October 25, 2001

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 50-443/01-09

Dear Mr. Feigenbaum:

On September 29, 2001, the NRC completed an inspection at the Seabrook nuclear power station. The enclosed report documents the inspection findings which were discussed on October 4, 2001, with Mr. G. St. Pierre 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 significant findings were identified.

Since September 11, 2001, Seabrook Station has assumed a heightened level of security based on a series of threat advisories issued by the NRC. Although the NRC is not aware of any specific threat against nuclear facilities, the heightened level of security was recommended for all nuclear power plants and is being maintained due to the uncertainty about the possibility of additional terrorist attacks. The steps recommended by the NRC include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with local law enforcement and military authorities, and limited access of personnel and vehicles to the site.

The NRC continues to interact with the Intelligence Community and to communicate information to North Atlantic Energy Service Corporation. In addition, the NRC has monitored maintenance and other activities which could relate to the site's security posture.

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/NRC/ADAMS/index.html (the Public Electronic Reading Room).

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. 50-443/01-09

cc w/encl:
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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
W. Fogg, 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., Vice 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
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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-443
License No.:	NPF-86
Report No.:	50-443/01-09
Licensee:	North Atlantic Energy Service Corporation
Facility:	Seabrook Generating Station, Unit 1
Location:	Post Office Box 300 Seabrook, New Hampshire 03874
Dates:	August 19, 2001 through September 29, 2001
Inspectors:	Glenn Dentel, Senior Resident Inspector Javier Brand, Resident Inspector Thomas Moslak, Health Physicist
Approved by:	Curtis Cowgill, Chief Projects Branch 6 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000443-01-09, on 8/19 - 9/29/2001; North Atlantic Energy Service Corporation; Seabrook Station; Unit 1. Resident Inspection Report.

The inspection was conducted by resident inspectors, and a regional heath physicist. 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 http://www.nrc.gov/NRR/OVERSIGHT/index.html.

A. Inspector Identified Findings

No significant findings 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 was operating at approximately 100% power for the duration of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignments

a. Inspection Scope

On September 27, the inspectors performed a partial system walkdown of the “A” safety injection system while the “B” safety injection pump was removed from service for planned maintenance. The inspectors reviewed the system alignment as described on plant drawings and performed field verification of major equipment alignment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

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

- Service Water Pump House 21' elevation
- Cooling Tower Pump House
- Turbine Building 21' elevation, Relay Room
- Turbine Building 21' elevation, Southwest Corner, Non-emergency Switchgear and Battery Rooms
- Primary Auxiliary Building 7' elevation, Charging Pump Rooms
- Emergency Feedwater Pump House 27' elevation
- Mechanical Penetration Area, 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. The inspectors also reviewed the pre-fire strategies for the areas.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

.1 Non-safety and Safety Battery Review

a. Inspection Scope

The inspectors reviewed several identified deficiencies on the safety and non-safety batteries to determine whether any were functional failures or could cause a functional failure if not corrected in a timely manner. The inspectors interviewed reviewed CRs 01-04360, 01-07454, 01-05360, 01-04298, 01-04359, 01-04294, and 01-07544, interviewed the system engineer, and performed walkdowns of the battery rooms.

b. Findings

No findings of significance were identified.

.2 Emergency Diesel Generator Coupling Failure

a. Inspection Scope

The inspectors reviewed the "B" emergency diesel generator (EDG) coupling failure to determine if a functional failure occurred. A brief description of the event is documented in Section 4OA3. The inspectors reviewed as-found measurements and conditions of the lube oil system to determine the overall impact on the EDG. The inspectors conducted bounding risk assessments to understand the potential significance of the coupling and potential inoperability of the EDG. The inspectors also reviewed the event team's preliminary causal factors for the failure of the coupling.

b. Findings

The inspectors concluded that sufficient information was not available to determine whether a violation of NRC requirements existed and to determine the significance of the violation. The following actions need to be completed to address the unresolved item **(URI 50-443/01-009-01)**:

- Review the root cause and corrective actions; and evaluate whether violations have occurred and their possible significance for 1) maintenance on the EDG and coupling during the past refueling outage looking specifically at oversight, vendor controls, procedural controls, and work package quality; and 2) cause and impact on the design for a support that was identified missing during the initial followup to the coupling failure.

