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 FACIL: 50-305 Kewaunee Nuclear Power Plant, Wisconsin Public Service 05000305
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-010-00: on 890413, improper detector installation & loose electrical connection cause actuations. w/8 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Kewaunee Nuclear Power Plant						DOCKET NUMBER (2) 05000305			PAGE (3) 1 OF 03		
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TITLE (4) Improper Detector Installation and a Loose Electrical Connection Cause Two Separate Actuations of Steam Generator Blowdown Isolation (An ESF System)

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES NA		DOCKET NUMBER (8)
04	13	89	89	010	00	05	15	89			05000

OPERATING MODE (9) N

POWER LEVEL (10) 038

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

20.402(b)	<input type="checkbox"/>	20.408(a)	<input checked="" type="checkbox"/>	80.73(a)(2)(iv)	<input type="checkbox"/>	73.71(b)	<input type="checkbox"/>
20.408(a)(1)(iii)	<input type="checkbox"/>	80.38(a)(1)	<input type="checkbox"/>	80.73(a)(2)(v)	<input type="checkbox"/>	73.71(e)	<input type="checkbox"/>
20.408(a)(1)(iv)	<input type="checkbox"/>	80.38(a)(2)	<input type="checkbox"/>	80.73(a)(2)(vi)	<input type="checkbox"/>	OTHER (Specify in Abstract below and in Text, NRC Form 305A)	
20.408(a)(1)(v)	<input type="checkbox"/>	80.73(a)(2)(i)	<input type="checkbox"/>	80.73(a)(2)(vii)(A)	<input type="checkbox"/>		
20.408(a)(1)(vi)	<input type="checkbox"/>	80.73(a)(2)(ii)	<input type="checkbox"/>	80.73(a)(2)(vii)(B)	<input type="checkbox"/>		
20.408(a)(1)(vii)	<input type="checkbox"/>	80.73(a)(2)(iii)	<input type="checkbox"/>	80.73(a)(2)(viii)	<input type="checkbox"/>		

LICENSEE CONTACT FOR THIS LER (12)

NAME Thomas J. Webb - Plant Nuclear Engineer		TELEPHONE NUMBER	
		AREA CODE 414	388-2560

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS										
B	I	L	D	E	T		T	1	6	1	Y								

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15) NA

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On April 13, 1989, and April 14, 1989, at 1440 and 2114 respectively, with the reactor at 38% power, the condenser air ejector radiation monitor (R-15) spiked above its high alarm setpoint. As designed, the high alarm signal closed the steam generator blowdown isolation valves and steam generator blowdown sample isolation valves.

The actuation on April 13 occurred as the result of a detector failure. The detector failed because it was improperly installed in the detector mounting assembly. This allowed moisture to slowly intrude into the mounting assembly and corrode the detector's electrical contacts. The actuation on April 14 was caused by a faulty electrical connection between the detector cable and the control room drawer for R-15.

In order to return the monitor to service the detector was replaced and the faulty electrical connection was re-terminated. To prevent recurrence of these actuations, the procedure for installing the detector will be revised. Furthermore, alternate electrical termination designs will be considered as part of Kewaunee's existing design review of radiation monitors.

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FACILITY NAME (1) Kewaunee Nuclear Power Plant	DOCKET NUMBER (2) 05000305	LER NUMBER (3)			PAGE (3)		
		YEAR 89	SEQUENTIAL NUMBER 010	REVISION NUMBER 00			
					02	OF	03

TEXT (If more space is required, use additional NRC Form 388A (17))

Description of Event

This report describes two separate but related engineered safety feature (ESF) actuations. On April 13, 1989 at 1440 and on April 14, 1989 at 2114, with the reactor at approximately 38% power, the condenser [COND] air ejector radiation monitor [IL] (R-15) spiked above its high alarm setpoint of 700 counts per minute (CPM) and then returned to normal. A few minutes after the monitor returned to normal on April 13, it failed low. As designed the high radiation signal on R-15 closed the following valves:

1. the steam generator [SG] blowdown (SGBD) isolation valves [ISV] (BT-2A, BT-2B, BT-3A, and BT-3B),
2. the SGBD sample isolation valves [SMV] (BT-31A, BT-31B, BT-32A, and BT-32B),
3. the humidification supply valve [V] to the warehouse/annex building (HS-17-1).

