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U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Shearon Harris Nuclear Power Plant, Unit 1
Docket No. 50-400
Renewed License No. NPF-63

Subject: Mitigating Strategies Assessment (MSA) Report for the New Seismic Hazard Information - NEI 12-06, Appendix H, Revision 2, H.4.2 Path 2: GMRS < SSE with High Frequency Exceedances

References:

1. Nuclear Energy Institute (NEI), Report NEI 12-06, Revision 2, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, December 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16005A625)
2. U.S. Nuclear Regulatory Commission, JLD-ISG-2012-01, Revision 1, Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, January 2016 (ADAMS Accession No. ML15357A163)
3. Duke Energy Letter to NRC, Seismic Hazard and Screening Report (CEUS Sites), Response to NRC 10 CFR 50.54(f) 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, March 27, 2014 (Adams Accession No. ML14090A441)
4. NRC Letter, Screening and Prioritization Results Regarding Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Seismic Hazard Re-evaluations for Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, May 9, 2014 (ADAMS Accession No. ML14111A147)
5. NRC Letter, Shearon Harris Nuclear Power Plant, Unit 1 - 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, December 18, 2015 (ADAMS Accession No. ML15349A149)
6. 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, October 27, 2015 (ADAMS Accession No. ML15194A015)

7. Duke Energy Letter to NRC, High Frequency Supplement to Seismic Hazard Screening 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, December 17, 2015 (ADAMS Accession No. ML15351A170)
8. NRC Letter, Staff Review of High Frequency Confirmation Associated with Reevaluated Seismic Hazard in Response to March 12, 2012 50.54(f) Request for Information, February 18, 2016 (ADAMS Accession No. ML15364A544)
9. NEI Letter to NRC, Request for NRC Endorsement of High Frequency Program: Application Guidance for Functional Confirmation and Fragility Evaluation (EPRI 3002004396), July 30, 2015 (ADAMS Accession No. ML15223A100)
10. NRC Letter to NEI, Endorsement of Electric Power Research Institute Final Draft Report 3002004396, "High Frequency Program: Application Guidance for Functional Confirmation and Fragility," September 17, 2015 (ADAMS Accession No. ML15218A569)
11. Electric Power Research Institute (EPRI), High Frequency Program: Application Guidance for Functional Confirmation and Fragility Evaluation, contained in NEI letter dated July 30, 2015 (ADAMS Accession No. ML15223A102)

Ladies and Gentlemen:

The purpose of this letter is to provide the results of the assessment for Shearon Harris Nuclear Power Plant, Unit 1 (HNP), to determine if the FLEX strategies developed, implemented, and maintained in accordance with NRC Order EA-12-049 can be implemented considering the impacts of the reevaluated seismic hazard. The assessment was performed in accordance with the guidance provided in Appendix H of NEI 12-06 Revision 2 (Reference 1), which was endorsed by the NRC (Reference 2).

The Mitigating Strategies Seismic Hazard Information (MSSHI) is the licensee's reevaluated seismic hazard information at the HNP site, developed using Probabilistic Seismic Hazard Analysis (PSHA). The MSSHI includes a performance-based Ground Motion Response Spectrum (GMRS), Uniform Hazard Response Spectra (UHRS) at various annual probabilities of exceedance, and a family of seismic hazard curves at various frequencies and fractiles developed at the HNP site control point elevation. Duke Energy Progress, LLC (Duke Energy), submitted the reevaluated seismic hazard information including the UHRS, GMRS, and the hazard curves to the NRC in Reference 3. Subsequently, the NRC's Screening and Prioritization letter (Reference 4) acknowledged the required scope for HNP to perform a High Frequency (HF) Confirmation evaluation. In Reference 5, the NRC staff concluded that the GMRS that was submitted in Reference 3 adequately characterizes the reevaluated seismic hazard for the HNP site and is suitable for use with all Near-Term Task Force (NTTF) Recommendation 2.1 seismic evaluations. Further, the NRC Final Determination Letter (Reference 6) re-confirmed that only a HF Confirmation evaluation is required for HNP.

Duke Energy submitted a response for the NTTF Recommendation 2.1 seismic HF evaluation (Reference 7) in accordance with the screening allowance of EPRI 3002004396, Section 3.1.2, for limited HF exceedance (Reference 11, endorsed by the NRC in Reference 10). The NRC subsequently accepted the closure of HNP HF Confirmation per Reference 8 and confirmed that no further NTTF Recommendation 2.1 seismic response or regulatory actions are required.

Consistent with Section H.4.2 of Reference 1, the HNP site GMRS is bounded by the Safe Shutdown Earthquake (SSE) spectrum at frequencies between 1 to 10 Hertz (Hz). In the frequency range above 10 Hz, the GMRS exceeds the SSE spectrum. References 7 and 8 provide the HF Confirmation assessment that was performed for HNP and the NRC concurrence, respectively. For the HNP site, the GMRS to SSE exceedance at frequencies greater than 10 Hz qualifies as a minimal high frequency exceedance defined in Section 3.1.2 of EPRI Report 3002004396 (Reference 11), as endorsed by the NRC (Reference 10), and is considered inconsequential based on the requirements contained in Section H.4.2 of Reference 1. Therefore, the FLEX strategies for HNP can be implemented as designed and no further seismic evaluations or mitigating strategies assessments are necessary.

This letter contains no new regulatory commitments and no change to existing regulatory commitments.

Should you have any questions regarding this submittal, please contact John Caves, Regulatory Affairs Manager, at 919-362-2406.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October/3, 2016.

Sincerely,



Benjamin C. Waldrep

cc: Mr. M. Riches, NRC Resident Inspector, HNP
Ms. M. Barillas, NRC Project Manager, HNP
NRC Regional Administrator, Region II
Mr. S. Monarque, NRC Japan Lessons-Learned Project Manager, HNP

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