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JAFP-16-0182
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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Spent Fuel Pool Evaluation, Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident

James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-059

Reference:

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, ML12053A340, dated March 12, 2012
2. NEI letter, Proposed Path Forward for NTTF Recommendation 2.1: Seismic Reevaluations, ML13101A379, dated April 9, 2013
3. NRC Letter, Electric Power Research Institute Final Draft Report XXXXXX, "Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," as an Acceptable Alternative to the March 12, 2012, Information Request for Seismic Reevaluations, ML13106A331, dated May 7, 2013
4. ENOI letter, Entergy's Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.1 of the Near Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident, JAFP-13-0056, dated April 29, 2013
5. NRC letter, Final Determination of Licensee Seismic Probabilistic Risk Assessments Under the Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendation 2.1 "Seismic" of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, ML15194A015, dated October 27, 2015
6. EPRI guidance, Seismic Evaluation Guidance Spent Fuel Pool Integrity Evaluation, EPRI 3002007148, dated February 2016
7. NRC letter, Endorsement of Electric Power Research Institute Report 3002007148, "Seismic Evaluation Guidance: Spent Fuel Pool Integrity Evaluation," ML15350A158, dated March 17, 2016

Dear Sir or Madam:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued a Request for Information per 10 CFR 50.54(f) [Reference 1] in regard to Recommendation 2.1: Seismic.

In Reference 2, the Nuclear Energy Institute (NEI) requested a Proposed Path Forward for Recommendation 2.1: Seismic, that the NRC agreed with in Reference 3, and James A. FitzPatrick Nuclear Power Plant (JAF) committed to this schedule in Reference 4. This letter addresses the 50.54(f) Enclosure Recommendation 2.1: Seismic requested information item (9) and the portion of the Proposed Path Forward first group of risk evaluations, to perform a Spent Fuel Pool (SFP) evaluation. The SFP evaluation is one of the risk evaluations determined to be required for JAF through the screening and prioritization process [Reference 5].

The seismic adequacy of the SFP is reevaluated against the new ground motion response spectrum (GMRS) hazard levels in accordance with the criteria provided in EPRI 3002007148 [Reference 6] as endorsed by the NRC [Reference 7]. EPRI 3002007148 Section 3.3 lists the parameters to be verified to confirm that the results of the report are applicable to JAF, and that the JAF SFP is seismically adequate.

The Attachment provides JAF's SFP evaluation as described in Section 3.3 of Reference 6 in accordance with the schedule identified in Reference 2 and committed to in Reference 4.

This letter contains no new regulatory commitments. If you have any questions regarding this submittal, please contact William C. Drews, Regulatory Assurance Manager, at 315-349-6562.

I declare under penalty of perjury that the foregoing is true and correct; executed on December 22, 2016.

Respectfully,

Brian R. Sullivan
Site Vice President
BRS/WCD/mh

Attachment: Spent Fuel Pool Criteria for James A. FitzPatrick Nuclear Power Plant

cc: Director, Office of Nuclear Reactor Regulation
NRC Region I Administrator
NRC Resident Inspector
NRC Project Manager
NYSPSC
President NYSERDA

JAFP-16-0182

ATTACHMENT

Spent Fuel Pool Criteria for James A. FitzPatrick Nuclear Power Plant

(3 Pages)

Spent Fuel Pool Criteria for James A. FitzPatrick Nuclear Power Plant

On March 12, 2012, the NRC Request for Information per 10 CFR 50.54(f) (Reference 1) in regard to Near Term Task Force (NTTF) Recommendation 2.1, requested a seismic evaluation be made of the SFP. More specifically, plants were asked to consider "all seismically induced failures that can lead to draining of the SFP." Such an evaluation would be needed for any plant in which the ground motion response spectrum (GMRS) exceeds the safe shutdown earthquake (SSE) in the 1 to 10 Hz frequency range. The staff confirmed through Reference 2 that the GMRS exceeds the SSE and concluded that a SFP evaluation is merited for James A. FitzPatrick Nuclear Power Plant (JAF).

By letter dated March 17, 2016 (Reference 5) the staff determined that EPRI 3002007148 (Reference 6) was an acceptable approach for performing SFP evaluations for plants where the peak spectral acceleration is less than or equal to 0.8g. The table below lists the criteria from Section 3.3 of EPRI 3002007148 along with data for JAF that confirms applicability of the EPRI 3002007148 criteria and confirms that the SFP is seismically adequate and can retain adequate water inventory for 72 hours in accordance with NTTF 2.1 Seismic evaluation criteria.

SFP Criteria from EPRI 3002007148	Site-Specific Data
Site Parameters	
1. The site-specific GMRS peak spectral acceleration at any frequency should be less than or equal to 0.8g.	The GMRS peak spectral acceleration in JAF GMRS submittal (Reference 3) as accepted by the NRC (Reference 4) is 0.241g, which is ≤ 0.8g. Therefore, this criterion is met for JAF.
Structural Parameters	
2. The structure housing the SFP should be designed using an SSE with a peak ground acceleration (PGA) of at least 0.1g.	The SFP is housed in the Reactor Building, which is seismically designed to the site SSE with a PGA of 0.15g. JAF PGA is greater than 0.1g. Therefore, this criterion is met for JAF.
3. The structural load path to the SFP should consist of some combination of reinforced concrete shear wall elements, reinforced concrete frame elements, post-tensioned concrete elements and/or structural steel frame elements.	The structural load path from the foundation to the SFP consists of a combination of reinforced concrete shear wall elements, reinforced concrete frame elements and structural steel elements (Ref. JAF Drawings FC-27A, FC-27B, FC-30A thru 30E, FC-30L, and FC-30M). Therefore, this criterion is met for JAF.
4. The SFP structure should be included in the Civil Inspection Program performed in accordance with Maintenance Rule.	The SFP concrete walls and slab are included in the James A. FitzPatrick Nuclear Power Plant Civil Inspection Program per EN-DC-150 Attachment 9.16 under Reactor Building General Areas. The four steel columns underneath the SFP slab are also included in inspections for EL 326'-9". These inspections are performed every 5 to 10 years. Therefore, this criterion is met for JAF.

