Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

November 1, 2010

L-2010-255
10 CFR 50.4
10 CFR 50.36

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

Re: St. Lucie Unit 2
Docket No. 50-389
Date of Event: October 2, 2010
Technical Specification Special Report
Inoperable Reactor Water Level Monitoring System Channel

The attached special report is submitted pursuant to the requirements of St. Lucie Unit 2 Technical Specification 3/4.3.3.6, Action d.2, and Technical Specification 6.9.2. This report provides notification that the St. Lucie Unit 2 B channel of the reactor water level monitoring system was inoperable.

The attached special report outlines the action taken since the RVLMS B channel failed, the apparent cause of the failure, and the plans and schedule that restored the B channel of the reactor water level monitoring system to OPERABLE status.

A regulatory commitment to repair or replace the Unit 2 RVLMS B channel during the next St. Lucie Unit 2 refueling outage (SL2-19) is made in this letter. Please contact us if there any questions on this information.

Very truly yours,

Eric S Katzman.
Licensing Manager
St. Lucie Plant

ESK/KWF

Attachment

IE22
NRR

SPECIAL REPORT

EVENT DESCRIPTION:

On October 2, 2010, St Lucie 2 was in Mode 1 at 100% power. The "B" channel qualified safety parameter display system (QSPDS) display was noted to display questionable data for all of its associated incore core exit thermocouples (CET) and reactor vessel level monitoring system inputs (RVLMS). Prior to this event the "A" channel RVLMS had been placed out of service due to failures in 5 of its 8 level sensor locations. (See letter L-2009-289). Upon loss of the channel "B" CETs and RVLMS two Technical Specification (TS)Actions were entered:

1. TS 3.3.3.6 Action a. – for the loss of one channel of incore instruments and sub-cooling monitoring which states:

   With the number of OPERABLE accident monitoring channels less than the Required Number of Channels shown in Table 3.3-10, either restore the inoperable channel to OPERABLE status within 7 days, or be in HOT SHUTDOWN within the next 12 hours.

2. TS 3.3.3.6. Action d. - for the loss of two RVLMS channels which states:

   With the number of OPERABLE Channels less than the Minimum Channels OPERABLE requirements of Table 3.3-10, either restore the inoperable channel(s) to OPERABLE status within 48 hours if repairs are feasible without shutting down or:
   1. Initiate an alternate method of monitoring the reactor vessel inventory; and
   2. Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status, and
   3. Restore the Channel to OPERABLE status at the next scheduled refueling.

In that the "B" channel QSPDS computer repairs were not completed at the end of 48 hours an alternate method of monitoring the reactor vessel level was established in accordance TS 3.3.3.6. Action d.

On October 6, 2010, at 1314 hours, the 7-day TS 3.3.6.6 Action a. was exited with the restoration of the CET instruments and sub-cooling monitoring capabilities of QSPDS. At this time it was noted that 6 of the 8 RVLMS level locations were not operational and the 2B RVLMS channel remained out of service. The alternate method of monitoring reactor vessel level was implemented until repairs were completed at 1412 hours on October 29, 2010, at which time four of the eight level locations were restored to service and TS 3.3.3.6 Action d. was exited.

CAUSE OF THE EVENT:

The initial loss of the channel "B" QSPDS thermocouple data on October 2, 2010, was a faulty computer power supply. Additional failures were also identified in the QSPDS channel "B" computer(s) chassis and electronic circuit cards associated with the system. After completing repairs and post maintenance

testing, the incore thermocouples and sub-cooling monitoring portions of the system were restored to service and the 7-day TS 3.3.3.6. Action a. was exited.

On October 29, 2010, at 1412 hours, four of the eight 2B RVLMS level segments were restored to service. The remaining four inoperable level sensors are unable to be restored at this time as noted below:

- Three RVLMS segment location failures (#1, #2 & #4) are associated with thermocouple or cabling failures within the probe or containment cabling which are not accessible at power operation. These failures were identified prior to the October 2, 2010 failure of the "B" channel QSPDS computer.

- One RVLMS segment location (#6 unheated sensor) failure appears to be associated with a discontinuity within the 2B QSPDS cabinet wiring.

ACTIONS TAKEN:

1. The B channel QSPDS incore instruments and sub-cooling monitoring functions were restored on October 6, 2010.

2. A temporary heater circuit modification to the 2B RVLMS channel level segments #7 & #8 was implemented on October 29, 2010, restoring these two level sensors to service. With four of eight level sensors operable, the minimum number of level sensors needed to declare the 2B RVLMS back in service was met.

3. Final repairs to the 2B RVLMS probe and containment Rx head cabling will be performed in the next refueling outage (SL2-19).

PLAN and SCHEDULE FOR RESTORATION:

1. Final repairs to the Channel "B" RVLMS probe and containment Rx head cabling will be performed in the SL-19 refueling outage.