



**North  
Atlantic**

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The Northeast Utilities System

April 2, 2002  
NYN-02032

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
11555 Rockville Pike  
Rockville, MD 20852

Seabrook Station  
Response to NRC Bulletin 2002-01  
"Reactor Pressure Vessel Head Degradation and  
Reactor Coolant Pressure Boundary Integrity"

NRC Bulletin 2002-01, "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity" dated March 18, 2002, requests that licensees provide information to permit the assessment of plant specific compliance with Nuclear Regulatory Commission (NRC) regulations concerning reactor coolant pressure boundary integrity. The NRC required that all addressees provide written responses to the requested information in accordance with the provisions of 10 CFR 50.54(f) within 15 days of the date of the bulletin.

The North Atlantic Energy Service Corporation (North Atlantic) responses to item 1.A through 1.E of NRC Bulletin 2002-01 are herein provided in Enclosure 1. The response to item 2 shall be provided to the Nuclear Regulatory Commission within 30 days after plant restart following the next refueling outage as identified in the bulletin. The response to item 3 shall be provided to the Nuclear Regulatory Commission within 60 days of the date of the bulletin. Commitments made by North Atlantic in response to this bulletin are contained in Enclosure 2.

Should you have any questions concerning this response, please contact Mr. James M. Peschel, Manager - Regulatory Programs, at (603) 773-7194.

Very truly yours,

NORTH ATLANTIC ENERGY SERVICE CORP.

Ted C. Feigenbaum  
Executive Vice President and  
Chief Nuclear Officer

A095

cc: H. J. Miller, NRC Region I Administrator  
R. D. Starkey, NRC Project Manager, Project Directorate I-2  
G. T. Dentel, NRC Senior Resident Inspector

STATE OF NEW HAMPSHIRE

Rockingham, ss.

DATE 4/2/2002

Then personally appeared before me, the above-named Ted C. Feigenbaum, being duly sworn, did state that he is the Executive Vice President and Chief Nuclear Officer of the North Atlantic Energy Service Corporation that he is duly authorized to execute and file the foregoing information in the name and on the behalf of North Atlantic Energy Service Corporation and that the statements therein are true to the best of his knowledge and belief.



Susan Messer, Notary Public

My Commission Expires: 12/4/2002

**ENCLOSURE 1 TO NYN-02032**

**North Atlantic Response to  
NRC Bulletin 2002-01  
“Reactor Pressure Vessel Head Degradation And Reactor Coolant Pressure  
Boundary Integrity”**

**BACKGROUND INFORMATION**

On March 19, 2002, NRC Bulletin 2002-01, “Reactor Pressure Vessel Head Degradation And Reactor Coolant Pressure Boundary Integrity” was issued due to the recent discovery of a severely degraded reactor pressure vessel (RPV) head in the vicinity of vessel head penetration (VHP) nozzles at Davis-Besse Nuclear Power Station. This discovery has raised concerns throughout the industry about structural integrity of the reactor coolant pressure boundary and the general condition of the reactor vessel head if it has been exposed to primary coolant leakage.

Several provisions of NRC regulations and plant operating licenses (Technical Specifications) pertain to issues of reactor coolant pressure boundary integrity and inspection of the pressure boundary. This bulletin requests that addressees (holders of operating licenses for PWR nuclear power reactors) provide information to permit the assessment of plant-specific compliance with NRC regulations.

**REQUESTED INFORMATION**

As a result of NRC Bulletin 2002-01, North Atlantic was requested to provide Seabrook Station Unit 1 responses to items 1.A through 1.E within 15 days of the date of the bulletin. The following information is provided in response to that request:

**ITEM 1.A:**

*1.A. provide a summary of the reactor pressure vessel head inspection and maintenance programs that have been implemented at your plant;*

**RESPONSE TO ITEM 1.A:**

Inspection of the RPV head above the insulation is performed during the Class 1 system leakage tests required by Category B-P of ASME Section XI. These inspections are conducted prior to plant startup following each refueling outage. North Atlantic also performs a visual inspection of the RPV head accessible connections and accessible penetrations within the shroud above the insulation during each refueling outage in accordance with Generic Letter 88-05. However, North Atlantic has not conducted a bare head inspection for Seabrook Station Unit 1 or implemented a RPV bare head inspection or maintenance program.

**ITEM 1.B:**

- 1.B. provide an evaluation of the ability of your inspection and maintenance programs to identify degradation of the reactor pressure vessel head including, thinning, pitting, or other forms of degradation such as the degradation of the reactor pressure vessel head observed at Davis-Besse;*

**RESPONSE TO ITEM 1.B:**

The inspection programs described in 1.A are not sufficient to identify degradation of the reactor pressure vessel head including thinning, pitting, or other forms of degradation such as that observed at Davis-Besse. Should leakage above the insulation be observed, then further corrective actions would be taken in accordance with ASME section XI requirements.

