

PSEGSPeRAIPEm Resource

From: Chowdhury, Prosanta
Sent: Monday, April 11, 2011 2:16 PM
To: 'PSEGRAIResponses@pseg.com'
Cc: PSEGSPeRAIPEm Resource; 'David.Lewis2@pseg.com'; 'James.Mallon@pseg.com'; 'David.Robillard@pseg.com'; Colaccino, Joseph; Silvia, Andrea; Clark, Phyllis; McLellan, Judith; Jones, Henry; Raione, Richard
Subject: PSEG Site ESPA FINAL RAI 20 (eRAI 5632) SRP-02.04.06 (RHEB)
Attachments: PSEG Site ESPA Final RAI 20 (eRAI 5632).pdf

Please find attached RAI 20 for the PSEG Site ESP Application. A draft of the RAI was provided to you on April 01, 2011. You informed via email on April 11, 2011, that you would not need a clarification call involving this specific RAI, and therefore, we are issuing this RAI as final with no changes made to it.

The schedule we have established for review of your application assumes technically correct and complete responses within 30 calendar days of receipt of RAIs. For any RAIs that cannot be responded to within 30 calendar days, it is expected that a date for receipt of this information will be provided to the staff within the 30-calendar day period so that the staff can assess how this information will impact the published schedule.

If you have any questions, please contact me.

Prosanta Chowdhury
Project Manager
EPR Projects Branch
Division of New Reactor Licensing
Office of New Reactors
301-415-1647

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From: Chowdhury, Prosanta

Created By: Prosanta.Chowdhury@nrc.gov

Recipients:

"PSEGESPeRAIPEm Resource" <PSEGESPeRAIPEm.Resource@nrc.gov>

Tracking Status: None

"David.Lewis2@pseg.com" <David.Lewis2@pseg.com>

Tracking Status: None

"James.Mallon@pseg.com" <James.Mallon@pseg.com>

Tracking Status: None

"David.Robillard@pseg.com" <David.Robillard@pseg.com>

Tracking Status: None

"Colaccino, Joseph" <Joseph.Colaccino@nrc.gov>

Tracking Status: None

"Silvia, Andrea" <Andrea.Silvia@nrc.gov>

Tracking Status: None

"Clark, Phyllis" <Phyllis.Clark@nrc.gov>

Tracking Status: None

"McLellan, Judith" <Judith.McLellan@nrc.gov>

Tracking Status: None

"Jones, Henry" <Henry.Jones@nrc.gov>

Tracking Status: None

"Raione, Richard" <Richard.Raione@nrc.gov>

Tracking Status: None

"PSEGRAIResponses@pseg.com" <PSEGRAIResponses@pseg.com>

Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

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PSEG Site ESPA Final RAI 20 (eRAI 5632).pdf	16656	

Options

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Request for Additional Information No. 20

Application Revision 0

FINAL

4/11/2011

PSEG Site ESP
PSEG Power LLC, PSEG Nuclear LLC
Docket No. 52-043
SRP Section: 02.04.06 - Probable Maximum Tsunami Flooding
Application Section: 2.4.6

QUESTIONS for Hydrologic Engineering Branch (RHEB)

02.04.06-1

To meet the requirements of GDC 2, 10 CFR 52.17, and 10 CFR Part 100, PSEG should provide an assessment of the Probable Maximum Tsunami (PMT) for the proposed site. Section C.1.2.4.6.2 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to the historical tsunami record, including paleo-tsunami evidence. Provide additional information, evaluation and a discussion in the SSAR of the following:

- (1) 1918 Puerto Rico Tsunami (SSAR 2.4.6.3). PSEG stated that the 1918 earthquake occurred within the Puerto Rico Trench and that it was responsible for the tsunami. It is believed that the earthquake actually occurred in the Mona Passage or just north of it and that the landslide likely contributed to the tsunami. Provide a clarification of the 1918 earthquake source location.
- (2) Paleotsunami deposits (Missing from SSAR). Related information presented in 2.5.1. PSEG states that for the site no references to paleotsunamis have been found in existing literature, and no evidence of tsunami has been found in site borings. PSEG will provide reference to Section 2.5.1 and related conclusions in Section 2.4.6.

