March 7, 2002

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

SUBJECT: SEABROOK STATION - NRC INSPECTION REPORT 50-443/01-14

Dear Mr. Feigenbaum:

On February 16, 2002, the NRC completed an inspection at the Seabrook nuclear power station. The enclosed report documents the inspection findings which were discussed on February 21, 2002, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

No findings of significance were identified.

Immediately following the terrorist attacks on the World Trade Center and the Pentagon, the NRC issued an advisory recommending that nuclear power plant licensees go to the highest level of security, and all promptly did so. With continued uncertainty about the possibility of additional terrorist activities, the Nation's nuclear power plants remain at the highest level of security and the NRC continues to monitor the situation. This advisory was followed by additional advisories, and although the specific actions are not releasable to the public, they generally include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with law enforcement and military authorities, and more limited access of personnel and vehicles to the sites. The NRC has conducted various audits of your response to these advisories and your ability to respond to terrorist attacks with the capabilities of the current design basis threat (DBT). On February 25, 2002, the NRC issued an Order to all nuclear power plant licensees, requiring them to take certain additional interim compensatory measures to address the generalized high-level threat environment. With the issuance of the Order, we will evaluate Seabrook's compliance with these interim requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm.html .

Sincerely,

/RA/

Curtis J. Cowgill, Chief
Projects Branch 6
Division of Reactor Projects

Docket No. 50-443
License No: NPF-86

Enclosure: NRC Inspection Report No. 50-443/01-14

cc w/encl: B. D. Kenyon, President and Chief Executive Officer
J. M. Peschel, Manager - Regulatory Programs
G. F. St. Pierre, Station Director - Seabrook Station
D. G. Roy, Nuclear Training Manager - Seabrook Station
D. E. Carriere, Director, Production Services
W. J. Quinlan, Esquire, Assistant General Counsel
D. Bliss, Director, New Hampshire Office of Emergency Management
D. McElhinney, RAC Chairman, FEMA RI, Boston, Mass
R. Backus, Esquire, Backus, Meyer and Solomon, New Hampshire
D. Brown-Couture, Director, Nuclear Safety, Massachusetts Emergency Management Agency
F. W. Getman, Jr., President and Chief Executive Office, BayCorp Holdings, LTD
R. Hallisey, Director, Dept. of Public Health, Commonwealth of Massachusetts
M. Metcalf, Seacoast Anti-Pollution League
D. Tefft, Administrator, Bureau of Radiological Health, State of New Hampshire
S. Comley, Executive Director, We the People of the United States
W. Meinert, Nuclear Engineer
S. Allen, Polestar Applied Technology, Incorporated
R. Shadis, New England Coalition Staff

Distribution w/encl: H. Miller, RA/J. Wiggins, DRA
(VIA E-MAIL) T. Bergman, RI EDO Coordinator
E. Adensam, NRR (ridsnrrdlpmlpdi)
G. Wunder, PM, NRR
C. Cowgill, DRP
K. Jenison, DRP
T. Haverkamp, DRP
G. Dentel, SRI - Seabrook
J. Brand, RI - Seabrook
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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-443
License No.:	NPF-86
Report No.:	50-443/01-14
Licensee:	North Atlantic Energy Service Corporation
Facility:	Seabrook Generating Station, Unit 1
Location:	Post Office Box 300 Seabrook, New Hampshire 03874
Dates:	December 30, 2001 through February 16, 2002
Inspectors:	Glenn Dentel, Senior Resident Inspector Javier Brand, Resident Inspector
Approved by:	Curtis Cowgill, Chief Projects Branch 6 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000443-01-14, on 12/30/01 - 02/16/02; North Atlantic Energy Service Corporation; Seabrook Station; Unit 1; resident inspection report.

The inspection was conducted by resident inspectors. The inspection identified no findings. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 “Significance Determination Process” (SDP). Findings for which the SDP does not apply are indicated by “no color” or by the severity level of the applicable violation. The NRC’s program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at http://www.nrc.gov/NRR/OVERSIGHT/index.html .

A. Inspector Identified Findings

No findings of significance were identified.

B. Licensee Identified Violations

There were no violations identified by the licensee during this inspection.

