



December 29, 2014  
L-2014-335

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555-0001

Re: Turkey Point Nuclear Generating Station  
Docket Nos. 50-250 and 50-251  
License Renewal (LR) Reactor Vessel Internals (RVI) Inspection Program  
Response to Request for Additional Information (RAI-5a)

References:

1. Florida Power & Light Company (FPL) letter L-2012-438 to the USNRC, dated December 14, 2012, License Renewal (LR) Reactor Vessel Internals (RVI) Commitment Implementation Report and Inspection Plan, Agencywide Documents and Access Management System (ADAMS) Accession No. ML12363A103.
2. Electric Power Research Institute (EPRI) Materials Reliability Program Report 1022863 (MRP-227-A), "Pressurized Water Reactor Internals Inspection and Evaluation Guidelines," ADAMS Accession Nos. ML12017A194, ML12017A196, ML12017A197, ML12017A191, ML12017A192, ML12017A195, and ML12017A199
3. Revision 1 to the Final Safety Evaluation of EPRI Materials Reliability Program Report 1016596 (MRP-227), Revision 0, "Pressurized Water Reactor Internals Inspection and Evaluation Guidelines," dated December 16, 2011, ADAMS Accession No. ML11308A770
4. EPRI Report 1013234, "Materials Reliability Program: Screening, Categorization, and Ranking of Reactor Internals Components for Westinghouse and Combustion Engineering PWR Design (MRP-191)," ADAMS Accession No. ML091910130.
5. NRC Email from Farideh Saba to Bob Tomonto, Olga Hanek, Stavroula Mihalakea, "RAIs for Turkey Point-MF1485/86," dated September 27, 2013, ADAMS Accession No. ML13274A144.
6. NRC email from Audrey Klett to Stavroula Mihalakea, "Turkey Point RAI Due Date for MF 1485/86," dated October 30, 2013.
7. Florida Power & Light Company (FPL) letter L-2013-287 to the USNRC, License Renewal (LR) Reactor Vessel Internals (RVI), Response to Request for Additional Information, dated October 30, 2013, ADAMS Accession No. ML13325A973.
8. NRC email from Audrey Klett to Stavroula Mihalakea, Request for Additional Information - Turkey Point 3 & 4 RVI Inspection (TACs MF1485/86), dated January 22, 2014, ADAMS Accession No. ML14022A189.
9. Florida Power & Light Company (FPL) letter L-2014-024 to the USNRC, dated January 29, 2014, License Renewal (LR) Reactor Vessel Internals (RVI) Inspection Program Response to NRC Request for Additional Information, ADAMS Accession No. ML14069A084.

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NLR

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated December 14, 2012 (Reference 1), Florida Power & Light Company (FPL) submitted its License Renewal Reactor Vessel Internals (RVIs) Commitment Implementation Report and Inspection Plan that credits the implementation of Materials Reliability Program (MRP)-227-A (Reference 2) at Turkey Point Units 3 and 4 for NRC staff review. The NRC staff reviewed Revision 0 of MRP-227 and issued a final safety evaluation on December 16, 2011 (Reference 3) to incorporate technical changes required to ensure the final approved version of MRP-227 (i.e. MRP-227-A) included all NRC required changes. MRP-227-A was issued in December 2011.

The NRC staff reviewed the information provided by FPL in its submittal and requested additional information to complete their review (Reference 5). FPL submitted the responses to RAIs 1-4 and RAI-6 (Reference 7) and to RAI-5.b and RAI-7 (Reference 9). As discussed with the NRC on January 17, 2014, (Reference 8) the response to RAI-5.a was deferred to a later time (Reference 6) due to FPL's participation in the joint industry program through the Pressurized Water Reactor Owners Group to develop responses to RAI-5.

The Attachment to this letter contains FPL's response to RAI-5.a. The response is based on a non-proprietary format of Westinghouse Report No. PWROG-14032-P, Turkey Point Units 3 and 4 Summary Report for the Cold Work Assessment-Materials Committee PA-MS-0983 Revision 1 Task 6, issued August 21, 2014.

The information provided herein does not change the conclusions stated in Reference 1.

Should there be any questions, please contact Mr. Robert J. Tomonto, Licensing Manager at 305 246-7327.

