



JUN 16 2016

L-2016-127
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U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Date of Event: June 2, 2016
Technical Specification Special Report
Containment High Range Radiation Monitors Inoperable

The attached special report is being submitted pursuant to the requirements of St. Lucie Technical Specification 3.3.3.1, Action b, Table 3.3-6, Action 15 (Unit 1) and 27 (Unit 2), and Technical Specification 6.9.2. This report provides notification that the containment high range radiation monitors were declared inoperable.

Alternate means of radiation monitoring were implemented in accordance with the Technical Specification ACTION statement.

Please contact us if there any questions on this information.

Sincerely,

A handwritten signature in cursive script that reads "Michael J. Snyder".

Michael J. Snyder
Licensing Manager
St. Lucie Plant

MJS/KWF

cc: NRC Region II Administrator
St. Lucie Plant NRC Senior Resident Inspector

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NRR

I. TITLE

Containment High Range Radiation Monitors (CHRRMs) Inoperable.

II. EVENT DESCRIPTION

On June 2, 2016, St. Lucie Units 1 and 2 were in Mode 1 at 100% power. A NRC design basis inspection identified that the station's 1997 evaluation of previous CHRRMs industry Operating Experience (OE) (e.g., cable jacket blistering, thermally induced currents, conductor kinking, and coax cable moisture intrusion) had incorrectly evaluated the negative impact on operability of these radiation monitors for some postulated events. At 1500 hours, FPL declared the CHRRMs inoperable and entered the appropriate action statements for each Unit. The limiting condition for operation (LCO) for TS 3.3.3.1, Action b, Table 3.3-6, Action 15 (Unit 1) and Action 27 (Unit 2), are essentially the same and state that:

“With the number of channels OPERABLE [*OPERABLE Channels – Unit 2*] less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable Channel(s) to OPERABLE status within 72 hours, or:

- 1) Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and
- 2) Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 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.”

On June 4, 2016 the preplanned alternate methods for monitoring containment radiation levels were implemented in accordance with operator night orders and enhancements made to plant procedure EPG-08, “Monitoring Plant Equipment Important to the Radiological Emergency Plan,” Attachment 2, “Alternate Monitoring Method with the CHRRM Channels Inoperable.”

The CHRRMs are used as one of several diverse methods for evaluating emergency action levels (EALs) for the Loss of Fuel Clad Barrier and for the Potential Loss of Primary Containment Barrier in the Emergency Plan. Unit differences necessitate different strategies for the Loss of Fuel Clad Barrier EAL determined by CHRRMs indication. These preplanned alternate methods use:

- the containment isolation radiation monitors (Unit 1), or
- the diverse indications as defined in the EAL table to evaluate for the loss of the fuel clad barrier (Unit 2) (e.g. core exit thermocouples, Dose Equivalent I-131, loss of the core heat removal safety function and entry into emergency operating procedure EOP-15)

The Potential Loss of Primary Containment Barrier EAL determined by CHRRMs indication will be provided in part by the use of the post-LOCA radiation monitors with equivalent outside containment radiation levels.

In addition to directing Emergency Plan EAL entry conditions as described above, the CHRRMs also support Emergency Preparedness dose and core damage assessment capabilities. However, dose and core damage assessment continue to be functional without reliance on CHRRMs as the pre-existing procedures and training for members of the Emergency Response Organization and Operations provide diverse means for obtaining the required information.

There are no automatic functions provided by CHRRMs on either Unit other than annunciation.

III. CAUSE OF THE EVENT

The cause for the CHRRMs inoperability was due to the inadequate late 1990s evaluation of industry Environmental Qualification OE specific to coaxial cables used for CHRRMs. Specifically, the cabling used for the CHRRMs is susceptible to thermally induced currents during rapid temperature changes that bias the indication during the temperature transients. Additionally, at high temperatures the cabling is susceptible to swelling that allows moisture intrusion which results in declining insulation resistance and inaccurate radiation indication. Until the permanent corrective actions are implemented, FPL has provided alternate means for CHRRMs indication and emergency response.

IV. ACTIONS TAKEN

Short Term:

Preplanned alternate monitoring was implemented in accordance with TS 3.3.3.1, Action b, Table 3.3-6, Action 15 (Unit 1) and 27 (Unit 2). Well before the CHRRMs were declared out of service, diverse monitoring methods and other procedures were established and trained upon for dose and core damage assessment.

Long Term:

Preliminary reviews indicate that the coaxial cable for the CHRRMs needs to be replaced or shielded with a more robust design to restore operability. Constructability reviews will be performed inside containment during the next refueling outages.

V. SCHEDULE FOR RESTORING SYSTEM

Based on the constructability reviews and material availability, an implementation schedule will be developed and the more robust coaxial cable design will be installed within the next two refueling outages for each unit.