

July 2, 2002

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: SUMMARY OF CONFERENCE CALLS WITH NORTH ATLANTIC ENERGY  
SERVICE CORPORATION REGARDING THE 2002 STEAM GENERATOR  
INSPECTION RESULTS AT SEABROOK STATION, UNIT NO. 1 (SEABROOK)  
(TAC NO. MB5299)

Dear Mr. Feigenbaum:

On May 20 and 23, 2002, the Nuclear Regulatory Commission staff participated in conference calls with North Atlantic Energy Service Corporation representatives regarding the ongoing steam generator tube inspection activities at Seabrook. Enclosed please find a summary of those conference calls.

Sincerely,

*/RA/*

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

Docket No. 50-443

Enclosure: As stated

cc w/encl: See next page

July 2, 2002

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: SUMMARY OF CONFERENCE CALLS WITH NORTH ATLANTIC ENERGY  
SERVICE CORPORATION REGARDING THE 2002 STEAM GENERATOR  
INSPECTION RESULTS AT SEABROOK STATION, UNIT NO. 1 (SEABROOK)  
(TAC NO. MB5299)

Dear Mr. Feigenbaum:

On May 20 and 23, 2002, the Nuclear Regulatory Commission staff participated in  
conference calls with North Atlantic Energy Service Corporation representatives regarding the  
ongoing steam generator tube inspection activities at Seabrook. Enclosed please find a  
summary of those conference calls.

Sincerely,

*/RA/*

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

Docket No. 50-443

Enclosure: As stated

cc w/encl: See next page

DISTRIBUTION:

PUBLIC	BFu	JZimmerman	LLund	DStarkey
KKarwoski	TClark	DLew	OGC	ACRS
SRichards (e-mail)	CCowgill, RI			
Accession Number:	ML021800003	*Concurrence via e-mail		

OFFICE	PDI-2/PM	PDI-2/LA*	PDI-2/SC(A)
NAME	DStarkey	TClark	JZimmerman
DATE	7-2-02	07/02/02	7/2/02

OFFICIAL RECORD COPY

Seabrook Station, Unit No. 1  
cc:

William J. Quinlan, Esq.  
Assistant General Counsel  
Northeast Utilities Service Company  
P.O. Box 270  
Hartford, CT 06141-0270

Mr. Peter Brann  
Assistant Attorney General  
State House, Station #6  
Augusta, ME 04333

Resident Inspector  
U.S. Nuclear Regulatory Commission  
Seabrook Nuclear Power Station  
P.O. Box 1149  
Seabrook, NH 03874

Town of Exeter  
10 Front Street  
Exeter, NH 03823

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Office of the Attorney General  
One Ashburton Place  
20th Floor  
Boston, MA 02108

Board of Selectmen  
Town of Amesbury  
Town Hall  
Amesbury, MA 01913

Mr. Dan McElhinney  
Federal Emergency Management Agency  
Region I  
J.W. McCormack P.O. &  
Courthouse Building, Room 401  
Boston, MA 02109

Mr. Stephen McGrail, Director  
ATTN: James Muckerheide  
Massachusetts Emergency Management Agency  
400 Worcester Road  
Framingham, MA 01702-5399

Philip T. McLaughlin, Attorney General  
Steven M. Houran, Deputy Attorney  
General  
33 Capitol Street  
Concord, NH 03301

Mr. Donald Bliss, Director  
New Hampshire Office of Emergency  
Management  
State Office Park South  
107 Pleasant Street  
Concord, NH 03301

Mr. Daniel G. Roy  
Nuclear Training Manager  
Seabrook Station  
North Atlantic Energy Service Corp.  
P.O. Box 300  
Seabrook, NH 03874

Mr. James M. Peschel  
Manager - Regulatory Programs  
Seabrook Station  
North Atlantic Energy Service Corp.  
P.O. Box 300  
Seabrook, NH 03874

Mr. Gene F. St. Pierre  
Station Director  
Seabrook Station  
North Atlantic Energy Service Corporation  
P.O. Box 300  
Seabrook, NH 03874

Mr. Frank W. Getman, Jr.  
President and Chief Executive Officer  
BayCorp Holdings, LTD  
20 International Drive, Suite 301  
Portsmouth, NH 03801-6809

Seabrook Station, Unit No. 1  
cc:

Mr. Bruce D. Kenyon  
President and Chief Executive Officer  
Northeast Utilities Service Company  
P.O. Box 270  
Hartford, CT 06141-0270

Mr. Steve Allen  
Polestar Applied Technology, Inc.  
77 Franklin Street, Suite 507  
Boston, MA 02110

SUMMARY OF CONFERENCE CALLS  
WITH  
NORTH ATLANTIC ENERGY SERVICE CORPORATION  
REGARDING THE MAY 2002 STEAM GENERATOR INSPECTION RESULTS  
AT SEABROOK

The Nuclear Regulatory Commission (NRC) staff participated in conference calls on May 20 and 23, 2002, with North Atlantic Energy Service Corporation (North Atlantic) representatives regarding the ongoing steam generator (SG) tube inspection activities at Seabrook Station, Unit No. 1 (Seabrook).

