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10 CFR 50.54(f)

December 17, 2015
Serial: HNP-15-102

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

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

Subject: 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, (Agency-wide Documents Access and Management System (ADAMS) Accession Number ML12053A340)
2. NRC Letter, Electric Power Research Institute 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, dated May 7, 2013, (ADAMS Accession Number ML 13106A331)
3. Nuclear Energy Institute Letter, Final Draft of Industry Seismic Evaluation Guidance (EPRI 1025287), dated November 27, 2012, (ADAMS Accession Number ML12333A168 and ML12333A170)
4. NRC Letter, Endorsement of Electric Power Research Institute Final Draft Report 1025287, "Seismic Evaluation Guidance", dated February 15, 2013, (ADAMS Accession Number ML12319A074)
5. Duke Energy Letter, 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, dated March 27, 2014, (Adams Accession No. ML14090A441)

6. 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)
7. 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)
8. 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 Number ML15223A102)
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)

Ladies and Gentlemen:

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 May 9, 2014 (Reference 6), the NRC transmitted the results of the screening and prioritization review of the seismic hazards reevaluation submittal for Shearon Harris Nuclear Power Plant, Unit 1 (HNP). In accordance with the screening, prioritization, and implementation details report (SPID) and Augmented Approach guidance (References 2, 3 and 4), 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) or Individual Plant Examination for External Events (IPEEE) High Capacity Low Probability of Failure (HCLPF) Spectrum (IHS) to determine if a plant is required to perform a high frequency confirmation. As noted in the May 9, 2014 letter, HNP is to conduct a limited scope High Frequency Confirmation.

Within the May 9, 2014 letter (Reference 6), NRC acknowledged that these limited scope evaluations will require additional development of the assessment process. By Reference 7, 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 HNP shows that the GMRS exceedance area between the control point GMRS and SSE is on the order of 10% or less of the area under the SSE over the frequency range of exceedance. As such, the GMRS exceedances are consistent with the criteria identified in Section 3.1.2 of Reference 8, and no additional evaluation is necessary. The attachment to this letter provides the SSE and GMRS information from Reference 5.

This letter contains no new 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 December 7, 2015.

Sincerely,



Benjamin C. Waldrep

Attachment:

Ground Motion Response Spectrum and Safe Shutdown Earthquake Information

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

This letter contains no new Regulatory Commitments.

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

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U.S. Nuclear Regulatory Commission
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SERIAL HNP-15-102

ATTACHMENT

**GROUND MOTION RESPONSE SPECTRUM AND SAFE SHUTDOWN EARTHQUAKE
INFORMATION**

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

RENEWED LICENSE NUMBER NPF-63

Table 1: Safe Shutdown Earthquake Information (SSE) and Ground Motion Response Spectrum (GMRS) Data*

SSE		GMRS	
Frequency	Acceleration	Frequency	Acceleration
(Hz)	(g)	(Hz)	(g)
0.1	0.0113	0.1	1.04E-02
0.125	0.0177	0.125	1.30E-02
0.15	0.0254	0.15	1.56E-02
0.2	0.0452	0.2	2.09E-02
0.25	0.0707	0.25	2.61E-02
0.3	0.0821	0.3	3.13E-02
0.35	0.0932	0.35	3.65E-02
0.4	0.1041	0.4	4.17E-02
0.5	0.125	0.5	5.21E-02
0.6	0.1452	0.6	5.93E-02
0.7	0.1648	0.7	6.60E-02
0.8	0.184	0.8	7.00E-02
0.9	0.2027	0.9	7.37E-02
1	0.221	1	7.86E-02
1.25	0.2655	1.25	9.02E-02
1.5	0.3085	1.5	9.65E-02
2	0.3908	2	1.10E-01
2.5	0.4695	2.5	1.15E-01
3	0.4575	3	1.32E-01
3.5	0.4476	3.5	1.48E-01
4	0.4392	4	1.59E-01
5	0.4255	5	1.84E-01
6	0.4147	6	1.98E-01
7	0.4057	7	2.09E-01
8	0.3981	8	2.16E-01
9	0.3915	9	2.22E-01
10	0.3622	10	2.25E-01
12.5	0.3072	12.5	2.29E-01
15	0.2685	15	2.24E-01
20	0.2171	20	2.12E-01
25	0.1841	25	1.96E-01
30	0.1609	30	1.87E-01
33	0.15	35	1.73E-01
40	0.15	40	1.62E-01
50	0.15	50	1.36E-01
60	0.15	60	1.19E-01

SSE		GMRS	
Frequency	Acceleration	Frequency	Acceleration
(Hz)	(g)	(Hz)	(g)
70	0.15	70	1.13E-01
80	0.15	80	1.11E-01
90	0.15	90	1.10E-01
100	0.15	100	1.10E-01

* Data has been validated against Duke Energy Letter, 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, dated March 27, 2014, (Adams Accession No. ML14090A441)

Figure 1: GMRS to SSE Comparison