Report Details

Summary of Plant Status: The plant operated at approximately 100% power for the duration of the inspection period.

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignments

.1 Partial Walkdown - 345 KV Termination Yard System

a. Inspection Scope

The inspectors reviewed the switchyard severe weather guidance specified in standing operating order No. 01-006, Rev. 1, and conducted an inspection of the 345 Kilovolts (KV) termination yard during two separate snow storms that had the potential for bringing wet heavy snow to the Seabrook area. This inspection was performed to verify that the modified 345 KV bushings were performing as designed to prevent arcing across the bushing due to an ice/snow buildup.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Area Walkdowns

a. Inspection Scope

The inspectors reviewed the fire protection analyses and examined the following risk significant areas:

- Control Building - Control Room - 75' elevation
- Emergency Feedwater Pump Room 27' elevation
- “B” Residual Heat Removal Equipment Vault All elevations

Specific fire protection conditions examined included control of transient combustibles, material condition of fire protection equipment, and the adequacy of any fire impairments and compensatory measures. In addition, the inspectors reviewed the pre-fire strategies for these areas.

The inspectors also reviewed condition report CR 01-13863 which evaluated a large glycol leak from the Unit 2 fire protection system, and performed walkdowns of the entire fire protection piping in the Unit 2 turbine building, to verify that the Unit 1, fire protection system was not affected.

b. Findings

No findings of significance were identified.

.2 Fire Drill Evaluation

a. Inspection Scope

On February 8, the inspectors observed an unannounced fire drill involving a simulated fire at the "A" charging pump room. The inspectors verified that performance criteria were established commensurate with safety significance and compared the fire brigade performance against the criteria contained in procedure ODI.49, " Management Expectation for Fire Drill Performance," Revision 2. The inspectors verified the following: 1) the communications between the fire brigade leader, brigade members, and control room were clear and effective; 2) the equipment (radios, protective clothing, self-contained breather apparatus, fire extinguishers, etc.) was in good condition and properly used; and 3) the fire fighting strategies and proper fire fighting practices were utilized. In addition, the licensee's drill critique was observed and the post drill report was reviewed by the inspector.

b. Findings

No findings of significance were identified

1R12 Maintenance Rule Implementation

.1 Remote Safe Shutdown System Review

a. Inspection Scope

The inspectors evaluated the implementation of the maintenance rule, 10 CFR 50.65, as it pertained to identified performance problems with the Remote Safe Shutdown (RSS) System. The inspectors verified that performance criteria were established commensurate with safety significance of the system, and verified that equipment failures were appropriately evaluated in accordance with the maintenance rule. The inspectors also verified that scoping tables associated with the RSS system had appropriate performance criteria consistent with the plant configuration. The inspectors interviewed various licensee personnel, including the RSS system engineer, and the maintenance rule coordinator. The inspectors reviewed several CRs, as well as the following documents:

- Remote Safe Shutdown (RSS) System Maintenance Rule Monthly Review Report, Dated December 2001;
- PEG-45, "Maintenance Rule Program Monitoring Activities," Revision 0.

b. Findings

No findings of significance were identified.

.2 Turbine Driven Emergency Feedwater Pump Review

a. Inspection Scope

The inspectors reviewed applicable procedures and controls for overhauling the emergency feedwater pump turbine driver (Terry Turbine), to determine whether Seabrook's Terry Turbine and other safety-related components were susceptible to a failure that occurred at another nuclear facility in May 2001, due to improper application of joint sealant materials. The inspector performed field walkdowns, and interviewed the system engineer, applicable maintenance technicians, and the pump component specialist. In addition, the inspector reviewed the licensee's controls for preventing the inadvertent introduction of debris into the lubrication oils used to replenish safety-related components. The following documents were reviewed.

- MS0523.01, "Terry Turbine Maintenance" Procedure, Revisions 2 and 3
- Vendor Manual FP-22849, T147-1, "Terry Turbine Instruction Manual"
- MPM 6.03, "Control, Storage, and use of Bench Stock," Rev. 2
- Work Request No. WR 95W002908, Dated May 1997
- CR 99-16568, "Adverse Particle Buildup Found Inside Several Oil Cans"
- CR 01-10316, "Self Assessment 01-027 Machinery Oil Program"
- CR 01-04926, "Operating Experience Related to Failure of safety-related Equipment Due to Over Application of Gasket Sealants"

b. Findings

No findings of significance were identified.

