November 27, 2013

L-2013-321
10 CFR 50.54(f)

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

RE: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
FPL St. Lucie Response To NRC Request for Additional Information Associated with Near-Term Task Force Recommendation 2.3, Seismic Walkdowns

References:

1. NRC Letter, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated March 12, 2012 (ML12073A348)
2. FPL Letter L-2012-427 date November 27, 2012, "Response to NRC 10 CFR 50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 2.3, Seismic"
3. NRC Letter, "Request for Additional Information Associated with Near-Term Task Force Recommendation 2.3, Seismic Walkdowns," dated November 1, 2013 (ML13304B418)

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Reference 1 requesting information on several topics including information associated with Near-Term Task Force Recommendation 2.3 for a seismic walk down report. In Reference 2, Florida Power & Light (FPL) St. Lucie provided the requested information.

Subsequently, the Staff identified additional information, as documented in Reference 3, needed to complete its assessments. The Staff requested this information be submitted within 30 days from the date of Reference 3.

The attachment to this letter provides the information requested in Reference 3.

This letter makes no new commitments or changes to existing commitments.

A001
NRR

If you have any questions or require additional information, please contact Ken Frehafer at (772) 467-7748.

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

Executed on November 27, , 2013

Joseph Jensen
Site Vice President
St. Lucie Plant

Attachment

Supplement 1 to
Florida Power & Light (FPL) St. Lucie Nuclear Station
Seismic Walkdown Reports

Request for Additional Information Associated with Near-Term Task Force Recommendation 2.3, Seismic Walkdowns, Dated November 1, 2013, Accession No. ML13304B418

This enclosure provides additional information requested by Reference 1 to add perspective to the Florida Power & Light St. Lucie (PSL) Nuclear Station Seismic Walkdown process used during the preparation of PSL Units 1 & 2 Seismic Walkdown Reports 12Q4116-RPT-001, Rev.0 and 12Q4116-R-002, Rev. 0 (Ref.2). Further clarification is specifically provided for the following topics:

1. Conduct of walkdowns, determination of potentially adverse seismic conditions (PASCs), dispositioning of issues, and reporting.
2. Conduct of the peer review process.

NRC request for additional information:

> (1) Conduct of walkdowns, determination of potentially adverse seismic conditions (PASCs), dispositioning of issues, and reporting
>
> (a) "Provide a supplement to the table or text from the original walkdown report, if needed, to include similar conditions as the above examples and situations and for conditions for which a calculation, analysis (if more than a simple analysis), or evaluation was used for a determination. The supplement should include a short description of each condition, how it was dispositioned and the basis for the disposition, as follows: 1) for each condition that was entered into the CAP, provide the CAP reference number, initiation date, and (if known) the planned completion date, or 2) for all other conditions, provide the result of the LBE (or other determination method), the basis for the result, and how (or where) the result was captured in the plant's documentation or existing plant process."

PSL Response:

Section 5 of each Florida Power & Light St. Lucie Nuclear Station submittal report (Ref.2) provides an overview and detailed information regarding the conduct of the walkdowns. The walkdown process utilized met the EPRI industry guidance. The following provides additional supporting information regarding the walkdown process and use of engineering judgment:

The walkdowns at the St. Lucie Nuclear Station were performed by a two-person seismic walkdown engineer (SWE) team. Other St. Lucie professional staff participated in the walkdowns as part of the peer review process. All SWEs were qualified and trained as required by the EPRI guidance. The questions on each SWEL item checklist and each area walk-by checklist were assessed and answered during the field walkdowns. The SWE team first inspected the SWEL items. After the checklists of the SWEL items were complete, the SWEs performed the area walk-by inspection. This was done by the SWE team walking through and inspecting the area (approx. 35' from SWEL item) seismic attributes on the walk-by checklists to identify potential seismic interactions of area equipment or seismic housekeeping issues.

As stated in the submittal reports, the SWEs focused on identifying potentially adverse seismic conditions (PASCs) associated with the equipment - adverse anchorage conditions, spatial

interactions, and other conditions (such as loose or missing fasteners, etc.). In some cases, when a question could not be immediately answered, further review of plant documentation (drawing, existing evaluation, etc.) was performed as part of the checklist completion. The acceptability of potentially adverse seismic conditions is based on the expert opinion and judgment of the SWE. The SWE are uniquely qualified to exercise this judgment because they have the requisite knowledge, experience, and training in the area of seismic/structural design, and have a thorough understanding of the plant's seismic design basis, design allowable loads, design margins and seismic spectral displacements. Thus, the expertise of the SWEs allows for potentially adverse conditions to be assessed against the seismic design basis using engineering judgment and/or simplified calculations.

