Use or Transfer, Due to Inadequate Procedural Guidance

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
07	21	2004	2004	-- 002 --	00	09	20	2004	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N
POWER LEVEL (10)	100

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

	20.2201(b)		20.2203(a)(3)(ii)		50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)
	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)	X	50.73(a)(2)(i)(B)		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)

NAME	TELEPHONE NUMBER (Include Area Code)
Bart Steckler	(920) 388-8271

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

ABSTRACT

On July 21, 2004, while the plant was operating at full power, Nuclear Management Company (NMC) personnel determined that the Kewaunee Nuclear Power Plant had missed a surveillance required by Technical Specifications (TS). Specifically, the requirements of TS, Sections 4.13.b and e, were not met. Section 4.13, "Radioactive Materials Sources," in part, requires sources be leak tested in accordance with TS, and sources in storage, not being used and exempt from periodic leak testing shall have a current leak test prior to use or transfer to another licensee.

Contrary to TS and based on review of plant records from 1973 through 2004, leak tests were not performed on 13 new in-core detector sources prior to being put into use, or shipped to another licensed facility. The cause for the missed surveillance was inadequate procedural guidance providing instructions to have required leak tests performed on in-core detectors. Procedure changes to the applicable procedures have been initiated to ensure required leak tests are performed in the future. NMC personnel will also contact licensees that received any in-core detectors that had not been leak tested to determine the scope of any additional corrective action needed to ensure regulatory requirement compliance.

The safety significance of failing to complete leak tests required by TS is minimal. Historical radiological survey data, which includes the areas where the detectors may have been stored, or placed for processing, show no evidence of byproduct material expected from a leaking in-core detector.

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

Event Description:

On July 21, 2004, while the plant was operating at full power, Nuclear Management Company (NMC) personnel determined that the Kewaunee Nuclear Power Plant (KNPP) had missed a surveillance required by Technical Specifications (TS). Specifically, the requirements of TS, Sections 4.13.b and e, were not met. Section 4.13, "Radioactive Materials Sources," subsections b and e, read as follows:

b. Sources which contain by-product material that exceeds the quantities listed in 10 CFR 30.71, Schedule B, and all other sources containing > 0.1 microcuries shall be leak tested in accordance with this TS.
e. Sources specified by TS 4.13.b which are in storage and not being used are exempt from the testing of TS 4.13.d. Prior to use or transfer to another licensee of such a source, the leakage test of TS 4.13.d shall be current.

Contrary to the TS, and based on a review of plant records from 1973 through 2004, leak tests were found not to have been performed on 13 detectors [DET] with greater than 0.1 microcuries (uCi) activity, prior to being put into use or shipped to another licensed facility.

On January 30, 2004, a Corrective Action Program (CAP) document #19783 was issued at KNPP. The Cap was issued based on an industry operating experience (OE) event; a Traversing Incore Probe (TIP) detector was transferred between two licensee facilities without leak test documentation. The CAP was written to perform a review of this OE item for applicability at KNPP. The initial evaluation, performed by the plant Health Physics (HP) Group, questioned the clarity and understanding of TS 4.13, related to fission detectors. There was a question raised on the mechanism used at KNPP to prompt the initiation of leakage testing of fission detectors prior to transfer or prior to installing them in the reactor core. The plant warehouse process requests suppliers of radioactive material to mark packages to notify HP upon receipt. This would not necessarily prompt HP to do a leak test, but rather to perform a general package survey.

The Reactor Engineering (RE) Group was assigned to perform an evaluation of the issue in accordance with corrective action OTH 15150, a sub-task of CAP 19783. It was subsequently determined that required leak tests of in-core fission chamber detectors, prior to being put into use or subjected to core flux, were not performed per TS 4.13. This was determined by reviewing records of Surveillance Procedure (SP) 80-005 (Radioactive Source Inventory and Leak Testing Requirements) for the past five years.

Work Orders (WOs) for two replacement in-core detectors were reviewed under the OE CAP. No documentation was found to indicate that a leakage test was performed on the detectors. The evaluation efforts also did not indicate any missed TS leak tests (surveillance) regarding transfer of in-core detectors to another licensee.

HP performed a review of procedure SP-80-005. Two steps were identified that reference the need to leak test sources in storage prior to use or transfer to another licensee. Also, Technical Specification 4.13 is listed in the reference section.

