

February 3, 2014

L-2014-032
10 CFR 50.4
10 CFR 50.54(f)

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
FPL RAI Response to NRC Bulletin 2012-01
Design Vulnerability in Electric Power Systems

References:

1. NRC Bulletin 2012-01, "Design Vulnerability in Electric Power Systems," dated July 27, 2012. (ML12074A115)
2. FPL letter L-2012-391 dated October 25, 2012, "St. Lucie Units 1 and 2 FPL Response to NRC Bulletin 2012-01, Design Vulnerability in Electric Power System." (ML12300A422)
3. Nuclear Energy Institute letter to the NRC, Industry Initiative on Open Phase Condition, dated October 9, 2013. (ML13333A147)
4. NRC letter dated December 20, 2013, "Request for Additional Information Regarding Response to Bulletin 2012-01, 'Design Vulnerability in Electric Power System.'" (ML13351A314)

On July 27, 2012, via Reference 1, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin 2012-01, "Design Vulnerability in Electrical Power Systems," requesting the addressees to provide information about the facilities' electric power system designs and to verify their compliance with various design criteria.

Florida Power & Light (FPL) provided the St. Lucie plant response to the bulletin in Reference 2. Via Reference 3, the Nuclear Energy Institute (NEI) outlined the industry strategy, goal, criteria and timeline for nuclear stations to detect and protect from an adverse open phase condition and develop an Open Phase Condition Initiative document.

In Reference 4, the NRC docketed a request for additional information (RAI) regarding the St. Lucie response to the bulletin. This letter provides the FPL response for this RAI.

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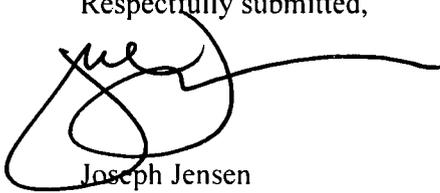
This letter contains one new regulatory commitment in regards to committing to meeting the timeline in the NEI Open Phase Condition Initiative (Reference 3). There are no revisions to existing regulatory commitments.

Please contact Ken Frehafer at (772) 467-7748 if there are any questions on this submittal.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on February 3, 2014.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Jensen', with a long horizontal line extending to the right.

Joseph Jensen
Site Vice President
St. Lucie Plant

JJ/KWF

Attachment

NRC letter (ADAMS ML13351A314) dated December 20, 2013 requested additional information regarding St. Lucie Nuclear Units 1 & 2 response to NRC Bulletin 2012-01, "Design Vulnerabilities in Electric Power System".

On July 27, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin 2012-01, "Design Vulnerability in Electric Power System" (Agencywide Documents Access and Management System Accession No. ML 12074A115), to all holders of operating licenses and combined licenses for nuclear power reactors. NRC Bulletin 2012-01 requested information about each facility's electric power system designs, in light of recent operating experience involving the loss of one of the three phases of the offsite power circuit (single-phase open circuit condition) at Byron Station, Unit 2.

On October 25, 2012 the St. Lucie provided its response to Bulletin 2012-01 (Reference 1).

The Nuclear Energy Institute (NEI) organized industry representatives to outline the industry strategy, goal, criteria and timeline for nuclear stations to detect and protect from an adverse open phase condition and develop an Open Phase Condition Initiative document. The NEI Open Phase Condition Initiative document was submitted to the NRC on October 9, 2013 (Reference 2).

In order for the NRC staff to complete its review of responses to the bulletin, the following additional information is requested:

RAI 1

1. Provide a summary of all interim corrective actions that have been taken since the January 30, 2012, event at Byron Station, Unit 2, to ensure that plant operators can promptly diagnose and respond to open phase conditions on the offsite power circuits for Class-1E vital buses until permanent corrective actions are completed.

Response

Lessons learned from the events at Byron station were reviewed and various interim corrective actions evaluated for safety and efficiency at the St. Lucie Station Units 1 & 2. Based the plant's offsite power configuration, electrical design details, and on lessons learned, the following actions were taken to ensure plant operators can promptly diagnose and respond to open phase conditions (OPC):

Interim Corrective Actions

- Twice per day during routine shift rounds, operators visually inspect for continuity all three phases of the two overhead 230KV transmission lines and related

connections, which provide offsite power from the Switchyard overhead transmission tower insulators to each of the four Start-Up Transformer connections.

- Operators have been briefed on recognition of abnormal behavior of equipment associated with a switchyard OPC.
- Weekly walk-downs are being performed of the Switchyard by FPL Transmission personnel to inspect and identify any abnormal conditions of equipment.
- Weekly operator walk-downs are being performed to verify continuity of the 230KV offsite power circuits from the Switchyard breakers to the Start-Up Transformer connections.
- Bi-annual thermograph inspections of the switchyard equipment are performed.

RAI 2

2. Provide a status and schedule for completion of plant design changes and modifications to resolve issues with an open phase of electric power.”

Status

- St. Lucie Nuclear Station and NextEra’s nuclear fleet in cooperation with other holders of licenses for nuclear power reactors are investigating options to detect OPC faults. There is currently no generic, off-the-shelf technology that has been proven to detect all the required open phase fault conditions for each of the St. Lucie Station Start-Up Transformer operating conditions.
- St. Lucie Station and NextEra’s nuclear fleet are engaged in the development of the NEI OPC Guidance Document, as well as development of enhancements to software tools being used to analyze OPC faults.
- With the goal of ensuring accurate detection without compromising nuclear safety or increasing plant risk, this new OPC technology is being thoroughly evaluated, will be tested, and will be fully analyzed before installation.
- St. Lucie Station has determined that design modifications are warranted to ensure an open phase condition would be automatically detected. NextEra has identified a fleet project initiative and St. Lucie is in the process of obtaining project approval.

- St. Lucie Station is currently working with the FPL Transmission entities to develop potentially successful proprietary technologies, with external vendor(s) as necessary, to enable detection of an OPC condition under various Start-Up Transformer load conditions from no load to full load.
- St. Lucie Station has completed Hardening of Switchyard lines and connections, through the reduction of the number of connections used in the Switchyard, and through the use of improved materials/configurations, to further enhance Switchyard circuit reliability.

Schedule

- St. Lucie Nuclear Units 1 & 2 have committed to the generic schedule provided in the Industry NEI OPC Initiative, dated October 9, 2013.
- St. Lucie Station intends to meet the milestones of this schedule. However, deviations may be required to accommodate outage schedules, software and hardware availability, manufacturer's delivery capabilities, licensing delays, etc.
- Any deviations from the Industry OPC Initiative schedule will be documented through the deviation/exemption process currently being developed by NEI.

References

1. FPL letter to NRC, St. Lucie Units 1 & 2 FPL Response to NRC Bulletin 2012-01, Design Vulnerability in Electric Power System, dated October 25, 2012 (L-2012-391)
2. Nuclear Energy Institute letter to the NRC, Industry Initiative on Open Phase Condition, dated October 9, 2013 (ML13333A147)