.3 Wide Range Gas Monitor Heat Tracing Issues

a. Inspection Scope

The inspectors evaluated the multiple failures of the heat tracing on the wide range gas monitor (WRGM) for effects on operability and whether the failures represented a maintenance rule functional failure of the WRGM. The inspectors reviewed the design requirement for the heat tracing and the requirements for compensatory measures in the offsite dose calculation manual. The inspectors reviewed several CRs, interviewed engineers, operators, maintenance technicians, and chemists, and examined portions of the following documents.

- Update Final Safety Analysis Report, Section 12.3.4, "Area Radiation and Airborne Radioactivity Monitoring Instrumentation"
- "Radio iodine and Particle Transmission through selected Sampling Lines at Seabrook Station," Rev. 2
- Minor Modification 96-0649, "Replacement of the WRGM Heat Trace"

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the scheduling and control of maintenance activities in order to evaluate the effect on plant risk. The inspectors reviewed the routine planned maintenance and emergent work for the following equipment removed from service.

- On January 10, the inspectors reviewed the on-line maintenance assessment for replacement of the "A" steam generator pressure transmitter (FW-PT-515). The inspectors observed portions of the work activity to ensure that other equipment was properly protected and interviewed technicians, operators, and reactor engineers to determine the effect on the reactor power using the secondary calorimetric.
- On January 17 and 18, the inspectors reviewed the on-line maintenance assessment and work order # 0205352 and associated documents used for replacement of the "B" thermal barrier pump. The inspectors also interviewed the system engineer and operators to assess understanding of the availability of the remaining thermal barrier pump to perform its intended function.
- On February 5, the inspectors reviewed the on-line maintenance assessment for troubleshooting work on the "D" service water pump discharge valve (SW-V-31). The inspectors observed portions of the work activity, examined the work order and associated documents, and interviewed the maintenance technicians. The work documents were evaluated against the licensee procedures, Maintenance Manual (MA) 4.5, "Configuration Control During Maintenance and Troubleshooting," Rev. 10 and Work Management Manual (WM) 8.4, "Work Control Practices," Rev. 2.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

a. Inspection Scope

The inspectors reviewed operator performance which resulted in Licensee Event Report (LER) 50-443/01-004, "Noncompliance With the Technical Specifications Due to MSIV Stroke Time Calculation Human Error." The inspectors examined the root cause evaluation, reviewed and verified corrective actions were either planned and/or completed, and interviewed the assistant operations support manager. The inspectors also reviewed CRs 01-11121, 01-11109, 01-12056, and 01-12058; the revised operations surveillance, OX1430.01 "Main Steam Isolation System Valve Stroke Test," Rev. 6; and operations instructions concerning verification of calculations.

b. Findings

On October 19, 2001, an inservice test program engineer identified that the full closure time of the "C" main steam isolation valve using the "A" main steam isolation signal was greater than the allowed limit (5.09 seconds vs. the limit of 5.00 seconds). The testing was conducted on October 16; however, the slow stroke time was not identified immediately due to an operator error in the calculation of the stroke time. Failure to identify the failure resulted in exceeding the technical specification (TS) action statement for TS 3.7.1.5. This constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The issue was of minor significance since the redundant "B" main steam isolation signal was always available and would have closed the valve within the required time limit.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed several operability evaluations (OD's) against the criteria specified in Generic Letter 91-18, " Resolution of Degraded and Non-Conforming Conditions," and NRC Inspection Manual Part 9900 "Operable/Operability- Ensuring the Functional Capability of a System or Component," in order to determine that the identified conditions did not adversely affect safety system operability or plant safety. In addition, where a component was determined to be inoperable, the inspectors verified the TS limiting condition for operation implications were properly addressed. The inspectors performed field walkdowns, interviewed personnel, and reviewed the following items.

