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REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9002130387 DOC. DATE: 90/02/06 NOTARIZED: NO DOCKET #
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light Co 05000250
 AUTH. NAME AUTHOR AFFILIATION
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-001-00: on 900112, liquid effluent process radiation
 monitor R-18 inoperable during liquid release. W/8 ltr.

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	NRR/DET/EMEB9H3	1 1	NRR/DET/ESGB 8D	1 1
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FPL

P.O. Box 14000, Juno Beach, FL 33408-0420

FEB 06 1990

L-90-48
10 CFR 50.73


U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Units 3 and 4
Docket No. 50-250 and 50-251
Reportable Event: 90-001
Date of Event: January 12, 1990
Liquid Effluent Process Radiation Monitor
R-18 Inoperable During a Liquid Release Due
to a Control Circuit Malfunction

The attached Licensee Event Report is being submitted pursuant to the requirements of 10 CFR 50.73 to provide notification of the subject event.

Very truly yours,


K. N. Harris
Vice President
Turkey Point Plant Nuclear

KNH/JEC/DRP/DWH/rat

cc: Stewart D. Ebnetter, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Turkey Point Units 3 and 4										DOCKET NUMBER (2) 0 5 0 0 0 2 5 0										PAGE (3) 1 OF 0 4																													
TITLE (4) Liquid Effluent Process Radiation Monitor R-18 Inoperable During A Liquid Release Due To A Control Circuit Malfunction																																																	
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										DOCKET NUMBER(S)												
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POWER LEVEL (10) 1 0 10										20.402(b)										20.406(e)										50.73(a)(2)(iv)										73.71(b)									
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LICENSEE CONTACT FOR THIS LER (12)																																																	
NAME David R. Powell, Regulation and Compliance Supervisor																				TELEPHONE NUMBER AREA CODE 3 0 5 2 4 6 - 6 5 5 9																													
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																	
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At 1043, on January 12, 1990, with Unit 3 in Mode 1 at 100 percent power and Unit 4 in Mode 4 (Hot Shutdown), a Reactor Control Operator (RCO) noted at the end of a release that the liquid effluent Process Radiation Monitor (PRM R-18) channel had failed. The ratemeter did not have display indication, the associated chart recorder was off scale high, no alarm conditions existed, and automatic closure of control valve RCV-018 had not occurred. A similar event occurred on December 22, 1989. FPL believes the Central Processing Unit (CPU) located on a card in the rate-meter locked-up. The CPU controls the PRM R-18 channel display, the recorder output, and alarm functions. Malfunction of the CPU may have affected the ability to cause automatic closure of the liquid effluent release path control valve upon reaching the predetermined alarm setpoint. Cognitive error by licensed utility personnel contributed to these events. Failure to frequently monitor the PRM R-18 channel during a release is not in accordance with Operating Procedure OP 5163.2; however, FPL believes that the PRM R-18 channel alarm setpoint was not reached during the releases. A review of Technical Specification (TS) Table 3.9-2, Item 1.a concluded that both events are reportable. The low voltage power supply, processor card, timer card, and limit switch card were replaced. The replaced cards have been returned to the vendor.

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

DESCRIPTION OF THE EVENT

At 1043, on January 12, 1990, with Unit 3 in Mode 1 (Power Operation) at 100 percent power and Unit 4 in Mode 4 (Hot Shutdown: average reactor coolant temperature between 200 degrees F and 350 degrees F), a release of the B Monitor Tank to the environment was completed. Upon termination, a Reactor Control Operator (RCO) noticed the following: the liquid effluent Process Radiation Monitor (PRM R-18) (EIIIS:IL, Component:MON) channel did not have ratemeter display indication, the associated chart recorder was off scale high, no alarm conditions existed and automatic closure of liquid effluent release path control valve RCV-018 had not occurred. A review of the PRM R-18 channel ratemeter signal output to the chart recorder indicated that display functions failed at approximately 0957. The PRM R-18 channel was demonstrated to be operable prior to initiation of the release at 0905, as required by Operating Procedure OP 5163.2, "Waste Disposal System - Controlled Liquid Release to the Circulating Water System."

At 1433, on January 12, 1990, the NRC was notified of the above event pursuant to 10CFR50.72(b)(2)(iii)(C).

The PRM R-18 channel continuously monitors liquid effluent releases from Turkey Point Units 3 and 4. Automatic valve closure is initiated by this monitoring channel to stop the release after exceeding a predetermined alarm setpoint or upon loss of power.