Very truly yours,

  
THOMAS CONROY  
FOR MIKE KILEY

Michael Kiley  
Vice President  
Turkey Point Nuclear Plant

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Attachment

cc: USNRC Regional Administrator, Region II  
USNRC Project Manager, NRR  
USNRC Senior Resident Inspector, Turkey Point Nuclear Plant

**NRC REQUEST FOR ADDITIONAL INFORMATION RAI-5.a**  
**AND FPL RESPONSE**

**RAI-5**

As discussed in Section 3.2.5 of Reference 3, A/LAI 1 requires licensee verification that the detailed component state at the end of the period of extended operation is bounded by the detailed assumptions of the MRP. Please provide the following information related to verification of the applicability of MRP-227-A to Turkey Point 3 and 4:

- a. Identify whether the Turkey Point 3 and 4 RVIs include nonweld or bolting austenitic stainless steel components with 20 percent or greater cold work from fabrication and operating surface tensile stresses greater than 30 kilopound force per square inch. Provide a plant-specific evaluation to determine the aging management requirements for the identified components.

**FPL Response to RAI-5.a**

The Turkey Point Units 3 and 4 reactor internals components were evaluated according to industry guideline MRP 2013-025 (Reference 1.1) and the MRP-191(Reference 2.1) industry generic component listings and screening criteria (including consideration of cold work as defined in MRP-175 (Reference 3.1), noting the requirements of Section 3.2.3). In addition to consideration of the material fabrication, forming, and finishing process, a general screening definition of a resulting reduction in wall thickness of 20% was applied as an evaluation limit. It was confirmed that all PTN Units 3 and 4 components, as applicable for the design, are included directly in the MRP-191 component lists.

The evaluation included a review of all plant modifications affecting reactor internals and the plant operating history. The components were procured according to ASTM International or American Society of Mechanical Engineers (ASME) material specifications through applicable quality-controlled protocols. Turkey Point Units 3 and 4 components were binned according to the following categories for material fabrication and cold work potential:

1. Cold work categories include the following:

- Cast austenitic stainless steel (CASS) (Category 1)
- Hot-formed austenitic stainless steel (Category 2)
- Annealed austenitic stainless steel (Category 3)
- Fasteners austenitic stainless steel (Category 4)
- Cold-formed austenitic stainless steel without subsequent solution annealing (Category 5)

2. Cold work potential based on MRP-227-A generic criteria:

- No (N) typically applies to Categories 1, 2, and 3.
- Yes (Y) typically applies to Categories 4 and 5.

Where multiple options existed for a component or assembly, the bounding condition, taken as including cold work, was selected for the purposes of the assessment. In some instances, cascading fabrication would appear to mitigate any potential for cold work; however, since the historical record was not detailed, the potential was noted but a conservative approach was selected for this assessment.

The evaluation performed, consistent with the industry guideline, concluded that the reactor internals Category 1, 2, and 3 (non-bolting) components at Turkey Point Units 3 and 4 contain no cold work greater than 20% as a result of material specification and controlled fabrication construction.

Category 4 components were already assumed to have the potential for cold work in the MRP-191 generic assessments. Material fabrication specifications used for the Turkey Point Units 3 and 4 would suggest that processes were limiting and precluded the introduction of significant cold work in some of the Category 4 and 5 components. In these cases, a conservative posture was selected to consider the component as being cold worked for the purposes of this assessment.

The detailed evaluation for the Applicant/Licensee Action Item for Turkey Point Units 3 and 4 cold work assessments concluded that the plant-specific material fabrication and design were consistent with the MRP-191 basis and the MRP-227-A sampling inspection aging management requirements as related to cold work are directly applicable to Turkey Point Units 3 and 4.

## References

- 1.1 EPRI Letter MRP 2013-025, "MRP-227-A Applicability Template Guideline," October 14, 2013.
- 2.1 Materials Reliability Program: Screening, Categorization, and Ranking of Reactor Internals Components for Westinghouse and Combustion Engineering PWR Design (MRP-191). EPRI, Palo Alto, CA: 2006. 1013234.
- 3.1 Materials Reliability Program: PWR Internals Material Aging Degradation Mechanism Screening and Threshold Values (MRP-175). EPRI, Palo Alto, CA: 2005. 1012081.