- Increased leakage past the steam supply valve (MS-V-393) to the turbine driven emergency water pump caused excessive cycling of the downstream check valve (MS-V-94). The inspectors reviewed the operability evaluation associated with this deficiency documented in CR 01-12047 and 01-08380, and engineering calculation C-S-1-20905, Revision 0, " MS V-94 Spring Fatigue Analysis," Administrative Procedure OE 4.5, "Operability Determination," was also used to evaluate the licensee's operability evaluation.

  In addition, the inspectors evaluated the radioactivity effects of the unmonitored releases to the environment due to the increased steam leakage to verify that they were within the off-site dose calculations requirements.

- OD 02-00915, which evaluated the effects of missing dowel pins on the seismic analysis for both emergency feedwater pumps.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed the on-line maintenance assessment form, and several post-maintenance testing (PMTs) activities to ensure: 1) the PMT was appropriate for the scope of the maintenance work completed; 2) the acceptance criteria were clear and demonstrated operability of the component; and 3) the PMT was performed in accordance with procedures. The following PMT was reviewed:

- On January 8, OX1413.03, "RHR Pump B Quarterly Flow and Valve Stroke Test," Rev. 3, following completion of several scheduled work activities including; breaker swap-out and associated relay calibrations, Limitorque and starter inspection of the recirculating valve (RHR-FCV-611), and flow indicator RH-F-619 loop calibration.

In addition, the inspectors reviewed applicable documentation used for overhauling the Terry Turbine for the emergency feedwater pump in 1997, to ensure that critical dimensions were properly controlled and implemented. This inspection was performed to verify whether Seabrook's Terry Turbine was susceptible to a failure that occurred at another nuclear facility in May 2001. This inspection was completed by reviewing the associated maintenance procedure, MS0523.01, Rev.2, in the completed work request package, and comparing specific dimensions specified in the vendor's manual FP-22849, T147-1, "Terry Turbine Instruction Manual."

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed portions of several surveillance testing activities of safety-related systems to verify that the system and components were capable of performing their intended safety function, to verify operational readiness, and to ensure compliance with required TSs and surveillance procedures.

The inspectors attended some of the pre-evolution briefings, performed system and control room walkdowns, observed operators and technicians performed test evolutions, reviewed system parameters, and interviewed the system engineers and field operators. The following surveillance procedures were reviewed.

- On January 7, OX1410.02, "Quarterly Rod Operability Surveillance," Rev. 6. This was the first performance of this procedure since the rod drop and reactor trip occurred during the performance of this test on October 15, 2001.
- On January 8, LX0556.05, "Station Battery Performance Discharge Test," Rev. 1 for the "D" battery.
- On January 10, OS1016.07, "Cooling Tower Portable Makeup Pump Operation," Rev. 7.
- On January 16, IX1622.244, " Operational Test of L-933 Refueling Water Storage Tank Level," Rev. 6.
- On January 30, OX1436.02, "Turbine Driven Emergency Feedwater Pump Quarterly and 18 Month Surveillance Test and Monthly Valve Alignment," Rev. 8

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed temporary modifications (TMs) 02-0001 and 02-0003, and associated implementing documents to verify the plant's design basis and affected system or component operability were maintained. Maintenance Manual, MA 4.3A, "Temporary Modifications," Rev. 16, specified requirements for development and installation of TMs.

On January 4, the inspectors reviewed TM 02-001, associated with the installation of a temporary non-code repair of a pinhole-sized leak on the discharge vent line for the "B" service water pump. The inspectors examined the TM and associated calculations, interviewed engineers and operators, attended the station operation review committee meeting, and inspected the installed repair. The inspectors evaluated the TM against 10 CFR 50.55a and the approved American Society of Mechanical Engineers Code Cases N-513, "Evaluation Criteria for Temporary Acceptance of Flaws in Class 3 Piping," and N-523-1, "Mechanical Clamping Devices for Class 2 and 3 Piping." The inspectors also reviewed two CRs (CR 02-00156 and 02-00753), initiated to address minor NRC identified issues, for their impact on operability on the system and effectiveness of the corrective action system.

On January 30, the inspectors reviewed TM 02-0003, for repositioning of vent valve MS-V-299, located between the terry turbine steam supply valve MS-V-393 and check valve MS-V-94, to a full open position from its original 1/4 open position. The inspectors performed field walkdowns, interviewed the system engineer and reviewed engineering calculation C-S-1-20905.

b. Findings

No findings of significance were identified.

