October 26, 2000

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: NRC's SEABROOK INSPECTION REPORT NO. 05000443/2000-007

Dear Mr. Feigenbaum:

On September 30, 2000, the NRC completed an inspection at your Seabrook Nuclear Power Station. The enclosed report presents the results of this inspection. The results were discussed on October 16, with Mr W. Diprofio and members of your staff.

This inspection was an examination of 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. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel. The radiological material processing program was also inspected during this period.

The NRC identified one finding involving the failure to properly restore a portion of the off-site power system following the completion of a maintenance activity on the "B" reserve auxiliary transformer, that was evaluated under the risk significance determination process and determined to be of very low safety significance (Green). The issue has been entered into your corrective action program and is discussed in the summary of findings and in the body of the attached inspection report. This issue was determined to involve a violation of NRC requirements. Consistent with the NRC Enforcement Policy, the violation is not cited. If you contest this non-cited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Seabrook Station.

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Sincerely,

/RA/

James C. Linville Chief
Projects Branch 6
Division of Reactor Projects

Docket No. 05000443
License No: NPF-86

Enclosure: NRC Inspection Report No. 05000443/2000-007

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REGION I

Docket No.:	05000443
License No.:	NPF-86
Report No.:	05000443/2000-007
Licensee:	North Atlantic Energy Service Corporation
Facility:	Seabrook Generating Station, Unit 1
Location:	Post Office Box 300 Seabrook, New Hampshire 03874
Dates:	August 20 - September 30, 2000
Inspectors:	Raymond Lorson, Senior Resident Inspector Javier Brand, Resident Inspector Roy L. Fuhrmeister, Senior Reactor inspector Ricardo Fernandes, Resident Inspector, Nine Mile Point Laurie Peluso, Health Physicist Greg Suber, Project Manager, NRR
Approved by:	James Linville, Chief Projects Branch 6 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000443-00-07, on 08/20-09/30/2000; North Atlantic Energy Service Corporation; Seabrook Station; Unit 1. Plant Operations.

The report covered a six-week period of inspection conducted by resident and regional inspectors per the NRC's revised reactor oversight process (Attachment 1). The significance of issues is indicated by their color (GREEN, WHITE, YELLOW, RED) and was determined by the Significance Determination Process (SDP) in draft Inspection Manual Chapter 0609.

Cornerstone: Initiating Events

- Green. The “B” reserve auxiliary transformer (RAT) grounding devices were not removed prior to the restoration of Bus 2 due to the improper make-up of the device operating linkage and the failure to verify removal of the devices. The licensee’s event team identified several causal factors related to this problem. This event increased the potential for a loss of off-site power (LOOP) transient but did not impact the performance of any mitigation systems. The inspector evaluated the event using Phase 1 of the significance determination process (SDP) and determined that the event was of very low significance (Green) since no mitigation systems were affected.

  Operations procedure, OS1046.04, “345KV Operations,” required visual verification that the grounds had been removed prior to the restoration of Bus 2. Technical Specification (TS) 6.7.1, requires, in part, that written procedures be established and implemented for activities covered by Appendix A of Regulatory Guide 1.33. Appendix A of Regulatory Guide 1.33 requires that procedures be developed for operation of the electrical system. Contrary to the above, the licensee failed to properly implement operations procedure OS1046.04. This is a violation of TS 6.7.1. This violation is being treated as a non-cited violation consistent with the NRC Enforcement Policy **(NCV 00-07-01)** (Section 1R14).

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ATTACHMENT

Attachment 1 - NRC's Revised Reactor Oversight Process

Report Details

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

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

1R04 Equipment Alignment

a. Inspection Scope

The inspectors performed a partial system walkdown inspection of the "B" emergency diesel generator (EDG) and the "A" and "B" reserve auxiliary transformers (RAT) while their associated redundant trains were removed from service for maintenance. The inspectors also performed a walkdown of the "B" service water (SW) system during an emergent condition that challenged the operability of the "A" SW system. This condition involved an elevated differential pressure across the "A" SW system strainer.

During these walkdowns, the inspectors verified that the systems were properly aligned in accordance with plant procedures and system drawings. The inspectors also observed whether any material deficiencies were present that could challenge the operability of the redundant safety system train.

