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TALEN ENERGY

DEC 2 3 2015

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

10 CFR 50.54 (f)

**SUSQUEHANNA STEAM ELECTRIC STATION
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**
PLA-7416

**Docket No. 50-387
and No. 50-388**

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, 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 ML13106A331.*

3. *NEI 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. *PPL Letter (PLA-7145), Susquehanna Steam Electric Station Seismic Hazard and Screening Report (CEUS Sites), 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, dated March 26, 2014, ADAMS Accession Number ML14085A398.*

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 Re-evaluations for Recommendation 2.1 of the Near-Term Task Force Review 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. *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.*

9. *NRC Letter, Final Determination of Licensee Seismic 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-chi Accident, dated October 27, 2015, ADAMS Accession Number ML15194A015.*

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 Susquehanna Nuclear, LLC (Reference 5). 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 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 October 27, 2015 letter (Reference 9), Susquehanna Nuclear, LLC 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 8.

The High Frequency Confirmation for Susquehanna Nuclear, LLC, shows that the GMRS exceedance area between the control point GMRS and IHS anchored at 0.21g is 8.5% over the frequency range of exceedance. As such, the GMRS exceedances are consistent with the criteria identified in Section 3.1.2 of Reference 7; therefore, no additional

evaluation is necessary. The attachment to this letter provides IHS and GMRS information from Reference 5.

This transmittal completes the scope of work described in Section 4.2 of Reference 5.

This letter contains no new Regulatory Commitments and no revision to existing Regulatory Commitments.

Should you have any questions regarding this submittal, please contact Mr. Jason Jennings at 570-542-3155.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: 12/23/15

Sincerely,

T.S. Rausch

Enclosure: GMRS and SSE Supporting Information

Copy: NRC Region I
Mr. J. E. Greives, NRC Sr. Resident Inspector
Ms. T. E. Hood, NRC Project Manager
Mr. J. D. Hughey, NRC Project Manager
Mr. M. Shields, PA DEP/BRP

Enclosure to PLA-7416

GMRS and IHS Supporting Information

(Reference 5)

