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

May 18, 2004

FPL

L-2004-114
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: April 22, 2004
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 c, 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 is 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 for restoring 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 (SL2-15) is made in this letter. Please contact us if there any questions on this information.

Very truly yours,

William Jefferson, Jr.
Vice President
St. Lucie Plant

WJ/KWF

Attachment

IE22

SPECIAL REPORT

I. TITLE

St. Lucie Unit 2 Inoperable Reactor Vessel Level Monitoring System (RVLMS)

II. EVENT DESCRIPTION

On April 24, 2004, with the unit in MODE 1, the B channel of RVLMS sensors trended high with erratic readings resulting in the B channel RVLMS being out of service. St. Lucie Unit 2 Technical Specification (T/S) 3/4.3.3.6 ACTION c was entered, which states:

ACTION C - With the number of OPERABLE Channels one less than the Total Number of Channels shown in Table 3.3-10, either restore the inoperable channel to OPERABLE status within 7 days if repairs are feasible without shutting down or prepare and submit a Special Report to the Commission pursuant to the 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.

A reactor vessel level monitoring system utilizes eight pairs of unheated/ heated junction thermocouples (HJTCs). St. Lucie Unit 2 Technical Specification (TS) 3/4.3.3.6 requires at least four operable sensor locations (an operable sensor location consists of a heated and unheated thermocouple input) to declare the channel OPERABLE.

St. Lucie Unit 2 control room received multiple alarms on J-45 (ICC Channel B Subcool Margin Low) and J-46 (ICC Channel B Reactor Vessel Level Low). ERDADS data indicated excessive noise on HJTC inputs associated with Channel B.

Plant engineers and maintenance personnel investigated and evaluated the noise effects on the RVLMS operation.

III. CAUSE OF THE EVENT

Plant engineers and maintenance personnel investigated the anomaly and identified low insulation resistance of all HJTC inputs.

FPL personnel reviewed the insulation resistance readings and time domain reflectometer (TDR) data taken from the control room, and operating sensor status for the B RVLMS with the vendor, Combustion Engineering/Westinghouse (CE/W). Based on these readings, the following preliminary conclusions were reached.

All Insulation resistance readings indicate a grounded condition. Readings included thermocouple to shell, heater to shell, and thermocouple to heater. All readings, except sensor #1 thermocouple to shell and heater to shell, were below 1 x 10^6 ohms. Sensor #1 readings were extremely low. Expected resistance readings are documented in the installation and maintenance manual for the liquid level probe (LLP) and The 40 pin connector mineral insulated (MI) cable upgrade For St. Lucie Unit 2, document No. L-NOME-EP-0086 Revision 1. Readings must be at least 1 x 10^8 ohms at 50VDC.

During data gathering activities, the thermocouple (chromel/alumel conductors) sensor data showed valid temperature readings with heater controllers OFF. With the heater controller ON the erratic readings were noted for all thermocouples. The erratic readings are indicative of a grounded circuit, most probably at the mating LLP connector or within the probe.

The TDR data has been reviewed. The only anomalies identified over the length of the cables were at or near 515 feet from the 2B QSPDS cabinet. This locates the grounds identified by insulation resistance testing at or near the LLP inside containment. Based on these findings, an immediate repair cannot be made while at power.

Based on the resistance readings, TDR data, and the work conducted to date, the most probable cause of failure is a grounded condition at the LLP and the mating head lift rig cable. The area is not accessible during power operation.

IV. ACTION TAKEN

1. Technical Specification 3/4.3.3.6, ACTION C, was entered on April 24, 2004 when the B RVLMS failed.

2. FPL troubleshooting determined that the failed RVLMS could not be repaired at power.

3. The Unit 2 B RVLMS connections will be investigated and returned to service at the next refueling outage. Work order (WO) 34008052 has been issued to track this action.

V. SCHEDULE FOR RESTORING SYSTEM

The Unit 2 B RVLMS will be returned to service no later than the end of the next refueling outage (SL2-15).