**ITEM 1.C:**

- 1.C. provide a description of any conditions identified (chemical deposits, head degradation) through the inspection and maintenance programs described in 1.A that could have led to degradation and the corrective actions taken to address such conditions;*

**RESPONSE TO ITEM 1.C:**

Seabrook Station has not observed evidence of leakage on the RPV head insulation. However, as stated in 1.B, the inspection programs described in 1.A are not sufficient to identify degradation of the bare RPV head.

**ITEM 1.D:**

- 1.D. provide your schedule, plans, and basis for future inspections of the reactor pressure vessel head and penetration nozzles. This should include the inspection method(s), scope, frequency, qualification requirements, and acceptance criteria;*

**RESPONSE TO ITEM 1.D:**

In the upcoming May 2002 refueling outage, North Atlantic will perform a visual inspection of the bare RPV head under the reflective insulation. Based on drawing review and vendor feedback, the bare RPV head inspection will encompass as close to 100% of the bare RPV head that is obtainable. North Atlantic will incorporate EPRI guidance into the vendor procedure for qualification requirements and evaluation of conditions. Future inspections will be based on as-found conditions, EPRI Materials Reliability Program recommendations, and approved changes to the ASME Code.

## ITEM 1.E:

1.E. *provide your conclusion regarding whether there is reasonable assurance that regulatory requirements are currently being met (see the Applicable Regulatory requirements, above). This discussion should also explain your basis for concluding that the inspections discussed in response to Item 1.D will provide reasonable assurance that these regulatory requirements will continue to be met. Include the following specific information in this discussion:*

- (1) *If your evaluation does not support the conclusion that there is reasonable assurance that regulatory requirements are being met, discuss your plans for plant shutdown and inspection*
- (2) *If your evaluation supports the conclusion that there is reasonable assurance that regulatory requirements are being met, provide your basis for concluding that all regulatory requirements discussed in the Applicable Regulatory Requirements section will continue to be met until the inspections are performed.*

## RESPONSE TO ITEM 1.E:

There is reasonable assurance that the regulatory requirements are being met between the date of this letter and the May 2002 outage based upon the following:

- The requirements of Section XI of the ASME Boiler and Pressure Vessel Code are being satisfied as it pertains to the integrity of the reactor pressure vessel head. Additionally, the ASME Class 1 Category B-P system leakage test conducted prior to plant restart following each refueling outage has identified no unacceptable conditions.
- There has been no abnormal reactor coolant pressure boundary leakage identified, thereby providing additional assurance that the ASME code requirements are being maintained.
- Seabrook Station also does not have bolted connections on its CRDM assemblies, which could introduce leakage, and has not observed omega seal weld leakage.
- In the spring of 1999, a simplified RPV head modification was installed during refueling outage OR06. During closeout cleanliness inspection on top of the RPV head insulation, some small debris was retrieved or evaluated, but evidence of leakage or boric acid deposits were not observed.
- Seabrook Station falls into the NRC category of plants with a low susceptibility to PWSCC of the RPV top head nozzles as described in North Atlantic's response to NRC Bulletin 2001-01 dated August 31, 2001. As identified in Table 2-1 of MRP-48, it will take Seabrook Station 109.9 effective full power years of equivalent normalized operating time from March 1, 2001, to reach the same point of susceptibility as Oconee Nuclear Station Unit 3 had at the time its leaking nozzles were discovered in February 2001.

It is North Atlantic's position that due to the lack of evidence of leakage above the RPV head insulation and the low probability of leakage below the RPV head insulation, there is reasonable assurance that regulatory requirements are being met and will continue to be met until the bare RPV head inspection is performed during the May 2002 refueling outage.

There is reasonable assurance that the regulatory requirements will continue to be met after startup from the outage based upon North Atlantic conducting future bare RPV head inspections on as-found conditions, EPRI Materials Reliability Program recommendations, and approved changes to the ASME Code.

**ENCLOSURE 2 TO NYN-02032**

**North Atlantic Commitments to NRC Bulletin 2002-01  
“Reactor Pressure Vessel Head Degradation And Reactor Coolant Pressure  
Boundary Integrity”**

**North Atlantic Commitments Contained in NYN-02032**

<b>Condition Report</b>	<b>Description of Commitment</b>
CR 02-03553-09	During OR08, conduct a bare reactor pressure vessel head inspection of Seabrook Station Unit 1 as close to 100% as practicable.
CR 02-03553-06	Within 30 days of plant restart from OR08, forward a response to requested information item 2 identified in NRC Bulletin 2002-01.
CR 02-03553-08	Within 60 days of the date of the bulletin, forward a response to requested information item 3 identified in NRC Bulletin 2002-01.