

NRR-PMDAPEm Resource

From: Vega, Frankie
Sent: Monday, November 17, 2014 2:13 PM
To: jmgidden@southernco.com
Cc: DiFrancesco, Nicholas; Munson, Clifford; Jackson, Diane; Whaley, Sheena; Martin, Robert
Subject: Draft RAI associate with NTTF Rec 2.1 Seismic - Hatch
Attachments: Draft RAI to Hatch.docx

Mr. Giddens;

As stated in the voicemail I left you earlier today, attached is a draft RAI associated with the review of the NTTF Rec. 2.1 seismic hazard reevaluations for Hatch.

Please let me know if your staff needs a RAI clarification call to support licensee response. Additionally, if practicable, please prepare to discuss an agreeable response date with NRC staff during the call.

Thanks

Frankie G. Vega, P.E.

Project Manager

NRR/JLD/JHMB

301-415-1617

Location: O-13H10

Hearing Identifier: NRR_PMDA
Email Number: 1727

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Subject: Draft RAI associate with NTTF Rec 2.1 Seismic - Hatch
Sent Date: 11/17/2014 2:12:57 PM
Received Date: 11/17/2014 2:12:58 PM
From: Vega, Frankie

Created By: Frankie.Vega@nrc.gov

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"Martin, Robert" <Robert.Martin@nrc.gov>
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Tracking Status: None

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Files	Size	Date & Time
MESSAGE	507	11/17/2014 2:12:58 PM
Draft RAI to Hatch.docx		84874

Options

Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Mr. C. R. Pierce
Regulatory Affairs Director
Southern Nuclear Operating Co., Inc.
P.O. Box 1295 / BIN B038
Birmingham, AL 35201-1295

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 - REQUEST FOR
ADDITIONAL INFORMATION ASSOCIATED WITH NEAR-TERM TASK
FORCE RECOMMENDATION 2.1, SEISMIC HAZARD AND SCREENING
REPORT (TAC NOS. MF3772 AND MF3773)

Dear Mr. Pierce:

By letter dated March 31, 2014¹, to the U. S. Nuclear Regulatory Commission (NRC), Southern Nuclear Operating Company, Inc. (SNC) the licensee for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch) submitted for NRC review the Seismic Hazard and Screening Report, Pursuant to Title 10 of the *Code of Federal Regulations* Part 50, Section 50.54(f), Response for Information Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident.

The NRC staff has reviewed the information provided for Hatch's seismic hazard reevaluation and has determined that additional information is required to complete its review. Enclosed is a request for additional information (RAI) related the material parameters used in the site response analysis for the Edwin I. Hatch Nuclear Plant. As discussed with your staff on [November X, 2014], it was agreed that a response would be provided no later than [December X, 2014].

¹ The Hatch Seismic Hazard Evaluation Report dated March 31, 2014, can be found under Agencywide Documents Access and Management System (ADAMS) Accession No. ML14092A017.

C. Pierce

- 2 -

If you have any questions related to the enclosed RAI or response date, please contact me at 301-415-1115 or via e-mail at Nicholas.DiFrancesco@nrc.gov.

Sincerely,

Nicholas J. DiFrancesco, Senior Project Manager
Hazards Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

DRAFT

Enclosure

C. Pierce

- 2 -

If you have any questions related to the enclosed RAIs or response date, please contact me at 301-415-1115 or via e-mail at Nicholas.DiFrancesco@nrc.gov.

Sincerely,

Nicholas J. DiFrancesco, Senior Project Manager
Hazards Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosure:
Request for Additional Information

cc w/encl: Distribution via listserv

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ADAMS Accession No: ML14318A007

***via email**

OFFICE	NRR/JLD/JHMB/PM	NRR/JLD/JHMB/LA	NRR/DORL/LPL2-1/PM*
NAME	FVega	SLent	RMartin
DATE	11/ /2014	11/ /2014	11/ /2014
OFFICE	NRR/JLD/JHMB/BC	NRR/JLD/JHMB/PM	
NAME	SWhaley	NDiFrancesco	
DATE	11/ /2014	11/ /2014	

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Enclosure

REQUEST FOR ADDITIONAL INFORMATION
NEAR-TERM TASK FORCE RECOMMENDATION 2.1
SEISMIC HAZARD AND SCREENING REPORT
EDWIN I. HATCH NUCLEAR PLANT UNITS 1 AND 2
DOCKET NOS. 50-321 AND 50-366

By letter dated March 31, 2014¹, to the U. S. Nuclear Regulatory Commission (NRC), Southern Nuclear Operating Company, Inc. (SNC) the licensee for Edwin I. Hatch Nuclear Plant, Units 1 and 2 (Hatch), submitted for NRC review the Seismic Hazard and Screening Report, 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), Response for Information Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident.

Review of material parameters used in the site response analysis

Section 2.3 of the Seismic Hazard and Screening Report for Hatch describes the site response evaluation to determine the site amplification factors.

The NRC Staff has reviewed the information submitted and has determined that the following request for additional information (RAI) below is needed to complete its review.