Topics discussed during the conference call consisted of: background, initial eddy current testing scope, scope expansion plans, indications identified to-date, repair/plugging plans, new degradation findings, and tube-pull analysis plans.

Background

Seabrook is a four-loop Westinghouse 1,198 MWe PWR unit. Commercial operation started in August of 1990. The unit has operated for approximately 9.67 effective full power years (EFPY).

Seabrook has four Westinghouse Model-F recirculating steam generators (A, B, C, and D). Each steam generator contains 5,626 thermally treated Inconel 600 tubes, which are nominally 0.688 inch in diameter with a wall thickness of 0.040 inches. Prior to installation, the tubes in Rows 1 through 10 were treated in a furnace in order to relieve the stresses from bending the tubes. Each SG contains eight stainless steel tube support plates and six anti-vibration bars in the U-bend region. The first tube support plate is a partial plate which consists of only a plate ring with drilled tube holes (i.e., the plate only supports a limited number of tubes in the periphery). The remaining seven plates contain quatrefoil broached tube holes. Plates 1 - 4 are 0.75 inches in thickness; Plates 5 - 8 are 1.12 inches thick.

New Degradation Findings

During the current refueling outage at Seabrook in May 2002, North Atlantic performed SG tube inspections as required by the technical specifications. The initial scope of the inspection included two of the four SGs -- "A" and "D". While performing bobbin probe inspections of tubes in SG "D", North Atlantic detected indications at a number of tube to tube support plate intersections. Subsequent plus-point probe inspection confirmed the indications as axially oriented linear indications, initiating on the outside diameter (OD) tube surface. North Atlantic also performed ultrasonic testing (UT) on a few of the indications, which further confirmed the findings. At this stage, North Atlantic classified these indications as axial OD cracking.

North Atlantic noted that all indications are confined to the intersection locations in the portion of the tube within the thickness of the tube support plates, opposite the broached tube hole lands. As of May 23, 2002, North Atlantic found that 42 of these intersections contain axial OD

Enclosure

indications. These 42 intersections are located in 15 tubes between Row 2 and Row 9 of SG "D". The indications are located at tube support plates 2 through 6 on the hot leg side and 3 through 5 on the cold leg side. If a tube had an indication at a cold-leg tube support plate, it also had one or more indications at a hot-leg tube support plate. The maximum depth of the indications was estimated to be 62% through-wall (TW) using available techniques. Lengths range from 0.3 to 0.75 inches.

Based on the axial cracking indications found in SG "D", North Atlantic re-trained the eddy current analysts to be sensitive to the characteristics of the signals and expanded the inspection to include 100% of the active tubes in SGs "B" and "C". No similar degradation was found in these SGs.

#### Other Findings

As a result of the inspections, North Atlantic plugged 13 tubes in SG "A". Five were plugged due to anti-vibration bar (AVB) wear. One of the 13 plugged tubes was due to a volumetric indication above the top of the tube sheet. The volumetric indication was caused by foreign objects. As a precaution, North Atlantic plugged the tube and the seven surrounding tubes.

In addition to plugging the 15 tubes with axial indications in SG "D", North Atlantic plugged 6 tubes as a result of AVB wear and one tube for a volumetric indication. The volumetric indication was near the top of the tubesheet in the periphery. The depth was measured to be 46% through-wall. The indication was attributed to a loose part. (Although no loose part was visually identified, sludge lancing may have removed the foreign object.)

North Atlantic inspected SGs "B" and "C" based on finding the crack-like indications in SG "D". North Atlantic inspected 100% of the tubes with bobbin probes, 50% of Row 1 and Row 2 U-bends with plus point probes, and tubesheet transition region with plus point probes. No crack-like indications were detected as a result of these inspections.

#### Tube-Pull Analysis

As a result of the axial OD cracking findings, North Atlantic has pulled two tubes for metallurgical analysis to characterize the degradation and to identify its root cause. The pulled tubes contain four intersections with indications including the one with the maximum voltage amplitude and the one with the maximum measured depth. These two tubes and the rest of the affected tubes will be plugged.

North Atlantic indicated that the analysis will take about 4 weeks. As results from the root-cause analysis become available, North Atlantic will discuss them with the NRC staff.