



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 15, 2016

Mr. David A. Heacock
President and Chief Nuclear Officer
Dominion Nuclear Connecticut, Inc.
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060

SUBJECT: MILLSTONE POWER STATION, UNITS 2 AND 3 – SUPPLEMENT TO 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 (CAC NOS. MF3968 AND MF3969)

Dear Mr. Heacock:

The purpose of this letter is to transmit a supplement to the U.S. Nuclear Regulatory Commission (NRC) staff's assessment of Millstone Power Station, Units 2 and 3 (Millstone) reevaluated seismic hazard information that was issued to you by letter dated December 15, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15328A268). The supplement updates the original staff assessment to align with the final screening determinations documented in the NRC letter dated October 27, 2015 (ADAMS Accession No. ML15194A015).

By letter dated March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued a request for information pursuant to Title 10 of the *Code of Federal Regulations*, Part 50, Section 50.54(f) (hereafter referred to as the 50.54(f) letter). The purpose of that request was to gather information concerning, in part, seismic hazards at each operating reactor site and to enable the NRC staff, using present-day NRC requirements and guidance, to determine whether licenses should be modified, suspended, or revoked.

By letter dated March 31, 2014 (ADAMS Accession No. ML14092A417), Dominion Nuclear Connecticut, Inc. (Dominion, the licensee), responded to this request for Millstone Power Station, Units 2 and 3 (Millstone).

By letter dated December 15, 2015, the staff transmitted to you its assessment of the information provided in the March 31, 2014 letter. The NRC staff indicated that it has completed its review of the information provided, as documented in the staff assessment and the enclosed supplement to the staff assessment. The enclosed supplement to the NRC staff assessment updates the staff's conclusions in accordance with the NRC letter dated October 27, 2015, concerning the final screening determinations and the set of information necessary for Millstone to submit in order to complete its response to the 50.54 (f) letter.

The December 15, 2015, staff assessment states that a High Frequency (HF) confirmation is not considered a substitute for the Individual Plant Examination of External Events (IPEEE) relay chatter review and indicates that both the relay chatter review and the HF confirmation are required to be performed and that failure to meet the IPEEE program screening criteria in the Seismic Evaluation Guidance: Screening, Prioritization, and Implementation Details (SPID) (ADAMS Accession No. ML ML12333A170) would merit re-screening by the safe shutdown earthquake (SSE) and performance of a seismic probabilistic risk assessment (SPRA). This screening determination was reassessed and the conclusions reached in the October 27, 2015, letter supersede those stated in the staff assessment.

The October 27, 2015, letter provided Millstone with two options in Table 1b to complete the closure of the Recommendation 2.1 Seismic 50.54(f) response. Table 1b requested Millstone to address either [Option 1] by performing a spent fuel pool evaluation (SFP), a full-scope IPEEE relay chatter review and a HF confirmation or [Option 2] by performing a SFP evaluation and a HF confirmation. Either option represents the set of information necessary for Millstone to submit in order to complete its response to the 50.54 (f) letter. Furthermore, Table 1b found that no SPRA is warranted for the response to the March 12, 2012, 50.54(f) letter for Millstone, Units 2 and 3. That conclusion was based on the NRC staff's comparison of the ground motion response spectra to the SSE, and the review of additional existing hazard and risk information for group 3 and some group 2 plants.

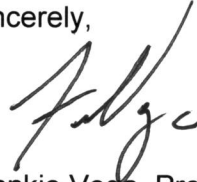
Reiterating the conclusion provided in the October 27, 2015, letter the staff concluded that a SPRA is not warranted for Millstone, Units 2 and 3, regardless of satisfying the IPEEE acceptance criteria in the SPID for the response to the March 12, 2012, 50.54(f) letter. In addition, no re-screening for Millstone is necessary regardless of which of the two options listed in the October 27, 2015, letter the licensee chooses to exercise to complete its response to the 50.54(f) letter. In choosing one of the two options, Dominion should consider that a relay chatter study will continue to be needed for the IPEEE submittal to meet the SPID acceptance criteria. Meeting the SPID criteria will be necessary if Dominion plans to rely on the IPEEE results in its mitigation strategies assessment with respect to the reevaluated hazard.

D. Heacock

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If you have any questions, please contact me at (301) 415-1617 or email at Frankie.Vega@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'Frankie Vega', written in a cursive style.