A review of past plant documentation revealed a similar issue captured in the former KNPP corrective action program in January 1994 as incident report (IR) 94-017. This report discussed in-core detectors not being

leak tested prior to being put into use. The correct conclusion from IR 94-017 was that the in-core detectors evaluated at the time were less than 0.1 uCi. Therefore, no missed surveillance occurred at that time in that the requirements of the TS did not apply.

A review was conducted of purchase order receipts as early as 1974. According to these records, 59 in-core detectors were identified as being received. 46 of the in-core detectors were less than 0.1 uCi. Three of the receipts in 1984, 1985, and 1992 list the curie content of 13 in-core detectors as 0.25 uCi each.

There are currently three in-core detectors stored in the warehouse:

- M3222, received on September 7, 1993, curie content unknown.
- 95S01151, received on December 18, 1995, curie content 0.37 uCi.
- 032205, received on January 14, 2004, curie content 0.31 uCi. This detector has been leak tested, and no leakage was detected.

A review of the Special Nuclear Materials (SNM) Records Ledger maintained by Reactor Engineering was conducted. The data indicated that KNPP had received 79 in-core detectors since 1974. Comparing the receipt information against the SNM Records Ledger the following was identified:

- 1984 – The two detectors received with 0.25 uCi activity each, were put into use.
- 1985 – The eight detectors received with 0.25 uCi activity each, were put into use.
- 1992 – The three detectors received with 0.25 uCi activity each, were shipped to another licensed facility.

A review of SP 80-005 records from 1973 through 2004 found no leak tests performed on the in-core detectors.

Based on the above investigation and evaluation, it was verified on July 21, 2004 that 13 in-core detectors with greater than 0.1 uCi activity had either been put into use or transferred to another licensee without TS required leak tests having been performed.

An extent-of-condition review was performed relative to leak testing other radioactive sources at KNPP. This review took into account other fission chambers, calibration sources, and check sources. Three ex-core detectors were received in 1991. All three had material curie content levels greater than 0.1 uCI, they were appropriately leak tested, and no leakage was detected.

Event Analysis:

This event is reportable in accordance with 10CFR50.73 (a)(2)(i)(B); Any operation or condition which was prohibited by the plant's Technical Specifications.

Safety Significance:

The basis for the required surveillance discussed in the KNPP Technical Specifications, is the postulated ingestion or inhalation of source material resulting in whole body or organ irradiation. The in-core detectors contain uranium, which emits an alpha particle upon decay. Historically, area radiological surveys throughout the plant have detected no alpha contamination. Area surveys include the plant warehouse, where the in-core detectors are stored, and the area of the seal [SEAL] table in the reactor building containment [NH] where the detectors are installed. Therefore, the potential of ingestion or inhalation or source material having occurred is not likely. Consequently, the safety significance of this occurrence is minimal.

Cause:

The cause for the missed surveillance was inadequate receiving process and controlling procedure guidance. Existing instructions to have leak tests performed on in-core detectors prior to use or transfer to another licensed facility were not sufficiently comprehensive to ensure TS compliance.

Corrective Actions:

1. Actions that have been completed:

    a. A temporary procedure change was made to procedure RE-05 (In-core Instrumentation Periodic Hardware Maintenance). A step was added to ensure in-core detectors are leak tested by Health Physics before being installed.

    b. A temporary procedure change was made to procedure RE-24 (Special Nuclear Material Control). A step was added to ensure any non-irradiated fission chamber detector have a leakage test performed before being shipped to another licensee.

    c. This issue and associated lessons-learned were presented and discussed in-detail at the June 30, 2004 Radiation Protection group meeting.

    d. Instructions were placed in the fission chamber stock requisition request item description section to advise Reactor Engineering, upon receipt of detectors, prior to transferring to another licensee or installing detector in the plant, they must be leak tested per TS 4.13.

2. Actions that will be taken:

    a. NMC will contact the licensees that received any in-core detectors with greater than 0.1 uCi that had not been leak tested to determine the scope of any additional corrective actions needed to ensure regulatory compliance.

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b. Detectors M3222 and 95S01151 in the warehouse will be leak tested prior to being placed into the reactor, or prior to shipment to another location, as applicable.

c. An effectiveness review of the process by which the sources are leak tested per Technical Specification Requirements will be performed by the KNPP Nuclear Oversight organization.

d. Permanent procedure changes consistent with the temporary changes described will be completed.

Previous Similar Events:

None.