Spent Fuel Pool Criteria for James A. FitzPatrick Nuclear Power Plant

SFP Criteria from EPRI 3002007148	Site-Specific Data
Non-Structural Parameters	
5. To confirm applicability of the piping evaluation in Section 3.2 of EPRI 3002007148, piping attached to the SFP up to the first valve should have been evaluated for the SSE.	Piping connections (penetrations) attached to the SFP that could lead to rapid drain-down was addressed within the scope of NTTF Recommendation 2.3: Seismic walkdowns in JAF-RPT-12-00015. Section 6.2.2 of this report states, "…the Equipment Selection Personnel…identified SSCs that could cause the SFP to drain rapidly by first reviewing the SFP documentation to identify penetrations below about 10 ft above the top of fuel assemblies. Because this review found no such SFP penetrations, there is no potential for rapid drain-down." In addition, a review has been performed to identify all piping attached to the SFP as documented in JAF-RPT-16-00004. The review shows that all of the piping lines that could lead to rapid drawdown have been seismically designed to SSE levels up to the first valve. The Piping lines which are not seismically designed to SSE levels are drain lines for the skimmer surge tanks located at a level above the required minimum water elevation. Therefore, this criterion is met for JAF.
6. Anti-siphoning devices should be installed on any piping that could lead to siphoning water from the SFP. In addition, for any cases where active anti-siphoning devices are attached to 2-inch or smaller piping and have extremely large extended operators, the valves should be walked down to confirm adequate lateral support.	Anti-siphoning devices have been installed on four piping lines as documented on Attachment 9.2 of JAF-RPT-16-00004. These are the only lines that can lead to siphoning of the water from the SFP to an elevation below the required minimum water elevation of 363'-9". These lines have nominal piping diameters of 6" and 10". As described, anti-siphoning devices are installed on all SFP piping that could lead to siphoning; therefore, this criterion is met for JAF. As described, no anti-siphoning devices are attached to 2-inch or smaller piping with extremely large extended operators. Therefore, this criterion is met for JAF.

Spent Fuel Pool Criteria for James A. FitzPatrick Nuclear Power Plant

SFP Criteria from EPRI 3002007148	Site-Specific Data
7. To confirm applicability of the sloshing evaluation in Section 3.2 of EPRI 3002007148, the maximum SFP horizontal dimension (length or width) should be less than 125 ft, the SFP depth should be greater than 36 ft, and the GMRS peak Sa should be <0.1g at frequencies equal to or less than 0.3 Hz.	JAF SFP structure has a length of 40.0 ft, a width of 31.0 ft and a depth of 38.75ft based on JAF drawings FV-9A, FC-30E, and FM-1H. The normal water depth is 37.75 ft. Therefore, the SFP dimensional criterion is met. The JAF GMRS maximum spectral acceleration in the frequency range of ≤ 0.3 Hz is 0.0225g as documented in JAF-RPT-14-00004. Since this acceleration is less than 0.1g, this criterion is met.
8. To confirm applicability of the evaporation loss evaluation in Section 3.2 of EPRI 3002007148, the SFP surface area should be greater than 500 ft^2 and the licensed reactor core thermal power should be less than 4,000 MWt per unit.	The surface area of JAF SFP is 1,240 ft^2, which is greater than 500 ft^2. The licensed reactor thermal power for the single unit JAF is 2,536 MWt which is less than 4,000 MWt. The SFP surface area and licensed reactor core thermal power values are bounded by the EPRI criteria. Therefore, this criterion is met for JAF.

References:

1) NRC letter, ML12053A340 - 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

2) NRC letter, ML15194A015 - Final Determination of Licensee Seismic Probabilistic Risk Assessments Under the Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendation 2.1 “Seismic” of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated October 27, 2015

3) ENOI letter, JAFP-14-0039 - Entergy Seismic and Screening Hazard Report (CEUS Sites), Response to NRC Request for Information Pursuant to 10 CFR 50.54 (f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated March 31, 2014

4) NRC letter, ML16043A411 - James A. FitzPatrick Nuclear Power Plant - Staff Assessment of Information Provided Pursuant to Title 10 of the Code of Federal Regulations Part 50, Section 50.54(f), Seismic Hazard Reevaluations for Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident, dated February 18, 2016

5) NRC letter, ML15350A158 - Endorsement of Electric Power Research Institute Report 3002007148, “Seismic Evaluation Guidance: Spent Fuel Pool Integrity Evaluation,” dated March 17, 2016

6) EPRI guidance, EPRI 3002007148 - Seismic Evaluation Guidance Spent Fuel Pool Integrity Evaluation, dated February 2016