Frankie Vega, Project Manager
Hazards Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

Docket Nos. 50-336 and 50-423

Enclosure:
Supplement to Staff Assessment of Seismic
Hazard Reevaluation Report

cc w/encl: Distribution via Listserv

D.Heacock

- 3 -

If you have any questions, please contact me at (301) 415-1617 or email at Frankie.Vega@nrc.gov.

Sincerely,

/RA/

Frankie Vega, Project Manager
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***via email**

OFFICE	NRR/JLD/JHMB/PM	NRR/JLD/LA
NAME	FVega	SLent
DATE	03/02/2016	03/01/2016
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NAME	MShams	FVega
DATE	03/05/2016	03/15/2016

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SUPPLEMENT TO
STAFF ASSESSMENT BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO SEISMIC HAZARD REEVALUATION REPORT
NEAR-TERM TASK FORCE RECOMMENDATION 2.1
MILLSTONE POWER STATION, UNITS 2 AND 3
DOCKET NOS. 50-336 AND 50-423

1.0 INTRODUCTION

This document is a supplement to the U.S. Nuclear Regulatory Commission (NRC) staff assessment that was transmitted by letter dated December 15, 2015 (NRC, 2015a), to Dominion Nuclear Connecticut, Inc (Dominion, the licensee), for Millstone Power Station, Units 2 and 3 (Millstone). This supplement only contains the sections that were changed to reach alignment with the final screening determinations documented in the October 27, 2015, letter (NRC, 2015b). Instead of repeating the Reference section in its entirety, only the additions to the list of references are included in the supplement.

2.0 REGULATORY BACKGROUND

There are no changes to this section of the NRC staff assessment.

2.1 Screening Evaluation Results

By letter dated March 31, 2014 (Heacock, 2014), Dominion provided its SHSR for Millstone, Units 2 and 3. The licensee's Seismic Hazard and Screening Report (SHSR) indicates that the site ground motion response spectra (GMRS) exceeds the site SSE for a portion of the frequency range between 1 to 10 Hertz (Hz). However, the licensee indicated that over the frequency range of 1 to 10 Hz, the GMRS is bounded by the site Individual Plant Examination of External Events (IPEEE) plant- level high confidence of low probability of failure (HCLPF) spectrum (IHS) for Millstone, Units 2 and 3. The licensee provided the evaluation of the IPEEE program screening criteria referenced in the SPID to allow screening credit for the plant capacity determined in the IPEEE program. As such, the licensee indicated that both Millstone, Units 2 and 3 screen out of performing a plant seismic risk evaluation. At frequencies above 10 Hz, the GMRS exceeds the IHS. Therefore, the licensee stated that it will complete the relay chatter review specified in SPID Section 3.3.1 consistent with the NEI letter to the NRC dated October 3, 2013 (Keithline, 2013), on the same schedule as the HF confirmation as proposed in the NEI letter dated April 9, 2013 (Pietrangelo, 2013), and accepted in NRC's letter dated May 7, 2013 (NRC, 2013a). The licensee stated that it will also perform the HF confirmation per SPID Section 3.4, if the relay chatter review is not successful in demonstrating relay adequacy based on the GMRS. Finally, due to the GMRS exceeding the two SSE spectra in the 1 to 10 Hz frequency range, Millstone, Units 2 and 3 screen-in to perform a SFP evaluation.

Enclosure

On May 9, 2014 (NRC, 2014a), the NRC staff issued a letter providing the outcome of its 30-day screening and prioritization evaluation. In the letter, the NRC staff characterized the Millstone site as conditionally screened-in, because additional information was needed to support a screening decision using the SPID IPEEE screening criteria and a prioritization decision. On November 21, 2014 (NRC, 2014b), the NRC staff issued a letter providing the outcome of its final seismic screening and prioritization results. The licensee's GMRS, as well as the staff's confirmatory GMRS, exceeds the SSE spectra for Millstone, Units 2 and 3 over a portion of the frequency range of 1 to 10 Hz. However, the licensee demonstrated that the plant met the IPEEE program screening criteria in the SPID, provided that a IPEEE relay chatter review is successfully completed and the IHS for Millstone, Units 2 and 3 bound the GMRS over the 1 to 10 Hz range, therefore, Millstone, Units 2 and 3 were screened out for conducting a seismic risk evaluation. This initial screening decision was contingent on the licensee's successful completion of the IPEEE relay chatter review, in accordance with the IPEEE program screening criteria in the SPID. As stated in the October 27, 2015 (NRC, 2015), letter, the NRC revised this initial screening determination. Based on the NRC staff's comparison of the GMRS to the SSE and the review of additional hazard and risk information, the NRC concluded that a seismic risk evaluation was not merited for Millstone regardless of satisfying the IPEEE acceptance criteria in the SPID. The GMRS exceeds the IHS above approximately 15 Hz for Millstone, Units 2 and 3 and therefore, a HF confirmation is merited for Millstone, Units 2 and 3. Finally, because the IPEEE program did not include the SFP, a SFP evaluation is merited.