Emergency Preparedness (EP)

1EP6 Drill Evaluation

a. Inspection Scope

On January 30, the inspectors observed portions of the combined functional emergency preparedness drill, 02-01, to evaluate the conduct of the drill and adequacy of the licensee's critique. The inspectors verified that event classification and notification were properly conducted and priorities were communicated in the technical support center. The inspectors also verified that identified problems were entered into the corrective action program through observation of the critique and review of the drill evaluation report.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

.1 Unplanned Scrams and Scrams with Loss of Normal Heat Sink

a. Inspection Scope

The inspectors reviewed the accuracy and completeness of performance indicators for unplanned scrams per 7000 critical hours and scrams with loss of normal heat sink. The review included a comparison of the data to confirmatory plant record such as LERs, operating logs, procedures, and also interviews with applicable licensee personnel. The review included nine months of reported data (April 2001 - December 2001).

b. Findings

No findings of significance were identified

.2 Unplanned Power Changes per 7000 Critical Hours

a. Inspection Scope

The inspectors reviewed the accuracy and completeness of performance indicators for unplanned changes in reactor power for greater than 20 percent per 7000 hours of critical operation. Manual and automatic scrams are excluded from this performance indicator. The inspectors verified accuracy of the reported data through reviews of monthly operating reports, shift operating logs, LERs and additional records. The review included nine months of reported data (April 2001 - December 2001).

b. Findings

No findings of significance were identified

4OA3 Event Follow-up

.1 Correction to NRC Inspection Report 50-443/01-11

In NRC Inspection Report 50-443/2001011, an administrative error was identified in that the non-cited violation described in Section 4OA3 and the summary of a finding was incorrectly stated against 10 CFR 50 Appendix "A" Criterion XVI. The non-cited violation was against 10 CFR 50 Appendix "B" Criterion XVI.

.2 Closed LER 50-443/01-004, Non-Compliance with the Technical Specifications due to MSIV Stroke Time Calculation Human Error.

This human performance related licensee event report was inspected and closed. Please see Section 1R14 for the inspection details.

4OA6 Meetings, including Exit

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. Ted Feigenbaum and other members of licensee management on February 21, 2002, following the conclusion of the inspection. The licensee acknowledged the findings presented.

The licensee did not indicate that any of the information presented at the exit meeting was proprietary.

.2 Site Management Visit

On February 21, 2002, Mr. Curtis Cowgill, Chief, Reactor Projects Branch 6, attended the residents' exit meeting and met with station personnel to review plant performance.

ATTACHMENT
SUPPLEMENTAL INFORMATION

a. Key Points of Contact

P. Freeman	Manager, Nuclear Design Engineering (Electrical)
J. Grillo	Assistant Station Director
R. LeGrand	Manager, Work Control and Outages
W. Leland	Manager, Chemistry/Health Physics
T. Nichols	Manager, Plant Engineering
J. Peschel	Manager, Regulatory Programs
B. Plummer	Manager, Operations
D. Roy	Manager, Nuclear Training
R. Sherwin	Manager, Maintenance
G. St. Pierre	Station Director
J. Vargas	Director, Engineering
R. White	Manager, Nuclear Design Engineering (Mechanical)

b. Items Opened, Closed, and Discussed

Closed:

50-443/01-004	LER	Non-Compliance with the Technical Specifications due to MSIV Stroke Time Calculation Human Error. (Sections 4OA3.2 and 1R14)

c. List of Acronyms Used

CR	Condition Report
DBT	Design Basis Threat
EP	Emergency Preparedness
KV	Kilovolts (1,000 Volts)
LER	Licensee Event Report
MA	Maintenance Manual
MSIV	Main Steam Isolation Valve
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OD	Operability Determination
OE	Operability Evaluation
PAR	Publicly Available
PMT	Post Maintenance Testing
RHR	Residual Heat Removal System
RSS	Remote Safe Shutdown
SDP	Significance Determination Process
TM	Temporary Modification
TS	Technical Specifications
WM	Work Management Manual
WRGM	Wide Range Gas Monitor