Request for Additional Information

Site specific subsurface data described in the final safety analysis report and subsequent studies carried out for the independent spent fuel storage installation (ISFSI) foundations were used to develop the base case profile over the elevation range of 129 feet (ft) to -300 ft while from -300 ft to -4000 ft (basement), compression-wave velocity (V_p) data from a nearby oil well were used. With regard to the development of the base case profile, and consistent with the 50.54(f) letter and the SPID guidance² please provide the bases for the following items:

- a) From the Tampa geologic unit down to the Triassic (basement) a Poisson's ratio of 0.25 was used to estimate shear-wave velocity (V_s) values, which range from 3794 fps (feet/sec) to 6657 fps for these layers. As shown in Figure # 1 below, which is based on measurements described in Brown et al. (2002)³, a Poisson's ratio of about 0.4 would be more appropriate. Use of a Poisson's ratio of 0.4 would result in median base case V_s values ranging from 2683 fps to 4707 fps and 90th percentile V_s values ranging from 4195 fps to 7372 fps, assuming a logarithmic standard deviation of 0.35.

¹ Hatch Seismic Hazard Evaluation Report dated March 31, 2014, can be found under Agencywide Documents Access and Management System (ADAMS) Accession No. ML14092A017.

² The screening, prioritization, and implementation details (SPID) can be found under ADAMS Accession No. ML12333A170.

³ Brown, L.T., D.M. Boore, and K.H. Stokoe, II (2002). Comparison of shear-wave slowness profiles at ten strong-motion sites, *Bull. Seism. Soc. Am* 92, 3116-3133.

Enclosure

Based on the depth of the layers beneath the subsurface, provide the bases for use of a Poisson's ratio of 0.25.

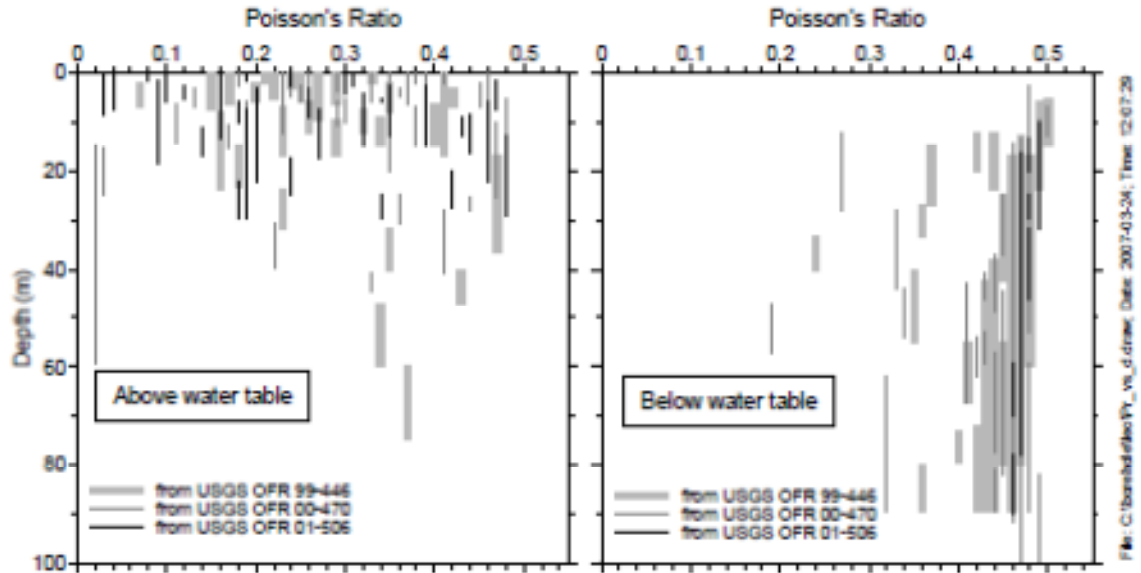


Figure # 1

- b) Section 2.3.2 states that uncertainty in the V_s data is accounted for by using a logarithmic standard deviation of 0.35 to develop the upper and lower base case profiles. As a result, V_s values for the upper base case profile reach as high as 10,440 fps for the Lisbon formation (a sandy phosphatic dolomitic limestone), which is higher than the V_s assumed for reference rock ($V_s=9200$ fps). Based on the availability of multiple sources of subsurface data over the upper subsurface layers, the availability of nearby oil well data for the deeper layers, and data for these geologic units at other Coastal Plain sites, provide the bases for using a logarithmic standard deviation of 0.35 to develop the upper and lower base case profiles as well as the resulting relatively high V_s value for the Lisbon formation.
- c) Section 2.3.2.2 states that the Hatch site was considered to be a deep soil site and thus a kappa value of 0.04 sec was used for the median base case with value of 0.024 sec and 0.067 sec for the 10th and 90th percentiles. Section 2.3.2.1 states that from the Ocala (elevation -380 feet) to the top of the Triassic, the materials are "taken to be medium/competent rock". In addition, V_s values for the upper base case profile reach as high as 10,440 fps, which is higher than the V_s assumed for reference rock ($V_s=9200$ fps). Based on the material description of the subsurface as "medium/competent" rock and the high V_s values for the deeper layers, provide the bases for considering the Hatch site to be a deep soil site for the purposes of estimating kappa.

- d) Table 2.3.2-9 of Section 2.3.2.2 states that a kappa value of 0.04 sec was used for the median base case with value of 0.024 sec and 0.067 sec for the lower (10th) and upper (90th) range percentiles. The SPID guidance for deep soil sites states that a maximum base-case kappa of 0.04 sec should be adopted for both the upper and lower range profiles with the assumption that the suite of profiles reflects deep firm soils. Based on this recommendation in the SPID guidance, provide the bases for use of a kappa value of 0.067 sec for the upper 90th percentile. In addition, please clarify whether the kappa values listed in Table 2.3.2-9 include the 0.006 sec contribution for the reference rock.

DRAFT