3.0 TECHNICAL EVALUATION

There are no changes or updates to this section of the NRC staff assessment.

3.1 Plant Seismic Design-Basis

There are no changes or updates to this section of the NRC staff assessment.

3.2 Probabilistic Seismic Hazard Analysis

There are no changes or updates to this section of the NRC staff assessment.

3.3 Site Response Evaluation

There are no changes or updates to this section of the NRC staff assessment.

3.3.1 Site Base Case Profiles

There are no changes or updates to this section of the NRC staff assessment.

3.3.2 Site Response Method and Results

There are no changes or updates to this section of the NRC staff assessment.

3.3.3 Staff Confirmatory Analysis

There are no changes or updates to this section of the NRC staff assessment.

3.4 Ground Motion Response Spectra

There are no changes or updates to this section of the NRC staff assessment.

4.0 CONCLUSION

The NRC staff reviewed the information provided by the licensee for the reevaluated seismic hazard for the Millstone site. Based on its review, the NRC staff concluded that the licensee conducted its hazard reevaluation using present-day methodologies and regulatory guidance, it appropriately characterized the site given the information available, and met the intent of the guidance for determining the reevaluated seismic hazard. The NRC staff concluded that the licensee demonstrated that the IHS could be used for comparison with the GMRS for the screening determination. Based on the preceding analysis the staff concludes that the licensee provided an acceptable response to Requested Information Items (1) – (3), (5) – (7) and the comparison portion of (4) identified in Enclosure 1 of the 50.54(f) letter. Further, the licensee's reevaluated seismic hazard is acceptable to address other actions associated with NTTF Recommendation 2.1: Seismic.

In reaching this determination, and as stated in the October 27, 2015, letter the NRC staff confirms that a seismic risk evaluation (Item 8) is not merited. Further, the NRC staff confirmed the licensee's conclusion that the licensee's GMRS for the Millstone site exceeds the IHS over the frequency range of above 10 Hz. Therefore, HF confirmation (Item (4)) is merited. A SFP evaluation (Item 9) is merited because the SFP was not included in the IPEEE program. A relay chatter evaluation will be needed for the IPEEE submittal to meet the SPID acceptance criteria if Dominion plans to rely on the IPEEE results in its mitigation strategies assessment with respect to the reevaluated hazard.

The NRC review and acceptance of either a SFP evaluation and a HF confirmation or a SFP evaluation, HF confirmation and an IPEEE relay chatter review for Millstone will complete the Seismic Hazard Evaluation identified in Enclosure 1 of the 50.54(f) letter.

5.0 REFERENCES

U.S. Nuclear Regulatory Commission Documents and Publications

NRC (U.S. Nuclear Regulatory Commission), 2015a, letter from Frankie Vega, NRC, to David Heacock, President and Chief Nuclear Officer, Dominion Nuclear Connecticut, Inc. – Millstone Power Station, Units 2 and 3 Staff Assessment of Response to 10 CFR 50.54(f) Information Request “Seismic”, December 15, 2015, ADAMS Accession No. ML15328A268.

NRC (U.S. Nuclear Regulatory Commission), 2015b, Letter from W. Dean (NRC), Director, Office of Nuclear Reactor Regulation to All Power Reactor Licensees and holders of Construction Permits in Active or Deferred Status, Final Determination of Licensee Seismic Probabilistic Risk Assessments Under 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 Fukushima Dai-Ichi Accident, October 27, 2015, ADAMS Accession No. ML15194A015.