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Vogtle Electric Generating Plant – Units 1 and 2
Spent Fuel Pool Evaluation Supplemental Report, 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

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 ADAMS Accession Number ML12053A340.
2. 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, dated October 27, 2015, ADAMS Accession Number ML15194A015.
3. NEI Letter, transmits EPRI 3002009564 for NRC endorsement, dated January 31, 2017, ADAMS Accession Number ML17031A171.
4. EPRI 3002009564, Seismic Evaluation Guidance Spent Fuel Pool Integrity Evaluation, dated January 2017.
5. NRC Letter, provides endorsement of EPRI 3002009564, dated February 8, 2017, ADAMS Accession Number ML17034A408.
6. Southern Company, Letter NL-14-0344 to the U. S. Nuclear Regulatory Commission, Vogtle Electric Generating Plant – Units 1 and 2, Seismic Hazard and Screening Report for CEUS Sites, dated March 31, 2014, ADAMS Accession Number ML14092A019.
7. NRC Letter, Vogtle Electric Generating Plant, Units 1 and 2 – Staff Assessment of Information Provided Pursuant to Title 10 of the Code of Federal Regulations Part 50, Section 50.54(f), Seismic Hazard Reevaluations Relating to Recommendation 2.1 of The Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident (Tac Nos. MF3770 And MF3771), April 20, 2015, ADAMS Accession Number ML15054A296.

Ladies and Gentlemen:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued a Request for Information per 10CFR 50.54(f) (Reference 1) to all power reactor licensees. By letter dated October 27, 2015 (Reference 2), the NRC transmitted final seismic information request tables which identified that Vogtle Electric Generating Plant – Units 1 and 2 (Plant Vogtle) is to conduct a limited scope Spent Fuel Pool Evaluation. By Reference 3, Nuclear Energy Institute (NEI) submitted an Electric Power Research Institute (EPRI) report entitled, Seismic Evaluation Guidance Spent Fuel Pool Integrity Evaluation (EPRI 3002009564) (Reference 4) for NRC review and endorsement. NRC endorsement was provided by Reference 5.

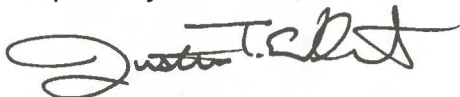
EPRI 3002009564 provides criteria for evaluating the seismic adequacy of a spent fuel pool (SFP) to the reevaluated ground motion response spectrum (GMRS) hazard levels. Section 4.3 of EPRI 3002009564 lists the parameters to be verified to confirm that the results of the report are applicable to Plant Vogtle, and that the Plant Vogtle SFP is seismically adequate in accordance with NTF 2.1 Seismic evaluation criteria.

The enclosure to this letter provides the data for Plant Vogtle Units 1 and 2 that confirms applicability of the EPRI 3002009564 criteria and confirms that the SFP is seismically adequate in accordance with NTF 2.1 Seismic evaluation criteria.

This letter contains no new Regulatory Commitments and no revision to existing Regulatory Commitments. If you have any questions, please contact Matt Euten at 205.992.7673.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 31st day of October 2017.

Respectfully submitted,



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JTW/MRE/GLS

Enclosure: Site-Specific Spent Fuel Pool Criteria for Vogtle Electric Generating Plant –
Units 1 and 2

cc: Regional Administrator, Region II
NRR Project Manager – Vogtle 1 & 2
Senior Resident Inspector – Vogtle 1 & 2
State of Georgia Environmental Protection Division
RType: CVC7000

Vogtle Electric Generating Plant – Units 1 and 2
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Enclosure

Site-Specific Spent Fuel Pool Criteria for
Vogtle Electric Generating Plant – Units 1 and 2

Introduction

The 50.54(f) letter requested that, in conjunction with the response to NTTF Recommendation 2.1, 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 References 2 and 7 that the GMRS exceeds the SSE and concluded that a SFP evaluation is merited for the Vogtle Electric Generating Plant Units 1 and 2 (Plant Vogtle). By letter dated February 8, 2017 (Reference 5) the staff determined that EPRI 3002009564 was an acceptable approach for performing SFP evaluations considering the GMRS hazard levels.

