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July 1, 2010
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U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Re: Turkey Point Unit 3
Docket Nos. 50-250
Technical Specification Special Report
Accident Monitoring Instrumentation
Inoperable Channel A Reactor Vessel Level Monitoring System

The attached Special Report is submitted in accordance with Technical Specifications 3.3.3.3 and 6.9.2. This report provides notification that Turkey Point Unit 3 Reactor Vessel Level Monitoring System (RVLMS) Channel A is inoperable.

Should there be any questions regarding this information, please contact Robert J. Tomonto, Licensing Manager at (305) 246-7327.

Sincerely,

Michael Kiley
Vice President
Turkey Point Nuclear Plant

SM

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

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NRR

SPECIAL REPORT

Purpose:

This special report is being submitted pursuant to the requirements of Turkey Point Unit 3 Technical Specification (TS) 3.3.3.3, Table 3.3-5, (for Instrument #16) Accident Monitoring Instrumentation due to the Reactor Vessel Level Monitoring System (RVLMS), being inoperable for greater than 30 days (required by Action 37); and the requirements of Technical Specification 6.9.2 (Special Reports).

Technical Specifications Requirements

3.3.3.3 The accident monitoring instrumentation channels shown in Table 3.3-5 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3-5.

ACTION:

a. As shown in Table 3.3-5
b. The provisions of Specification 3.0.4 are not applicable to ACTIONS in Table 3.3-5 that require a shutdown.

Table 3.3-5 states:

INSTRUMENT	TOTAL NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTIONS
16. Reactor Vessel Level Monitoring System	2(1)	1(1)	1, 2, 3	37, 38

Table Notations for Instrument 16:

(1) A channel is eight sensors in a probe. A channel is OPERABLE if a minimum of four sensors are OPERABLE.

Required Action 37 of TS 3.3.3.3, Table 3.3-5, for Instrument 16, states:

ACTION 37 states:
"With the number of OPERABLE channels one less than the Total Number of Channels, restore the system to OPERABLE status within 30 days. If repairs are not feasible without shutting down, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 14 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status."

Event:

On May 18, 2010, with Turkey Point Unit 3 in Mode 1, control room alarms indicated that channel A of Qualified Safety Parameter Display System (QSPDS), Reactor Vessel Level Monitoring System (RVLMS) heated and unheated thermocouple functions of sensor 1(TE-3-6493) were failing.

Turkey Point Unit 3 has two QSPDS RVLMS designated channels A and B, monitoring the reactor vessel coolant inventory level. A channel is eight sensors in a probe. Each RVLMS probe uses eight heated and unheated junction thermocouple (HJTC/UJTC) temperature input pairs (sensors) to calculate reactor coolant system levels in the head area and in the plenum area. Sensors 1 and 2 are located in the head section of the vessel, while sensors 3 through 8 are located in the plenum section. The temperature difference (ΔT) function between a sensor HJTC and UJTC indicates whether the thermocouple pair is covered by fluid at that level. Individual thermocouples in a pair may be bypassed. RVLMS substitutes bypassed thermocouple values with non-bypassed thermocouple values. No bypassed HJTC or UJTC in the head section of the probe is substituted with a HJTC or UJTC from the Plenum section of the probe and vice versa.

Turkey Point Unit 3 QSPDS RVLMS channel A plenum sensors 5, 6, and 7 were previously declared out of service due to malfunctioning of reactor vessel head cables.

The operation of both sensors 1 and 2 depended on the functionality of the unheated thermocouple of sensor 1. Although the unheated thermocouple of sensor 2 was declared out of service previously due to issues associated with the reactor vessel head cable, sensor 2 remained operable via the use of the QSPDS RVLMS substitution algorithm, which permitted sensor 2 unheated thermocouple to share the value of the sensor 1 unheated thermocouple. On May 18, 2010, the failure of sensor 1 rendered the unheated thermocouple of sensor 1 unavailable for the QSPDS RVLMS algorithm substitution and as such, it also rendered sensor 2 inoperable. As a result, on May 18, 2010, both sensors 1 and 2 were inoperable.

Per Technical Specifications 3.3.3.3 Table 3.3-5, Instrument 16, Table Notation 1, four sensors are required for a RVLMS channel to be operable. With the failure of sensor 1 and 2 on May 18, 2010, a total of five sensors (of the Turkey Point Unit 3 QSPDS, RVLMS Channel A probe) are considered inoperable. Accordingly, Operations declared the Unit 3 QSPDS RVLMS Channel A inoperable.

Action Taken:

- The plant investigated the failure of the two unstable thermocouples of head sensor 1.
- A capacitive discharge "cleaning" was performed through the thermocouple loops to restore intermittent connections.
- Troubleshooting determined that (although the sensor 1 stability and sensor 2 (ΔT) function were subsequently restored through capacitive discharge cleaning) the failure mechanism could be neither fully investigated nor corrected due to inaccessibility of the cable connection points inside containment. Therefore, these sensors (1 and 2) were not declared operable.

- Additional monitoring is being performed by the system engineer and work requests have been created to perform repair/replacements of failed components associated with the inoperability of Turkey Point Unit 3 QSPDS RVLMS Channel A during the next available outage of sufficient duration.

Cause of Inoperability

It is concluded that the intermittent failure of sensor 1 is occurring at the cable connections located in containment at or near the reactor vessel head.

Schedule for Restoration:

The Turkey Point Unit 3 QSPDS RVLMS Channel A sensors will be returned to service no later than the end of the next available outage of sufficient duration.