August 11, 2000

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: SEABROOK STATION, UNIT NO. 1 - REQUEST FOR ADDITIONAL INFORMATION REGARDING PROPOSED TECHNICAL SPECIFICATION CHANGE TO SURVEILLANCE REQUIREMENT 4.2.5.3 (TAC NO. MA9301)

Dear Mr. Feigenbaum:

By letter dated June 20, 2000, North Atlantic Energy Service Corporation (North Atlantic) submitted for staff review and approval, License Amendment Request (LAR) 00-04, Seabrook Station proposed Technical Specification changes relating to Reactor Coolant System (RCS) flow measurement surveillance requirement (SR) 4.2.5.3. Through the review the staff has generated questions that need to be addressed so that the staff may complete its review. These questions are enclosed as a Request for Additional Information (RAI).

These questions were discussed with members of your staff on August 3, 2000, and it was agreed that North Atlantic will respond by September 8, 2000.

Sincerely,

/RA/

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
SEABROOK STATION LAR 00-04
REACTOR COOLANT SYSTEM FLOW MEASUREMENT

1. Section 6.3 of WCAP-15404 describes the removal of RTD bypass system prior to Cycle 3, and its effect on the elbow tap flow measurements for MOC 4 and later cycles. Section I, "Introduction and Safety Assessment for Proposed Change," of the June 20, 2000, letter states that the calculated flow uncertainty is based in part on the inclusion of the effects of RTD bypass manifold elimination.

   (A) Explain why the RTD bypass manifold elimination does not affect Cycle 3 elbow tap flow measurement.

   (B) Describe how the RTD bypass manifold elimination affects the flow measurement uncertainty, and how this is accounted for in the uncertainty analysis.

2. Section 6.5 of WCAP-15404 attributes the significantly lower values of the calorimetric measured RCS flows relative to the best estimate flow trend after Cycle 2 to a bias in the hot leg temperature measurement resulting from the implementation of low leakage loading pattern and one RTD in each hot leg being installed in a non-optimum location. It states that an allowance for this streaming bias is included in the setpoint analysis described in Reference 3.

   Explain how the effect of this streaming bias is accounted for in the setpoint analysis.

3. Section 7.2 of WCAP-15404 states that the uncertainty calculations are essentially the same as those performed previously for Seabrook (documented in WCAP-13181) with the differences lying in the assumption of normalization of the elbow taps to previously performed RCS flow calorimetric measurements (BOC 1 and BOC 2) which requires inclusion of additional uncertainties in the determination of the indicated RCS flow uncertainty.

   Describe how the additional uncertainty values to account for the absence of current normalization of elbow taps are derived and accounted for in the uncertainty analysis in Tables A-4 and A-5.

4. The proposed technical specification (TS) changes on SR 4.2.5.3 would (1) delete the prescriptive "precision heat balance measurement" without mentioning the elbow tap measurement method, and (2) require RCS flow measurement within 72 hours of exceeding 90% rated thermal power (RTP).

   (A) The proposed TS change should be more specific in stating that only an approved method of RCS measurement, such as the elbow tap measurement method of WCAP-15404, may be used for the surveillance.

   (B) Provide the basis for the 72-hour window of exceeding 90% RTP for completion of RCS flow surveillance.

(C) Will BASES 3/4.2.5 be revised to reflect the proposed changes of SR 4.2.5.2?

5. On page 5 of Section I of the June 20, 2000, letter it is stated that the final normalized values for the elbow tap coefficients will be based on the average of BOC 1 and BOC 2 precision flow calorimetrics and that the elbow tap coefficients will no longer be adjusted to future calorimetrics. This statement appears to be inconsistent with the method described in WCAP-15404. In WCAP-15404 elbow tap measurement method, the elbow tap total flow coefficients are based on the average elbow tap ΔP (Equations 2 and 6), and the current cycle flow is based on the elbow tap flow coefficients and the baseline calorimetric flow (Equation 4).

Clarify the above statement.

Seabrook Station, Unit No. 1
cc:

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