The table below lists the criteria from Section 4.3 of EPRI 3002009564 along with data for Plant Vogtle that confirms applicability of the EPRI 3002009564 criteria and confirms that the SFP is seismically adequate in accordance with NTTF 2.1 Seismic evaluation criteria.

SFP Criteria from EPRI 3002009564	Site-Specific Data
Site Parameters	
1. The site-specific GMRS should be the same as that submitted to the NRC between March 2014 and July 2015, which the NRC has found acceptable for responding to the NRC 50.54(f) letter (Reference 7).	The Plant Vogtle GMRS peak spectral acceleration in Reference 6 as accepted by the NRC in Reference 7 is 1.09g. <u>Therefore, this criterion is met for Plant Vogtle Units 1 and 2.</u>
Structural Parameters	
2. Site-specific calculations, performed in accordance with Section 4.1 of EPRI 3002009564 should demonstrate that the limiting SFP HCLPF is greater than the site-specific GMRS in the frequency range of interest (e.g., 10-20 Hz).	Site-specific calculations, performed in accordance with Section 4.1 of EPRI 3002009564, demonstrate that the limiting SFP HCLPF is 0.681g PGA, which exceeds the GMRS 0.436g PGA. <u>Therefore, this criterion is met for Plant Vogtle Units 1 and 2.</u>
3. The SFP structure should be included in the Civil Inspection Program performed in accordance with Maintenance Rule.	The SFP structure is included in Plant Vogtle Units 1 and 2 Civil Inspection Program in accordance with 10 CFR 50.65. In accordance with NMP-ES-021 V10.0, the Fuel Handling Building (including the SFP structure) is within scope of the inspection program. <u>Therefore, this criterion is met for Plant Vogtle Units 1 and 2.</u>

Non-Structural Parameters	
<p>4. To confirm applicability of the piping evaluation in Section 4.2 of EPRI 3002009564, piping attached to the SFP should have penetrations no more than 6 ft below water surface.</p>	<p>The maximum depth of piping below the water surface is less than 6 ft, as shown in SFP liner plate and piping isometric drawings (1X4DB130, 2X4DB130, AX2D09J03 and AX2D09J004). <u>Therefore, this criterion is met for Plant Vogtle Units 1 and 2.</u></p>
<p>5. To confirm ductile behavior under increased seismic demands, SFP gates should be constructed from either aluminum or stainless steel alloys.</p>	<p>The SFP gate and hinge components are constructed from a stainless-steel alloy, as shown in gate design drawings (AX2AH13-00030, AX2AH13-00031, AX2AH13-00032 and AX2AH13-00033). <u>Therefore, this criterion is met for Plant Vogtle Units 1 and 2.</u></p>
<p>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.</p>	<p>The SFP has two 10-inch heat exchanger return lines that extend down to 6 feet above the fuel assembly. However, these lines have anti-siphoning holes located 2' below the low water level per piping isometric drawings 1X4DB130 and 2X4DB130.</p> <p><u>As described, anti-siphoning devices are installed, therefore this criterion is met for Plant Vogtle.</u></p> <p>There are no lines with active anti-siphoning devices.</p> <p><u>Therefore, this criterion is met for Plant Vogtle Units 1 and 2.</u></p>
<p>7. To confirm applicability of the sloshing evaluation in Section 4.2 of EPRI 3002009564, the maximum SFP horizontal dimension (length or width) should be less than 125 ft and the SFP depth should be greater than 36 ft.</p>	<p>The Plant Vogtle Units 1 and 2 SFP has a length of 50.0 ft, a width of 34.0 ft, and a depth of 39.5 ft based on AX2D09A005, AX2D09A006, and AX4DR023. <u>Therefore, this criterion is met for Plant Vogtle Units 1 and 2.</u></p>
<p>8. To confirm applicability of the evaporation loss evaluation in Section 4.2 of EPRI 3002009564, the SFP surface area should be greater than 500 ft² and the licensed reactor core thermal power should be less than 4,000 MWt per unit.</p>	<p>The Plant Vogtle Units 1 and 2 SFP has a surface area of 1703 ft² which is greater than 500 ft² and the licensed reactor thermal power for Plant Vogtle Units 1 and 2 is 3,625.6 MWt per unit which is less than 4,000 MWt per unit. <u>Therefore, this criterion is met for Plant Vogtle Units 1 and 2.</u></p>