The inspectors also performed a comprehensive walkdown of the residual heat removal (RHR) system. This walkdown included verification, on a sampling basis, that:

- System components were aligned consistent with plant procedures and system drawings.
- The material condition of system components including the RHR pumps, system valves, electrical controls, and pipe supports was acceptable.
- No system design or maintenance issues were open that could challenge the operability of the system.
- Operations procedure, OS1013.04, revision 10, "Form D Train B RHR System Lineup," matched plant drawing 1-RH-B20663 and the Updated Final Safety Analysis Report (UFSAR).
- Procedures existed to periodically test risk significant system functions. These functions included the automatic opening of the recirculation sump isolation valves, the refueling water storage tank (RWST) isolation valves, and the primary component cooling water (PCCW) isolation valves to the RHR heat exchanger. Also, the inspector discussed with the system engineer testing performed to demonstrate that the minimum flow recirculation valve would shut on an increasing flow signal.
- The problem identification and reporting (PIR) system was being used to formally identify and correct system problems.

b. Findings

There were no findings identified during this inspection.

1R05 Fire Protection

a. Inspection Scope

On August 25, 2000, the inspectors toured three areas important to reactor safety to observe the control of combustible materials and ignition sources, material condition and line-up of the fire protection systems, and to verify the condition of the fire barriers, consistent with the licensee's fire protection program requirements. The areas toured included: the mechanical penetration room (Fire zones: PP-F-1A-Z, PP-F-2A-Z, PP-F-1B-Z, PP-F-2B-Z, PP-F-3B-Z); RHR Equipment Vault "B" (Fire zones: RHR-F-1A-Z, RHR-F-2A-Z, RHR-F-3A-Z, RHR-F-1C-Z); and the Emergency Diesel Generator (EDG) fuel oil storage areas (Fire areas: DG-F-1A-A, DG-F-1B-A, DG-F-2B-A, and DG-F-3D-A).

b. Findings

There were no findings identified during this inspection.

1R11 Licensed Operator Re-qualification Training

a. Inspection Scope

On August 28, the inspector observed a licensed operator re-qualification training examination performed in the plant simulator. The training scenario tested the operators' response to an event that involved several problems, including a loss of off-site power combined with a failure of the EDGs to start automatically. The inspector observed the use of emergency operating procedures, crew communications, command and control, and attended the post-examination evaluation. Additionally, the inspector reviewed whether the event classification and off-site agency notifications were consistent with NUREG 1022, "Event Reporting Guidelines," and emergency response procedures, ER 1.1, "Classification of Emergencies," and ER 1.2, "Emergency Plan Activation."

b. Findings

There were no findings identified during this inspection.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspector sampled through direct observation and/or document review, several emergent maintenance activities to determine whether the licensee properly implemented and controlled these activities per work management procedure, WM 10.1,"On-Line Maintenance." The inspector also evaluated the licensee's performance

during troubleshooting activities and the documentation of problems in the corrective action and work control processes. The following system maintenance outages and/or troubleshooting activities were reviewed:

- Work package 99W003608 which relocated the "A" EDG air start solenoid valves
- "A" and "B" Reserve Auxiliary Transformer (RAT) System Maintenance Outages
- Response to an elevated differential pressure across the "A" Train Service Water (SW) system strainer

Also, the inspector reviewed Seabrook Engineering Evaluation 90-41, "Offsite Power Source Connections," Section 8.2 of Seabrook Updated Final Safety Analysis Report, Section 8.2 of the Standard Review Plan, Regulatory Guide 1.6, "Independence Between Redundant Standby (Onsite) Power Sources and Between Their Distribution Systems," Regulatory Guide 1.32, "Criteria for Safety-Related Electric Power Systems for Nuclear Power Plants," Regulatory Guide 1.93, "Availability of Electric Power Sources," and General Design Criterion 17, "Electric Power Systems," of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations, to determine the acceptability of the offsite electrical lineup during the RAT maintenance activities. The inspector compared the electrical lineup described in the engineering evaluation to the requirements in Sections 3.8 and 4.8 of Seabrook Technical Specifications.

b. Findings

There were no findings identified during this inspection.

1R14 Personnel Performance During Non-Routine Activities

a. Inspection Scope

The inspectors reviewed a non-routine activity involving the restoration of the 345 kV Bus 2 (Bus 2) following completion of the "B" RAT maintenance outage on September 21. A momentary electrical transient occurred during this event when Bus 2 was energized while the grounding devices were installed on the "B" and "C" phases of the "B" RAT. The ground devices had been previously installed to support the RAT maintenance activities. The licensee initiated condition report, CR 00-09934, and formed an event team to investigate this problem.

