



December 15, 2015

NG-15-0342
10 CFR 50.54(f)

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

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

- 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 (ML12053A340)
 - 2) NRC Letter, Electric Power Research Institute Report 3002000704, "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, dated May 7, 2013, ADAMS Accession Number ML 13106A331
 - 3) NRC Letter, Duane Arnold Energy Center-Screening and Prioritization Results regarding information pursuant to Title 10 of the Code of Federal Regulations Part 50, Section 50.54(f) Related to Seismic Hazard Re-evaluations for Recommendation 2.1 of the Near-Term Task Force Reviews of Insights from the Fukushima Dai-ichi accident, dated August 21, 2014, ADAMS Accession Number ML14198A070
 - 4) 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, ADAMS Accession Number ML14092A331

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- 5) NEI Letter, Final Draft of Industry Seismic Evaluation Guidance (EPRI 1025287), dated November 27, 2012, ADAMS Accession Number ML12333A168 and ML12333A170
- 6) NRC Letter, Endorsement of Electric Power Research Institute Final Draft Report 1025287, "Seismic Evaluation Guidance", dated February 15, 2013, ADAMS Accession Number ML12319A074
- 7) NRC Letter, Screening and Prioritization Results regarding information pursuant to Title 10 of the Code of Federal Regulations 50.54(f) regarding Seismic Hazard Reevaluations for Recommendation 2.1 of the Near-Term Task Force Reviews of Insights from the Fukushima Dai-ichi accident, dated May 9, 2014, ADAMS Accession Number ML14111A147
- 8) NEI Letter, Request for NRC Endorsement of High Frequency Program: Application Guidance for Functional Confirmation and Fragility Evaluation (EPRI 3002004396), dated July 30, 2015, ADAMS Accession Number ML15223A100
- 9) NRC Letter, Endorsement of Electric Power Research Institute Final Draft Report 3002004396, "High Frequency Program: Application Guidance for Functional Confirmation and Fragility", dated September 17, 2015, ADAMS Accession Number ML15218A569

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued a Request for Information per 10 CFR 50.54(f) (Reference 1) to all power reactor licensees. The required response section of Enclosure 1 indicated that licensees should provide a Seismic Hazard Evaluation and Screening Report within 1.5 years from the date of the letter for Central and Eastern United States (CEUS) nuclear power plants. By NRC letter dated May 7, 2013 (Reference 2), the date to submit the report was extended to March 31, 2014.

By letter dated August 21, 2014 (Reference 3), the NRC transmitted the results of the screening and prioritization review of the seismic hazards reevaluation submittal for the Duane Arnold Energy Center (Reference 4). In accordance with the screening, prioritization, and implementation details report (SPID) and Augmented Approach guidance (References 2, 5 and 6), the reevaluated seismic hazard is used to determine if additional seismic risk evaluations are warranted for a plant. Specifically, the reevaluated horizontal ground motion response spectrum (GMRS) at the control point elevation is compared to the existing safe shutdown earthquake (SSE) to determine if a plant is required to perform a high frequency confirmation.

As noted in the August 21, 2014 letter (Reference 3), the NRC concludes that consistent with the industry guidance, the Duane Arnold Energy Center should

be "screened-out" of performing the seismic risk evaluation, spent fuel pool evaluation, and expedited approach evaluation requested per the 50.54(f) letter (Reference 1). Duane Arnold Energy Center, however, is to perform a limited scope high frequency evaluation for those structures and components susceptible to high frequency accelerations because the re-evaluated ground motion response spectra (GMRS) exceeds the current safe shutdown earthquake above 10 Hz.

Within the May 9, 2014 letter (Reference 7), NRC acknowledged that these limited scope evaluations will require additional development of the assessment process. By Reference 8, the Nuclear Energy Institute (NEI) submitted an Electric Power Research Institute (EPRI) report entitled *High Frequency Program: Application Guidance for Functional Confirmation and Fragility Evaluation (EPRI 3002004396)* for NRC review and endorsement. NRC endorsement was provided by Reference 9.

The High Frequency Confirmation for Duane Arnold Energy Center shows that the high-frequency spectral accelerations of the control point GMRS above 10Hz are within the limits identified in Section 3.1.1 of Reference 8 (less than or equal to 0.2g); therefore, no additional evaluation is necessary. The enclosure to this letter provides the SSE and GMRS information from Reference 4.

If you have any questions or require additional information, please contact Curt Bock at 319-851-7645.

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 December 15, 2015



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

Enclosure: GMRS and SSE Supporting Information

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

Enclosure to NG-15-0342

GMRS and SSE Supporting Information
For the Duane Arnold Energy Center

2 pages follow

Table 1: SSE and GMRS Data

Frequency	SSE (g)	GMRS (g)
100.00	0.120	0.0881
90.00	0.120	0.0885
80.00	0.120	0.0895
70.00	0.120	0.0917
60.00	0.120	0.0978
50.00	0.120	0.1140
40.00	0.120	0.1370
35.00	0.120	0.1470
30.00	0.120	0.1590
25.00	0.140	0.1690
20.00	0.174	0.1740
15.00	0.200	0.1790
12.50	0.210	0.1760
10.00	0.224	0.1680
9.00	0.230	0.1600
8.00	0.234	0.1520
7.00	0.238	0.1440
6.00	0.256	0.1350
5.00	0.280	0.1210
4.00	0.306	0.1030
3.50	0.318	0.0929
3.00	0.320	0.0806
2.50	0.318	0.0684
2.00	0.292	0.0666
1.50	0.180	0.0594
1.25	0.124	0.0581
1.00	0.128	0.0536
0.90	0.116	0.0514
0.80	0.100	0.0495
0.70	0.074	0.0476
0.60	0.070	0.0457
0.50	0.054	0.0435
0.40		0.0348
0.35		0.0304
0.30		0.0261
0.25		0.0217
0.20		0.0174
0.15		0.0130
0.125		0.0109
0.10		0.00869

Figure 1: GMRS to SSE Comparison

