



October 31, 2016

NG-16-0193  
10 CFR 50.4

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

Duane Arnold Energy Center  
Docket No. 50-331  
Renewed Op. License No. DPR-49

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. NEI 12-06, Revision 2, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, December 2015 (ML16005A625)
2. 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 22, 2016 (ML15357A163)
3. NextEra Energy Duane Arnold, LLC Seismic Hazard and Screening Report (CEUS Sites), Response to NRC Request for Information Pursuant to 10CFR50.54(f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, NG-14-0092, dated March 28, 2014 (ML14092A331)
4. NRC letter, Duane Arnold Energy Center - 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 December 15, 2015 (ML15324A176)
5. NextEra Energy Duane Arnold, LLC's 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, NG-15-0342, dated December 15, 2015 (ML15352A114)
6. 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, dated February 18, 2016 (ML15364A544)
7. Electric Power Research Institute (EPRI) 3002004396, Final Report, July 2015, High Frequency Program, Application Guidance for Functional Confirmation and Fragility Evaluation (ML15223A102)
8. NRC Letter to NEI, Endorsement of EPRI Final Draft Report 3002004396, "High Frequency Program: Application Guidance for Functional Confirmation and Fragility", dated September 17, 2015 (ML15218A569)

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The purpose of this letter is to provide the results of the assessment for Duane Arnold Energy Center 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).

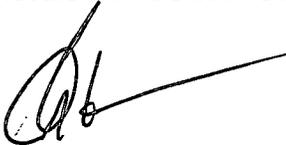
The Mitigating Strategies Seismic Hazard Information (MSSHI) is the licensee's reevaluated seismic hazard information at Duane Arnold Energy Center, developed using Probabilistic Seismic Hazard Analysis (PSHA). The MSSHI includes a performance-based Ground Motion Response Spectrum (GMRS), Uniform Hazard Response Spectra (UHRS) at various annual probabilities of exceedance, and a family of seismic hazard curves at various frequencies and fractiles developed at the Duane Arnold Energy Center control point elevation. NextEra Energy Duane Arnold, LLC submitted the reevaluated seismic hazard information including the UHRS, GMRS and the hazard curves to the NRC on March 28, 2014 (Reference 3). The NRC Staff concluded that the GMRS that was submitted adequately characterizes the reevaluated seismic hazard for the Duane Arnold Energy Center site (Reference 4).

Consistent with Section H.4.2 of Reference 1, the Duane Arnold Energy Center GMRS is bounded by the Safe Shutdown Earthquake (SSE) spectrum at frequencies between 1 to 10 Hz. In the frequency range above 10 Hz, the GMRS spectrum exceeds the SSE spectrum. References 5 and 6 provide the High Frequency Confirmation Assessment that was performed for Duane Arnold Energy Center, and the NRC concurrence, respectively. For Duane Arnold Energy Center, the GMRS to SSE exceedance at frequencies greater than 10 Hz qualifies as a minimal high frequency exceedance as defined in Section 3.1.1 of EPRI 3002004396 (Reference 7), as endorsed by the NRC (Reference 8), and is considered inconsequential. Therefore, the FLEX strategies for Duane Arnold Energy Center can be implemented as designed and no further seismic evaluations are necessary.

If you have any questions or require additional information, please contact Michael Davis, Licensing Manager, at 319-851-7032.

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

I declare under penalty of perjury that the foregoing is true and correct.  
Executed on October 31, 2016



Thomas Vehec  
Vice President, Duane Arnold Energy Center  
NextEra Energy Duane Arnold, LLC

cc: Regional Administrator, USNRC, Region III  
Resident Inspector, USNRC, Duane Arnold Energy Center  
Project Manager, USNRC, Duane Arnold Energy Center