The disposition of any PASC issues as not being a challenge to the seismic design basis was based on SWE engineering judgment or simple calculation documented on the checklist. All potentially degraded, nonconforming, or unanalyzed conditions identified as a result of the seismic walkdowns were entered into the corrective action program (CAP). Evaluations of the identified conditions were completed and documented within the CAP. These evaluations determined that the Seismic Walkdowns resulted with no adverse seismic conditions, no adverse anchorage conditions and no other adverse seismic conditions associated with the items on the SWEL that challenged the licensing basis of the station (Units 1 & 2). The evaluations for items discovered during the Area Walk-Bys resulted in one condition which recommended increased spacing in order to provide additional margin for a potential adverse seismic spatial interaction on Unit 2 that was evaluated and documented in AR# 1812128.

Tables 5-2 & 5-3 of the Florida Power & Light St. Lucie Nuclear Station submittal reports (Ref. 2) provide a summary of issues identified during the equipment and area Seismic Walkdowns. The equipment and area Seismic Walkdowns resulted in several conditions requiring action and each of these items were entered into the station's CAP by St. Lucie Plant site personnel. All of the identified concerns were assessed and determined to have no licensing basis or current operability issues.

Table 6-1 of the Florida Power & Light St. Lucie Nuclear Station submittal report (Ref. 2) listed the PASCs for the seismic licensing basis evaluations that were performed. These evaluations were completed and documented within the corresponding condition reports and shown in Table 6-1 of the reports. It should be noted that these items were originally documented in the PSL reports; however, additional information was provided for clarity in the Licensing Basis Evaluation for Unit 2 Equipment/Area ID "AW13 - CTRL ROOM" and AR 1913922 has been added to the table to administratively document the simple analysis performed by the SWE to verify that the as found conditions still met their licensing basis function.

Unit 1

Equipment/Area ID	Potentially Adverse Seismic Condition	Licensing Basis Evaluation	Entered into CAP	Status
AW22 – RAB 62' CTRL Rm	Approx. 3/16" gap between Aux Relay Cabinet and PAP "A" Cabinet. Determine whether gap is adequate.	Per EPRI NP7146s-SL R1, tested relay cabinets with similar properties of the Aux Relay Cabinet and PAP "A" Cabinet had fundamental frequencies ranging from 9.5 Hz to 11 Hz. The SSE horizontal spectral acceleration at 9 Hz (lower-bound estimate) at the 61 ft elevation of the RAB for 2% damping (in accordance with the U1 UFSAR) is approximately 0.45g. Using a 1.6 modal shape factor for cantilever action and conservatively summing relative displacements, the maximum combined cabinet displacement is 0.17 in (=2*1.6*0.45g*386.4 in/s^2/g) / (2*pi*9 Hz)^2)). Therefore, the 3/16" gap is adequate.	AR 1913922 Note #1	Closed

Unit 2

Equipment/Area ID	Potentially Adverse Seismic Condition	Licensing Basis Evaluation	Entered into CAP	Status
480V MCC 2B7	Measured approx. 3/8" gap in front-to-back direction (N-S) of MCC to concrete wall. Verify from ISRS whether gap is sufficient.	Per PSL Doc. 2998-20070, MCC front-to-back frequency is indicated as 6-7 Hz. At 4% damping, horizontal spectral acceleration at 6 Hz (lower bound) at MP 3 of DGB is 0.85g. Upper-bound estimated displacement for cantilevered structure with 1.6 modal participation factor is then (1.6*0.85g *386.4 in/s^2/g) / (2*pi*6 Hz)^2 = 0.37 in. Therefore, gap is adequate.	AR 1913922 Note #1	Closed