The inspectors performed a walkdown of safety-related electrical components and switchgear to determine whether the electrical transient caused any apparent equipment damage. Also, the inspectors reviewed operations procedure, OS1046.04, "345KV Operations," as well as the results of the licensee's event team investigation.

b. Findings

The "B" RAT grounding devices were not removed prior to the restoration of Bus 2 due to the improper make-up of the device operating linkage and the failure to verify removal of the devices. The licensee's event team identified several causal factors related to this problem. This event increased the potential for a loss of off-site power (LOOP) transient but did not impact the performance of any mitigation systems. The inspector

evaluated the event using Phase 1 of the significance determination process (SDP) and determined that the event was of very low significance (Green) since no mitigation systems were affected.

Operations procedure, OS1046.04, "345KV Operations," required visual verification that the grounds had been removed prior to the restoration of Bus 2. Technical Specification (TS) 6.7.1, requires, in part, that written procedures be established and implemented for activities covered by Appendix A of Regulatory Guide 1.33. Appendix A of Regulatory Guide 1.33 requires that procedures be developed for operation of the electrical system. Contrary to the above, the licensee failed to properly implement operations procedure OS1046.04. This is a violation of TS 6.7.1. This violation has been entered into the licensee's corrective action program and is being treated as a non-cited violation, consistent with the NRC Enforcement Policy. **(NCV 00-07-01)**

1R15 Operability Evaluation

a. Inspection Scope

The inspector reviewed two open operability determinations (OD's) to ensure that the identified conditions did not adversely affect safety system operability or plant safety. The OD's included: (1) OD98-15, which addressed an increased leakage condition through the primary component cooling water system, train B radiation monitor (RM-6515) skid outlet check valves, CC-V946 and CC-V947; and (2) OD00-01, which evaluated the use of a non-safety related electrical wire in the circuitry of safety related, Class 1E motor control center, 1-EDE-MCC-621, associated with containment building spray valve, CBS-V-53. In addition to reviewing these OD's, the inspector reviewed the root cause analysis from condition report, CR 00-05593, performed by the licensee to determine the extent of condition and cause(s) for the installation of a non-safety component in a safety related application.

b. Findings

There were no findings identified during this inspection.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspector reviewed the post-maintenance test package and/or observed a portion of the post-maintenance testing following the completion of the following maintenance activities:

- "A" EDG maintenance activities which included: relocation of the air start solenoid valves, replacement of the sequencer power supply and the EDG tachometer
- Replacement of a high voltage power supply in the post-accident, neutron flux monitoring system
- Repair of a containment on-line purge isolation valve (COP-V-3)

b. Findings

There were no findings identified during this inspection.

1R22 Surveillance Testing

a. Inspection Scope

The inspector observed surveillance testing of the safety related electrical Bus 6 under voltage/degraded voltage protection system and the primary component cooling water (PCCW) system valve stroke surveillance test. The inspector also performed documentation reviews of the "B" emergency diesel generator monthly surveillance tests and the main steam isolation valve partial-stroke, quarterly surveillance test. These observations were performed to verify that the system and components were capable of performing their intended safety function, to verify operability readiness, and to ensure compliance with TS requirements. Also, the following documents were reviewed during this inspection:

- Procedure LX0563.07, 4.16 KV Bus Degraded Voltage Protection, Monthly Surveillance, Revision 1
- Procedure LX0563.06, 4.16 KV Bus Loss of Voltage Protection, Monthly Surveillance, Revision 3
- RTS-00RM09584010, 4.16 KV Degraded Voltage Surveillance
- RTS-00RM45033010, 4.16 KV Loss of Voltage Surveillance
- RTS-00R03002A003, Main Steam Isolation Valve Quarterly Test

The inspectors reviewed condition reports, CR 00-9114 and CR 00-09590, which documented the receipt of an unexpected low flow alarm on the “B” train, primary component cooling water supply to the reactor coolant pump coolers. This condition occurred on August 23, during performance of surveillance test procedure, OX 1412.02, “PCCW Train B Quarterly Operability, 18 Month Position Indication, And Comprehensive Pump Testing.” The inspector reviewed the licensee’s planned corrective actions to prevent recurrence of this event.

b. Findings

There were no findings identified during this inspection.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety (PS)

2PS2 Radioactive Material Processing and Transportation

a. Inspection Scope

.1 Radioactive Waste System Walk-down

The inspector reviewed the following liquid and solid radioactive waste processing systems, including a control panel review and facilities tour of accessible areas to verify that the current systems configuration and operation agree with the descriptions contained in the Updated Final Safety Analysis Report (UFSAR) and the Process Control Program (PCP).