When R-15 actuated, the operators immediately implemented operating procedure A-RM-45 "High Activity Radiation Monitoring System". In accordance with the procedure, the operators verified that all automatic actuations occurred as designed and requested that the Radiation Protection Group sample the air ejector. The analyses of the samples determined that the activity levels were below the minimum detectable. As a result R-15 was declared inoperable and work requests were initiated after each event to investigate and repair the monitor.

Cause of Event

The actuation on April 13 was caused by improper detector installation. Apparently when the detector was installed in July of 1988 a set screw in the detector mounting assembly was not properly tightened. This resulted in the detector being inserted further into the assembly than designed. As a consequence, the gasket between the detector and the detector mounting assembly became deformed and allowed moisture to slowly intrude into the mounting assembly. The moisture corroded the detector's electrical contacts which resulted in this failure. The detector is a TGM Detector Inc. Geiger-Mueller tube, part number N107-HT-E.

The actuation on April 14 was caused by a loose electrical connection in the control room drawer for R-15. Maintenance activities which required the drawer to be opened and closed several times during the previous day caused the connection between the detector cable and the drawer to become loose.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) Kewaunee Nuclear Power Plant	DOCKET NUMBER (2) 0 5 0 0 0 3 0 5	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 9	- 0 1 0	- 0 0	0 3	OF 0 3

TEXT (if more space is required, use additional NRC Form 366A's) (17)

Analysis of Event

This report is being submitted in accordance with 10 CFR 50.73(a)(2)(iv) as an actuation of the steam generator blowdown isolation valves and the steam generator blowdown sample isolation valves, which are engineered safety features. The valves are considered engineered safety features because they receive a signal to close when an auxiliary feedwater pump receives a start signal. The valves are required to close on an auxiliary pump start to ensure steam generator inventory post accident. These events were also reported in accordance with 10 CFR 50.72(b)(2)(ii) on April 13, 1989, at 1548 and on April 14, 1989 at 2316 respectively.

Since the SGBD isolation valves and the SGBD sample isolation valves closed as designed when R-15 exceeded its setpoint, there were no safety implications associated with these events.

Corrective Actions

The detector was replaced on April 14, 1989, as a result of the failure that occurred on April 13, 1989. To prevent recurrence of this event, the procedure for installing the detector will be revised to ensure that the set screw is properly tightened during detector installation. Furthermore, training on the proper installation of this detector will be provided to Instrument and Control personnel.

The monitor was returned to service following the failure on April 14, after the loose electrical connection was re-seated. To prevent recurrence of this event, alternate connection designs will be considered. This evaluation will be performed as part of the existing design review of the entire radiation monitoring system at the Kewaunee plant.

Both of these actuations were discussed with Instrument and Control personnel during a training session of April 27, 1989.

Additional Information

Equipment Failure: Detector: GM tube manufactured by TGM Detection Inc. part number N107-HT-E.

Similar Events: None



WISCONSIN PUBLIC SERVICE CORPORATION

600 North Adams • P.O. Box 19002 • Green Bay, WI 54307-9002

May 15, 1989

10 CFR 50.73

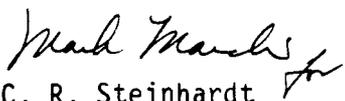
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Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Reportable Occurrence 89-010-00

The attached Licensee Event Report for reportable occurrence 89-010-00 is being submitted in accordance with the requirements of 10 CFR 50.73, "Licensee Event Report System."

Sincerely,


C. R. Steinhardt
Manager - Nuclear Power

PMF/jms

Attach.

cc - INPO Records Center
Mr. Robert Nelson
US NRC, Region III

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