

Mr. Ted C. Feigenbaum  
Executive Vice President and  
Chief Nuclear Officer  
North Atlantic Energy Service Corporation  
c/o Mr. James M. Peschel  
P.O. Box 300  
Seabrook, NH 03874

December 27, 1999

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) REGARDING SEABROOK STATION, UNIT NO. 1 INDIVIDUAL PLANT EXAMINATION FOR EXTERNAL EVENTS (IPEEE) (TAC NO. M83673)

Dear Mr. Feigenbaum:

Based on our ongoing review to date of the Seabrook IPEEE submittal, we are unable to conclude that your IPEEE submittal meets the intent of Supplement 4 to Generic Letter 88-20. The NRC has determined that additional information is needed to complete the review. Enclosed is the staff's RAI. All questions are related to the seismic analysis. There are no questions in the fire area or in the high wind, flood, and other external events (HFO) area of the IPEEE submittal. We request that you respond by March 15, 2000, as discussed with and agreed upon by James M. Peschel of your staff.

Questions regarding this request should be sent to my attention at the above address, or you can contact me at (301) 415-3016.

Sincerely,

ORIGINAL SIGNED BY:

Robert M. Pulsifer, Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosure: RAI

cc w/encl: See next page

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|--------|------------------------|------------------------------|-------------------|
| OFFICE | PDI-2/PM               | PDI-2/LA <i>TLC 12/21/99</i> | PDI-2/SC <i>✓</i> |
| NAME   | RPulsifer/vw <i>RP</i> | TLClark <i>MMBDD chmp</i>    | JClifford         |
| DATE   | <i>12/27/99</i>        | <i>12/27/99</i>              | <i>12/27/99</i>   |

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

December 27, 1999

Mr. Ted C. Feigenbaum  
Executive Vice President and  
Chief Nuclear Officer  
North Atlantic Energy Service Corporation  
c/o Mr. James M. Peschel  
P.O. Box 300  
Seabrook, NH 03874

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) REGARDING SEABROOK  
STATION, UNIT NO. 1 INDIVIDUAL PLANT EXAMINATION FOR EXTERNAL  
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Questions regarding this request should be sent to my attention at the above address, or you can contact me at (301) 415-3016.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert M. Pulsifer".

Robert M. Pulsifer, Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosure: RAI

cc w/encl: See next page

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Request for Additional Information (RAI) on Seabrook  
Individual Plant Examination of External Events (IPEEE) Submittal

**Seismic**

- (1) Section 6.3.2 of NUREG-1407 requests that the IPEEE program address the effects of seismically induced external and internal flooding on plant safety. NUREG-1407 further states that the scope of the evaluation of seismically induced floods should include, in addition to the external sources of water (e.g., upstream dams), an evaluation of internal flooding (e.g., tanks) consistent with the discussion in Appendix I of EPRI NP-6041. Confirm that you have addressed seismically induced floods in the IPEEE program consistent with NUREG-1407, and provide a description and the results of the evaluation.
- (2) The Seabrook IPEEE submittal states that plant walkdowns were performed consistent with the guidelines described in EPRI NP-6041. However, the submittal did not describe how potential spatial and functional interactions were addressed by the walkdowns, as requested in NUREG-1407. Provide a discussion of the methods used to identify potential spacial and functional interactions and provide your findings from the seismic walkdowns pertaining to this topic.
- (3) According to Generic Letter No. 88-20, Supplement 4, "A description of dominant functional/systemic sequences leading to core damage along with their frequencies and percentage contribution to overall seismic core damage frequencies" should be provided. This information should be provided in the IPEEE submittal using the seismic probabilistic risk assessment (PRA) methodology. NUREG-1407 also states that "the examination should focus on qualitative insights from the systematic plant examination..."

Although the 10 top seismic-initiated sequences are provided in Table 3-9 of the submittal, no discussion of these sequences is provided. The discussion provided in the Conclusions Section of the submittal (Section 3.9.1) is also very brief and does not mention any insights that were obtained from the analysis results.

Also, in accordance with Generic Letter 88-20, provide a description of the dominant functional/systemic sequences obtained from the PRA. Discuss the dominant component contributors to the total core damage frequency (CDF) and the insights obtained from the results of the analysis.

- (4) The results of the sensitivity studies performed in the seismic analysis are provided in Table 3-10 of the submittal. The CDFs for three categories (i.e., Station Blackout (SBO) CDF, Large Loss of Coolant Accident (LOCA) CDF, and Anticipated Transients Without Scram (ATWS) CDF), and a "Seismic CDF Total," are provided. The three categories shown in Table 3-10 are not quite the same as the three seismic initiators used in the seismic analysis (i.e., General Transients, ATWS, and Large LOCA). Since not all General Transient events would lead to Station Blackout (SBO) and

Enclosure

subsequent core damage, there may be a finite CDF from General Transient events that do not involve SBO. Clarify and discuss the composition of the CDF obtained for General Transient events for the base case.

In addition, the summation of the CDFs from the three categories provided in Table 3-10 is not equal to the "Seismic CDF Total" provided in the table. For example, the CDFs for the Base Case (SSPSS-1990+ Model) in Table 3-10 are  $9.07\text{E-}6/\text{yr}$  for Station Blackout,  $6.27\text{E-}7/\text{yr}$  for Large LOCA (LLOCA) and  $3.47\text{E-}6/\text{yr}$  for ATWS. The summation of these three CDFs is  $1.32\text{E-}5/\text{yr}$ , which is greater than the "Seismic CDF Total" presented in the table ( $1.10\text{E-}5/\text{yr}$ ). Please clarify this apparent inconsistency.

Finally, the CDFs for the Base Case provided in Table 3-10 are not consistent with the results provided in Table 3-8 (Seismic Initiator Contributions to Core Damage Total). The CDFs provided in Table 3-8 are  $7.84\text{E-}6/\text{yr}$  for General Transients,  $1.29\text{E-}6/\text{yr}$  for LLOCA, and  $2.88\text{E-}6/\text{yr}$  for ATWS. Please clarify this apparent inconsistency.