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 September 18, the inspectors reviewed the online risk assessment, engineering evaluation 95-17, "Evaluation of CS-V460, CS-V461 and CS-V475 for Online Maintenance," associated with work on the safety injection pump to centrifugal charging pump suction cross-connect line valve (CS-V461). The inspectors also reviewed site drawings and performed walkdowns of the affected areas.

- The inspectors reviewed the online risk assessment for the "B" emergency diesel generator lube oil changeout scheduled for September 19 and 20. The inspectors attended the pre-evolution briefing, examined adequacy of contingency plans, reviewed the impact on security and fire protection, and examined the quality of the work package. The inspectors also interviewed several individuals to determine significance of deficiencies in the scheduling of concurrent activities that affected fire barriers (CR 01-09861 and 01-09864). Additional aspects of the problems encountered during testing following the lube oil changeout are described in Sections 1R12, 1R19, and 4OA3.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

a. Inspection Scope

The inspectors reviewed chemistry personnel's response to indications of increased primary to secondary steam generator tube leakage on August 20. The inspectors reviewed the additional monitoring and compensatory measures taken and examined these actions against the chemistry procedure, "Response to a Primary to Secondary Leak," Rev. 2. The inspectors also reviewed the historical performance of the steam generators and the inspections completed during the last refueling outage. The actual primary to secondary leakage was determined later to remain low (less than 1 percent of allowable technical specification limit) and relatively stable with the indicated variation attributed to the technique for quantifying the leak rate.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed and/or observed several post-maintenance (PMTs) 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 PMTs were observed:

- On August 31, ON1034.03, "Condensate System Operation," Rev. 5, following replacement of the lubricating oil cooler, due to water contamination of the lubricating oil.

- On September 17, OX1430.02, "Main Steam Isolation Valve Quarterly Test," Rev. 9, following replacement of a control buffer card to repair indication problems with the main steam isolation valve, MS-V88.

- On September 21, OX1426.05, "DG 1B Monthly Operability Surveillance," Rev. 8, following "B" EDG lube oil changeout and coupling replacement. The inspectors performed a detailed walkdown of the EDG and verified that the EDG met the acceptance criteria specified including that no significant lube oil leakage existed. Additional inspections were completed and documented in Sections 1R12, 1R13, and 4OA3.

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 Technical Specifications (TS) and surveillance procedures.

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

- On August 27, IX1668.224, "Operational Test of PCC 8 Safety Injection Accumulator Tank Level Instruments," Rev. 6, and IX1668.324, "Operational Test of PCC8 Safety Injection Accumulator Tank Pressure Instruments," Rev. 6.

- On September 4, OX1416.05, "Service Water Cooling Tower Pumps Quarterly and Two Year Comprehensive Test," Rev. 7.

- On September 10, IX1622.243, “Operational Test of L-932 Refueling Water Storage Tank Level,” Rev. 6

b. Findings

No findings of significance were identified.

Emergency Preparedness (EP)

1EP6 Drill Evaluation

a. Inspection Scope

On September 26, the inspectors observed combined functional drill 01-03 to evaluate the drill conduct and adequacy of the drill critique. The inspectors evaluated emergency procedure implementation, event classification, event notification, and protective action recommendation development. The inspectors examined the effectiveness of the development and communication of priorities at the technical support center. The inspectors verified that weaknesses and deficiencies were identified at the drill critique and entered into the corrective action program.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

During the period August 27 - 30, 2001, the inspectors conducted the following activities to verify that the licensee was properly implementing physical and administrative controls for access to locked high radiation areas and other radiologically controlled areas, and that workers were adhering to these controls when working in these areas.

- Independent radiation surveys were performed in areas of the Primary Auxiliary Building, Mechanical Penetration Area, Decay Heat Vaults, and waste processing building to confirm the accuracy of posted survey maps, and assess the adequacy of radiation work permits, ALARA Evaluations, and associated controls. Keys to Technical Specification Locked High Radiation Areas were inventoried and these areas were verified to be properly secured and posted during plant tours.