Technical Specification (TS) Table 3.9-2, Item 1.a, requires the liquid radwaste effluent line gross radioactivity monitor providing automatic termination of release (PRM R-18) to be operable during effluent releases. With PRM R-18 inoperable, liquid effluent releases may continue provided that prior to initiating a release:

1. At least two independent samples are analyzed and;
2. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valving (one performs, one verifies);

Otherwise, suspend release of radioactive effluents via this pathway.

An earlier failure of the PRM R-18 channel was noticed at 1350, on December 22, 1989, during release of the A Waste Monitor Tank. The symptoms noticed at the end of this earlier release were identical to those noticed during the January 12, 1990 event. The PRM R-18 channel had been demonstrated to be operable prior to initiation of the release at 1304, as required by Operating Procedure OP 5163.2. A review of the PRM R-18 channel ratemeter signal output to the chart recorder indicates that the display functions failed at approximately 1305. Verification that the release had been terminated was interpreted as meeting the conditions of TS 3.9-2, Item 1.a. The ribbon cable connector to the PRM R-18 channel ratemeter was cleaned and tightened. No further investigation into the cause of the noticed symptoms was performed.

FACILITY NAME (1): Turkey Point Units 3 and 4	DOCKET NUMBER (2): 0 5 0 0 0 2 5 0	LER NUMBER (6): <table border="1"> <tr> <td>0</td><td>9</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>3</td> </tr> </table>	0	9	0	0	1	0	0	0	3	PAGE (3): OF 0 4
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TEXT: If more space is required use additional NRC Form 366A's. 17

CAUSE OF THE EVENT

The PRM R-18 channel failure could not be duplicated during bench testing of the microprocessor based ratemeter/controller components. FPL believes the Central Processing Unit (CPU) located on a card in the microprocessor based ratemeter/controller locked-up. The CPU controls the PRM R-18 channel display, the recorder output, and alarm functions. The alarm functions, in turn, initiate automatic closure of the in-line liquid effluent release path control valve (RCV-018). Malfunction of the CPU may have affected the ability to cause automatic closure of RCV-018 upon reaching the PRM R-18 channel predetermined alarm setpoint. The replaced PRM R-18 channel microprocessor based ratemeter/controller cards will be evaluated by the vendor (Nuclear Research Corp.).

Cognitive errors by licensed utility personnel contributed to these events. Operating Procedure OP 5163.2, Step 4.2, Precautions and Limits, requires the PRM R-18 channel to be frequently observed during a release to be assured that countrate is not approaching the setpoint stated on the liquid release permit. Section 8.0, Instructions, contains requirements for the Auxiliary Building operator to request the RCO to periodically monitor the PRM R-18 channel and notify him if the indication approaches the alarm setpoint. An unmonitored release condition lasted for approximately 46 minutes on January 12, 1990 and for approximately 45 minutes on December 22, 1989. In both events, the failed PRM R-18 channel condition was not discovered until the end of the release.

ANALYSIS OF THE EVENT

A sample of the remaining tank contents determined that radioactivity concentrations were lower than at initiation of the release for both events. Because of this, FPL believes the PRM R-18 channel alarm setpoints were not reached. Additionally, the radioactivity concentrations released were within the limiting combined Maximum Permissible Concentrations (MPC) allowed by 10CFR20, Appendix B, at the release point when averaged over a time period of one hour.

CORRECTIVE ACTIONS

1. An On The Spot Change (OTSC) has been generated against Operating Procedure OP 5163.2, "Waste Disposal System - Controlled Liquid Release to the Circulating Water System," which requires the RCO to record PRM R-18 channel readings on the Liquid Release Permit every 15 minutes during a liquid effluent release.
2. An On The Spot Change (OTSC) has been generated against Nuclear Chemistry procedure NC-44, "Preparation of a Liquid Release Permit," which revises the Liquid Release Permit form to require the recording of PRM R-18 channel readings at 15 minute intervals.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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3. The low voltage power supply, processor card, timer card and limit switch card were replaced. The PRM R-18 channel tested satisfactorily and was returned to service.
4. The replaced cards have been returned to the vendor (Nuclear Research Corp.) for evaluation. The evaluation should be completed by February 28, 1990. If the cause for the PRM R-18 channel failure differs significantly from the suspected failure mechanism or if additional corrective actions are required of FPL, a supplemental Licensee Event Report will be submitted.

ADDITIONAL INFORMATION

The PRM R-18 microprocessor based ratemeter/controller is a Model DRM-200 RemRad monitoring system manufactured by Nuclear Research Corporation (NRC) Industries.

No similar Licensee Event Reports have been submitted for Turkey Point Unit 3 or 4.