02.04.06-2

To meet the requirements of GDC 2, 10 CFR 52.17, and 10 CFR Part 100, PSEG should provide an assessment of the Probable Maximum Tsunami (PMT) for the proposed site. Section C.1.2.4.6.1 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to determination of Probable Maximum Tsunami Flooding. This includes a discussion of the generation of tsunami-like waves from hill-slope failures and the stability of the coastal area. The range given in figure 2.4.6.1 of the SSAR is 0-2 degrees, and many of the slopes are at the maximum of the color scale, making it somewhat unclear if the slopes are actually higher (there appear to be some slopes greater than 2 degrees in the region).

At the site audit, PSEG presented an updated figure showing maximum slope angle of 0.3 degrees. Provide updated figure and reference to related work in Section 2.5.5 in a revision of the SSAR.

02.04.06-3

To meet the requirements of GDC 2, 10 CFR 52.17, and 10 CFR Part 100, PSEG should provide an assessment of the Probable Maximum Tsunami (PMT) for the proposed site. Section C.I.2.4.6.3 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to the source characteristics needed to determine the PMT. These characteristics include detailed geo-seismic descriptions of the controlling local tsunami generators, including location, source dimensions, and maximum displacement. Provide additional information, evaluation and a discussion in the SSAR of the following:

- (1) Other Regional Landslide Sources (Missing from SSAR). Provide description, parameters, and tsunami estimates of other mapped landslide sources which might impact the site, as well as a discussion of how the Currituck was chosen as the primary landslide tsunami source on the continental shelf.
- (2) Activity of Offshore Portugal Seismic Zone (SSAR 2.4.6.2 2nd Paragraph). Discuss what the applicant means by "inactive" as applied to the seismic zone offshore Portugal. This is an important consideration with regard to the historical tsunami record and tsunami generating potential from that region.

02.04.06-4

To meet the requirements of GDC 2, 10 CFR 52.17, and 10 CFR Part 100, PSEG should provide an assessment of the Probable Maximum Tsunami (PMT) for the proposed site. Section C.I.2.4.6.4 of Regulatory Guide 1.206 (RG 1.206) provides specific guidance with respect to tsunami analysis. This includes providing a complete description of the analysis procedure used to calculate tsunami wave height and period at the site, including the theoretical bases of the models, their verification and the conservatism of all input parameters. Specifically, for this site, PSEG provide additional information, evaluation and a discussion in the SSAR of the following:

- (1) Appropriateness of Shallow Water Wave Models (SSAR 2.4.6.4.1). Reference to NUREG/CR-6966 and physics-based discussion on possible limitations of MOST model for this application.
- (2) Water Levels for Bottom Friction Experiment (SSAR 2.4.6.4.1 and 2.4.6.4.5). Resolve the discrepancy between water levels shown in Figure 2.4.6-2 with the water levels stated in the last paragraph of Section 2.4.6.4.5. Reference to section presenting 10% exceedence tidal levels, and repeat tidal values when presenting runup/rundown in SSAR Section 2.4.6.4.5.
- (3) Input Parameters and Results for all Water Level Models (SSAR 2.4.6.2). Provide images of initial conditions and snapshots of the wave field in time in a revised version of the SSAR.
- (4) Determination of Simulation Time (SSAR 2.4.6.4.4). Provide information in the updated SSAR that results of a long-time Currituck simulation, out to 40 hours of real elapsed time, showed no evidence of seiche.
- (5) Sensitivity Experiments for Atlantic Marin Landslides (SSAR 2.4.6.4.5 2nd Paragraph). Information regarding whether other locations of the slides used in the sensitivity experiments are in a geologically similar environment compared to the actual Currituck slide location.
- (6) Landslide Initial Conditions (SSAR 2.4.6.4.5 and 2.4.6.4.6). Discussion of conservativeness of the TOPICS method of determining initial conditions for the Currituck and the N-wave for the Canary Islands. Provide all input parameters.

- (7) Effective Filtering of Delaware Bay (SSAR 2.4.6.4.5 3rd Paragraph, 2.4.6.4.6 1st Paragraph, and SSAR 2.4.6.4.7 3rd Paragraph). Additional simulation results for a case or cases with a finer resolution, to test the numerical effect of high frequency filtering and to ensure that the model is not unrealistically damping these components. Provide results in a reading room
- (8) Hispaniola Earthquake Source Parameters (SSAR 2.4.6.4.7 2nd Paragraph). Discussion on how the source parameters are derived.