- On August 28 and 29, the inspectors observed a pre-job RWP (No. 01-R-10010) briefing and the radiological controls implemented for operators entering containment, during power operations, to isolate valves and perform routine system walk-downs. On August 28, the inspectors observed a pre-job RWP (No.01-R-00011) briefing and subsequent work-in-progress for Instrumentation & Control technicians replacing fittings on a pressurizer sampling line in the primary auxiliary building.

- The inspectors attended daily Health Physics Department staff meetings to assess the management controls for work in radiologically controlled areas.

- The inspectors reviewed twelve (12) recent Condition Reports (CR'S) relating to the control of personnel exposure and work activities to determine if the issue was identified in a timely manner and that appropriate actions were taken to evaluate and resolve the issue. The regulatory and safety significance of each issue was also evaluated. Included in this review were CR's 01-4019, 4024, 5070, 5404, 5661, 6372, 6563, 6674, 6786, 7959, 8379, and 8425.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

The inspectors conducted the following activities to determine the effectiveness of administrative, operational, and engineering controls to minimize and equalize personnel exposure for tasks conducted during power operation.

- The inspectors reviewed pertinent information regarding cumulative exposure history, current exposure trends, and ongoing activities in order to assess the licensee's effectiveness in establishing exposure goals, and in keeping actual exposure as low as is reasonably achievable (ALARA). Included in this review were discussions with the site Health Physics Department Manager regarding a recent management initiative to lower the annual challenge exposure goal from 11.96 person-rem to 10.04 person-rem, based on the current performance trend in minimizing worker dose.

- The inspectors determined that the licensee conducted no jobs during power operations whose estimated worker exposure was greater than 1 person-rem,

requiring radiological controls specified in ALARA Reviews. Accordingly, the inspectors reviewed the effectiveness of exposure controls specified in lower dose ALARA Evaluations for selected tasks whose estimated exposure was greater 20 person-millirem. Tasks reviewed included a spent resin transfer, mechanical seal replacement on a Boron Recovery System pump, operator system walk-downs in containment during power operations, calibration of a containment hydrogen detector, repair of an oil leak on a safety injection pump, and testing of a safety injection system motor operated valve.

- Individual exposure records were reviewed for completed tasks and for those currently in progress. Included in this review were exposure records for a declared pregnant worker, maintenance personnel, and radiation protection technicians. Interviews were conducted with the Mechanical Maintenance Superintendent, and a Health Physics Supervisor to assess departmental efforts to minimize and equalize dose to their respective staffs.

- The effectiveness of various management controls for monitoring and controlling personnel exposure were evaluated by reviewing Radiation Safety Committee (Meeting No. 01-02) minutes, and Health Physics Department self-assessment reports 01-0289 (Annual Radiation Protection Program Review) and 01-0123 (Radioactive Material Control).

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

.1 Occupation Exposure Control Effectiveness

a. Inspection Scope

The inspectors reviewed implementation of the licensee's Occupational Exposure Control Effectiveness Performance Indicator (PI) Program. Specifically, the inspectors reviewed Condition Reports, and associated documents, for occurrences involving locked high radiation areas, very high radiation areas, and unplanned personnel exposures since the last inspection against the criteria specified in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 1, to verify that all occurrences that met the NEI criteria were identified and reported as Performance Indicators.

b. Findings

No findings of significance were identified

4OA3 Event Follow-up

.1 Emergency Diesel Generator Lube Oil Coupling Failure

a. Inspection Scope

On September 20, 2001, while performing a 2 hour maintenance test run of the "B" emergency diesel generator (EDG), the coupling on the discharge of the prelube oil pump failed causing a lube oil spill of approximately 200 to 300 gallons. Operators were notified and the emergency diesel generator was shutdown. The spill was contained in the diesel building and three teams (event, recovery and spill teams) were formed to address the event. The licensee concluded that no damage occurred to the EDG due to the coupling failure.