125V DC BUS 2B	Observed ~5/8" gap in front-to-back direction to concrete wall to the North.	For a lower bound frequency estimate of 5 Hz (reasonable for floor-mounted distribution panel) at 4% damping on the 43' elevation of the RAB (M.P. 3), the horizontal ISRS is 0.7g (STD-C-004). Upper-bound estimated displacement for cantilevered structure with 1.6 modal shape factor is then (1.6*0.70g *386.4 in/s^2/g) / (2*pi*5 Hz)^2 = 0.44 in. Therefore the 5/8" gap is adequate.	AR 1913922 Note #1	Closed
AW13 - CTRL ROOM	There is a gap of less than 1/32" between the Reactor Protection System cabinets and an adjacent printer table on the cabinet's north side. The gap is in the side-to-side direction of the cabinet, which is reasonably considered rigid. The table is anchored as well. Printer atop the table is approximately 4" from cabinet, which is adequate spacing to preclude impact due to sliding.	Per STR-4698, SSE side-to-side maximum cabinet deflection is 0.144 inches (based upon frequency of 7 Hz). Point of contact with printer table is ~34" above floor whereas RPS cabinet is ~90" tall. Therefore, SSE deflection at point of interest is 0.0544 in (=34"/90" * 0.144). This exceeds the 1/32" gap. AR1812128 was generated to evaluate the condition for operability concern, concluding (AR Section7C) that the condition did not result in a Past Operability Concern. The gap between the RPS cabinet and the north printer cabinet was increased to a minimum of ¼".	AR 1812128 Issued 10/11/12 Completed 11/14/12	Closed
AW20 - RAB 43' EAST A SWGR ROOM	Transformer PP201A / PP201 has ~1/16" gap to bolt on concrete starter wall.	Given squat transformer shape and motion along strong axis, a lower bound frequency of 10 Hz is reasonable. Per STD-C-004, the spectral acceleration at El. 42.5 of the RAB (M.P. 3) at 4% damping is 0.35g. An upper bound estimate for displacement with a modal shape factor of 1.6 for cantilever action is then: 1.6*0.35g*386.4 in/(s^2*g) / (2*pi*10 Hz)^2 = 0.055". Therefore the 1/16" gap is adequate.	AR 1913922 Note #1	Closed

Note 1: These items were originally documented in the PSL reports (Ref.2) but were not entered into the Corrective Action Program (CAP) as part of the initial walkdowns. Simple analysis was performed by SWE to show no potential adverse seismic interaction. These items were conservatively included in report to document the SWE basis. AR 1913922 was issued to administratively document this issue on 10/21/13 and was completed 11/12/13.

NRC request for additional information:

(2) Conduct of the peer review process

(a) "Confirmation that the activities described in the walkdown guidance on page 6-1 were assessed as part of the peer review process."

(b) "A complete summary of the peer review process and activities. Details should include confirmation that any individual involved in performing any given walkdown activity was not a peer reviewer for that same activity. If there were cases in which peer reviewers reviewed their own work, please justify how this is in accordance with the objectives of the peer review efforts."

PSL Response:

(a) The St. Lucie Nuclear Station Peer Review Team consisted of individuals from PSL Operations, Engineering, and Reliability Risk Assessment. As identified in Appendix F of the PSL reports (Ref. 2) the individual's roles in phases of preparation, performance and peer review of the seismic walkdowns were well defined. The peer review was performed consistent with Section 6-1 of the EPRI-TR-1025286 (Ref.3) guidance document and addresses the following specific activities:

- Review of the selection of components for the Seismic Walkdown Equipment List
- Review of a sample of the checklists prepared for the Seismic Walkdowns & Walk-Bys
- Review of any licensing basis evaluations
- Review of the decisions for entering the potentially adverse conditions in to the plant's Corrective Action Program
- Review of the final submittal report

(b) Appendix F of Florida Power & Light St. Lucie Nuclear Station submittal reports (Ref. 2) provided a detailed description of the conduct of the peer review process and experience/qualifications of the peer reviewers. The conduct of the peer review process used in these reports meet the EPRI guidance and included the name, task/activities and role of each team member in the peer review process.

The EPRI guidance does not directly address the expected level of independence of the peer review; however, as documented in Appendix F of each PSL report, peer review was provided for each activity of the report by assigned reviewer/reviewers that remained independent from the preparation of that report section. This method provided a comprehensive and meaningful review while also providing a reasonable level of independence.

References

1) NRC Letter, Request for Additional Information Associated with Near-Term Task Force Recommendation 2.3, Seismic Walkdowns, Dated November 1, 2013, Accession No. ML13304B418

2) Florida Power & Light (FPL) Letter L-2012-427, Dated November 27,2012, Response to NRC 10CFR50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 2.3 Seismic
   - St. Lucie Plant Unit 1, Seismic Walkdown Report 12Q4116-RPT-001, Rev.0
   - St. Lucie Plant Unit 2, Seismic Walkdown Report 12Q4116-R-002, Rev. 0

3) EPRI-TR-1025286, Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic, Dated May 31, 2012