- Reactor Water clean-up
- Spent fuel pool clean-up
- Floor drains
- Solid waste processing (spent filter media collection/processing)

The inspector reviewed and toured radioactive waste process equipment that is no longer operational. The inspector also toured the radioactive waste storage facility to observe the condition of radioactive material storage areas and to determine whether appropriate postings and controls were maintained. The facility's inventory was also reviewed.

.2 Waste Characterization and Classification

The licensee's procedures and methodology for waste characterization and classification were reviewed against 10 CFR 61.55 and 10 CFR 61.56. The inspector evaluated the following activities: the processes for transferring radioactive waste resin and sludge into high integrity containers; sampling for waste concentration averaging; and scaling factors used to determine hard-to-measure radionuclides. The inspector reviewed radio-chemical sample analysis results for each of the radioactive waste streams from the past three years to determine the waste stream composition stability and determine if the scaling factors were valid between sample analysis.

.3 Shipment Preparation(s)

During September 11-15, 2000, the licensee prepared and shipped one LSA Type A Quantity (shipment number 00-032) package. The inspector observed and evaluated the licensee's performance regarding the shipment against 10 CFR 20, 61, 71, and 49 CFR 171-179 requirements. Observations included the packaging of the High Integrity Container (HIC) into a shipping cask during September 12 - 13, 2000; surveying, labeling, and marking of the shipping cask (8-120A); and placarding of the conveyance. The waste manifest, including emergency instructions and a vehicle check, was reviewed. The inspector called the Emergency Notification telephone line during the day and evening shifts to verify that the phone line would be answered. The inspector evaluated training of radwaste personnel (especially shipping personnel) as

required by NRC Bulletin 79-19 and 40 CFR 172, Subpart H. Radwaste personnel were observed and interviewed to determine knowledge of shipping regulations and package preparation requirements for public transport.

The inspector reviewed a total of six non-excepted package shipping records. The review included dewatered resin (shipping numbers - 00-011, 00-027, and 00-032), resin sample (00-017), dry active waste (99-076), and laundry (00-029) shipping records. The inspector also reviewed the licenses of two of the receiving licensee's to verify that each were authorized to receive the shipments.

The inspector reviewed the condition reports, CR 00-08141 (Emergency Notification telephone line) and CR 00-07489 (Radioactive shipment packages not labeled in accordance with the labeling requirements of 49 CFR 172.400), and discussed the corrective actions with the licensee.

Also, the inspector reviewed the vendor audit of Chem-Nuclear Systems (now GTS Duratek) conducted by the Nuclear Utilities Procurement Issues Council (NUPIC).

b. Findings

There were no findings identified during this inspection.

4. OTHER ACTIVITIES [OA]

4OA5 Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. W. Diprofio and other members of licensee management on October 16, 2000 following the conclusion of the period. The licensee acknowledged the findings presented.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

W. Diprofio, Unit Director
J. Grillo, Assistant Station Director
G. StPierre, Operations Manager
T. Nichols, Technical Support Manager
D. Sherwin, Maintenance Manager
J. Pandolfo, Security Manager
M. Anderson, Waste Services Department Manager
F. Haniffy, Radwaste Technical Specialist
M. Harvey, Nuclear Oversight
D. Perkins, Corrective Action Coordinator
D. Robinson, Chemistry Technical Supervisor
M. Ossing, NRC Coordinator

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed:

NCV 00-07-01: Failure to Properly Restore a Portion of the Off-Site Power System.

LIST OF ACRONYMS USED

CR	Condition Report
EDG	Emergency Diesel Generator
HIC	High Integrity Container
LOOP	Loss of Off-Site Power
NUPIC	Nuclear Utility Procurement Issues Council
OD	Operability Determination
PCCW	Primary Component Cooling Water
PCP	Process Control Program
PIR	Problem Identification and Resolution
RAT	Reserve Auxiliary Transformer
RHR	Residual Heat Removal
RWST	Refueling Water Storage Tank
SDP	Significance Determination Process
SW	Service Water
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report

ATTACHMENT 1

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.