The "B" EDG had been out-of-service for a planned lube oil changeout (see Section 1R13). The inspectors completed the following activities prior to the return to service of the "B" EDG:

- Reviewed the causal factors and immediate corrective actions;
- Examined extent of condition review for other couplings on the EDG and for the "A" EDG;
- Performed walkdowns of the repaired coupling, other EDG couplings, and supports associated with the coupling;
- Discussed with engineers and maintenance technicians, the maintenance activities completed during the overhaul of the "B" completed in January 2001;
- Attended the licensee management debrief by the event team; and
- Participated in NRC and licensee management conference call to discuss the licensee corrective actions and extent of condition review.

These actions were completed to evaluate and determine if the appropriate corrective actions and extent of condition evaluations were completed prior to restoration of the "B" EDG to operability.

b. Findings

No findings of significance were identified.

.2 Security Response Following the Nationwide Event on September 11

a. Inspection Scope

The inspectors reviewed security personnel's response to the September 11 event. The inspectors completed field walkdowns of the facility and interviewed security personnel to verify that appropriate measures were implemented. The inspectors and the regional incident response center established proper communication links to convey critical and timely information.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. Gene St. Pierre and other members of licensee management following the conclusion of the inspection on October 4, 2001. The licensee acknowledged the findings presented.

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

ATTACHMENT 1
SUPPLEMENTAL INFORMATION

a. Key Points of Contact

M. Carmichael	Oversight Manager
W. Cash	Health Physics Department Manager
W. Cox	Radiological Technical Specialist
J. Dupre	Mechanical Maintenance Superintendent
R. Finch	Health Physics Technician
P. Freeman	Manager, Nuclear Design Engineering (Electrical)
J. Grillo	Assistant Station Director
D. Hampton	Health Physics Technical Supervisor
R. Hickok	NRC Coordinator
R. LeGrand	Manager, Work Control and Outages
W. Leland	Manager, Chemistry/Health Physics
M. Lewis	Maintenance Services Manager
E. Metcalf	Assistant Manager-Plant Engineering
T. Nichols	Manager, Plant Engineering
J. Peschel	Manager, Regulatory Programs
B. Plummer	Manager, Operations
D. Roy	Manager, Nuclear Training
R. Sherwin	Manager, Maintenance
T. Smith	Radiological Technical Specialist
J. Sobotka	Regulatory Compliance Supervisor
G. St. Pierre	Station Director
R. Sterritt	Radiological Technical Specialist
M. Sullivan	Health Physics Technician
J. Vargas	Director, Engineering
R. White	Manager, Nuclear Design Engineering (Mechanical)

b. List of Items Opened, Closed and Discussed

Opened:

50-443/01-009-01	URI	Failure of a Lube Oil Coupling on the “B” Emergency Diesel Generator

c. List of Acronyms

ALARA	As low is reasonably achievable
CR	Condition Report
DCR	Design Change Request
DRPI	Digital Rod Position Indication
EDG	Emergency Diesel Generator
EFW	Emergency Feedwater
NCV	Non-Cited Violation
PRT	Pressurizer Relief Tank
psig	pounds per square inch gage
PZ	Pressurizer
RCA	Radiologically Controlled Area
RCS	Reactor Coolant System
RHR	Residual Heat Removal System
RWP	Radiation Work Permit
RO	Reactor Operator
SRA	Senior Reactor Analyst
SDP	Significance Determination Process
SSC	Structure, System, or Component
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item

d. Partial List of Documents Reviewed

HD0958.03	Personnel Survey and Decontamination Techniques
HD0958.17	Performance of Routine Radiological Surveys
HD0963.02	Administrative Guidelines for Health Physics Instrumentation
HD0992.02	Issuance and Control of Personnel Monitoring Devices
HN0951.04	Health Physics Repetitive Tasks
HN0958.13	Generation and Control of Radiation Work Permits
HN0958.25	High Radiation Area Controls
JD0999.910	Reporting Key Performance Indicators
RP 2.1	General Radiation Worker Instruction and Responsibilities
RP 9.1	RCA Access/Egress Requirements
RP 9.2	Radiological Access Requirements to Containment Area
RP 15,1	Job Pre-Planning and Review for Radiation Exposure Control

Radiation Safety Committee Meeting 01-02 Minutes
Self-Assessment 01-0289, Annual Radiation Protection Program Review
Self-Assessment 01-0123, Radioactive Material Control