For

Susquehanna Steam Electric Station

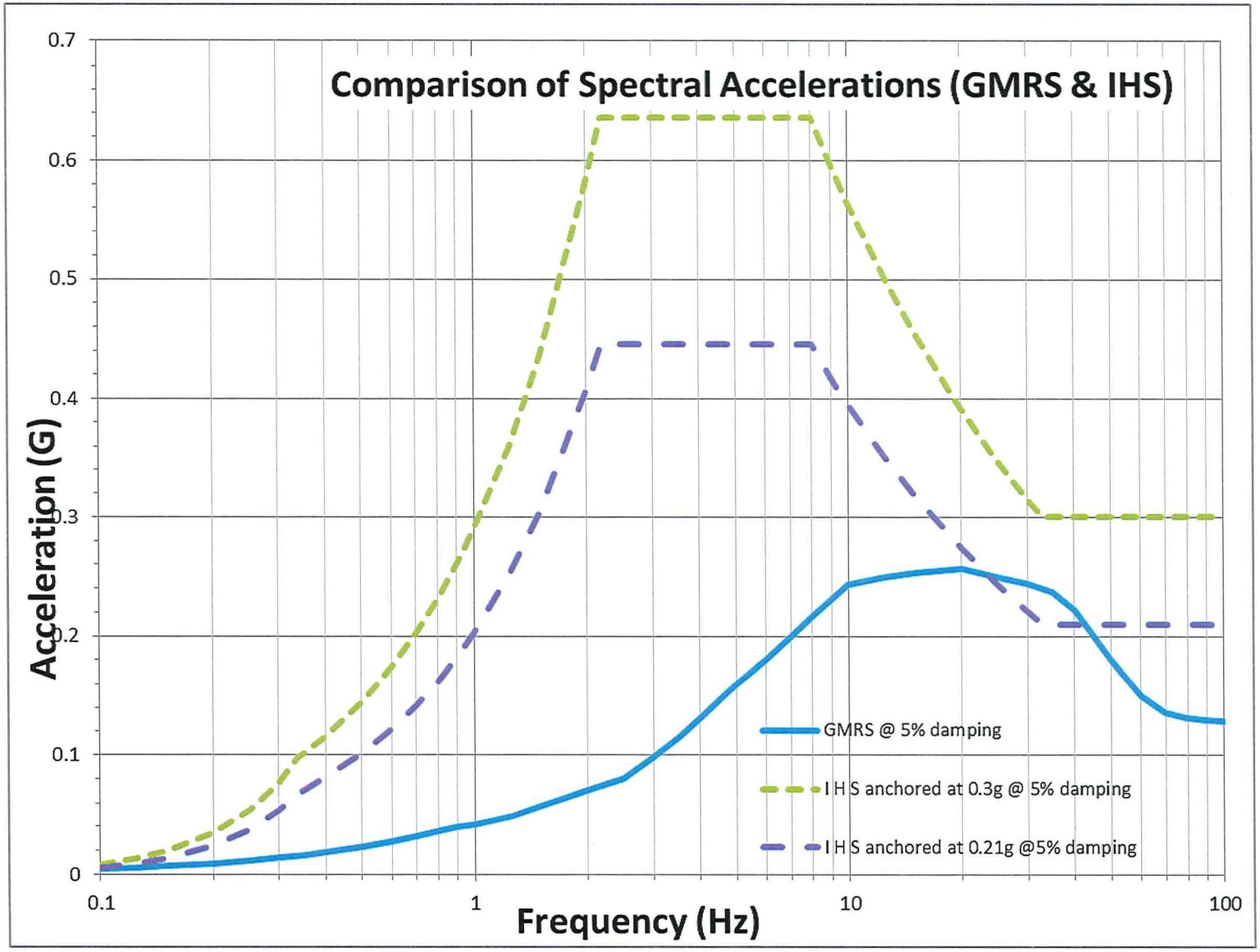
Units 1 & 2

Table 1 GMRS and IHS Data*

GMRS		IHS @ 0.21g		IHS @ 0.30g	
Freq	Accel	Freq	Accel	Freq	Accel
(Hz)	(g)	(Hz)	(g)	(Hz)	(g)
0.1	4.66E-03	0.1	0.006	0.1	0.0086
0.125	5.82E-03	0.15	0.014	0.15	0.0193
0.15	6.98E-03	0.2	0.024	0.2	0.0344
0.2	9.31E-03	0.3	0.054	0.3	0.0773
0.25	1.16E-02	0.37	0.075	0.37	0.107
0.3	1.40E-02	0.7	0.142	0.7	0.203
0.35	1.63E-02	1	0.203	1	0.29
0.4	1.86E-02	1.25	0.253	1.25	0.362
0.5	2.33E-02	1.5	0.304	1.5	0.435
0.6	2.76E-02	1.8	0.365	1.8	0.521
0.7	3.23E-02	2	0.406	2	0.579
0.8	3.67E-02	2.5	0.445	2.5	0.636
0.9	3.97E-02	3.33	0.445	3.33	0.636
1	4.17E-02	4	0.445	4	0.636
1.25	4.89E-02	5	0.445	5	0.636
1.5	5.76E-02	5.6	0.445	5.6	0.636
2	7.08E-02	6.67	0.445	6.67	0.636
2.5	8.02E-02	8	0.445	8	0.636
3	9.79E-02	10	0.396	10	0.565
3.5	1.15E-01	13.5	0.337	13.5	0.482
4	1.31E-01	20	0.274	20	0.391
5	1.60E-01	33	0.21	33	0.3
6	1.80E-01	100	0.21	100	0.3
7	1.99E-01				
8	2.17E-01				
9	2.31E-01				
10	2.43E-01				
12.5	2.49E-01				
15	2.53E-01				
20	2.56E-01				
25	2.49E-01				
30	2.44E-01				
35	2.37E-01				
40	2.22E-01				
50	1.81E-01				
60	1.50E-01				
70	1.36E-01				
80	1.31E-01				
90	1.30E-01				
100	1.29E-01				

* Data validated against Reference 5

Figure 1


Comparison of Spectral Accelerations (GMRS & IHS)
Acceleration (G)
Frequency (Hz)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.1
1
10
100
GMRS @ 5% damping
I H S anchored at 0.3g @ 5% damping
I H S anchored at 0.21g @5% damping