

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

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Licensee: North Atlantic Energy Service Corporation
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Facility: Seabrook Station
Dates: December 7, 1993 - January 17, 1994
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Inspection Summary: This inspection report documents the safety inspections conducted during day shift and back shift hours. The inspections assessed station performance in the areas of operations, maintenance, engineering, plant support, and safety assessment/quality verification.

Results: North Atlantic operated the facility safely. No violations or unresolved items were identified. See the executive summary for the assessment of licensee performance.

EXECUTIVE SUMMARY

SEABROOK STATION NRC INSPECTION REPORT NO. 50-443/93-22

Operations: Operators reacted well to emergent equipment failures by focusing on reactor safety. Operations management analysis of several minor errors reinforced the importance for the effective implementation of the personnel error response team (PERT) recommendations. North Atlantic continues to comply with the special reporting requirements contained in Amendment No. 10 to the operating license.

Maintenance: Maintenance workers performed maintenance activities well by closely following procedural instructions. Maintenance supervisors provided close oversight in the plant. The technical support staff exhibited an excellent safety perspective by closely controlling the quantity of sealant injected to an existing valve leak repair clamp.

Engineering: During the implementation of a major service air system modification, a programmatic weakness contributed to a lack of communication between the design and system engineer. Freezing problems associated with non-safety related equipment continued to occur.

Plant Support: The security force continued to perform routine activities in a meticulous manner. The health physics department implemented several new performance improvement initiatives. Fire protection personnel followed the correct technical requirements for a degraded control room floor fire seal. Chemists closely monitored the emergency diesel generator fuel oil characteristics.

Safety Assessment/Quality Verification: The PERT performed a thorough and self-critical review. The PERT appears to represent a reasonable approach by the licensee for the reduction of the number and significance of personnel errors. Although some positive changes are evident, the effectiveness of the PERT effort cannot be measured since the PERT recommendations have not been fully implemented. Continued senior management attention is essential to ensure the success of the PERT effort.

A diesel generator special report and licensee event reports were properly prepared and submitted.

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DETAILS

1.0 PLANT OPERATIONS (71707,92701)

1.1 Plant Activities

The reactor operated at 100% power until December 16, when the operators lowered reactor power to 90% due to an inoperable feedwater heater extraction steam check valve. After changing the operating configuration of the feedwater heaters, the operators increased reactor power back to 100% on December 28. The reactor remained near 100% power during the remainder of the period.

1.2 Routine Plant Operations

The inspector conducted daily control room tours, observed shift turnovers, attended the morning station manager's meeting, and monitored plan-of-the-day meetings. The inspector reviewed technical specification requirements. The inspector conducted tours in the primary auxiliary building, the emergency diesel generator rooms, the residual heat removal vaults, the turbine building, the condensate storage tank building, and the circulating water pump house. During the tours and attendance at the various meetings, the inspector noted overall good performance by the operations staff.

Operators lowered reactor power to facilitate repairs to emergent equipment problems in the secondary side of the plant. The maintenance staff repaired a leaking weld on a moisture separator reheater drain tank level tree tap. Also, operators identified a problem with extraction steam check valve EX-V2. As a compensatory measure, the operations staff evaluated the continued operation with the feedwater heater system in an abnormal configuration. The operators increased the reactor to full power. In both instances, the inspector determined that the operators focused on safety.

The inspector observed operators respond to a low nitrogen gas pressure alarm for the 'D' feedwater isolation valve operator. The operators followed the alarm response procedure by contacting an instrument and control (I&C) technician, who installed a pressure gauge to measure the nitrogen gas pressure. The operators followed the requirements of technical specifications 3.6.3 for containment isolation valves. The I&C technician recharged the valve operator with nitrogen gas. The inspector verified that a work request existed to repair leaking mechanical joints during the next refueling outage. The inspector assessed that the operators responded properly to the low gas pressure alarm.

During this inspection period, operations management identified a trend of procedural adherence problems and initiated short term corrective actions. In one example, an operator missed a procedural step that resulted in a steam generator blowdown isolation on high flash tank water level. The procedure being performed was not safety-related and did not result in an ESF actuation. No adverse safety impact resulted from any of the instances of poor procedural adherence. Operations personnel initiated an operation or station information report for each occurrence. The inspector held a discussion with operations management, the

human performance enhancement system coordinator, and some of the operators involved. The short term corrective actions provided additional guidance on how to follow procedures. The inspector assessed that these personnel errors reinforced the importance for the effective implementation of the personnel error response team (PERT) recommendations. The PERT effort is further discussed in Section 5.1 of this report.

In summary, the operators properly responded to emergent equipment failures with an emphasis on reactor safety. However, the licensee analysis of several minor operator errors that occurred during this inspection period further emphasizes the importance of the PERT effort.

1.3 Control Room Deficiencies

The NRC Region I Deputy Director of the Division of Reactor Projects toured the control room and questioned the operators regarding the number of control room deficiencies. The operators produced a list with a total of 42 control room deficiencies. The deficiencies included various equipment such as instruments, controls and chart recorder problems. None of the identified deficiencies rendered the associated system inoperable. The operators indicated that other than the normal work control process, a formal system for trending and managing the control room deficiencies did not exist.

The inspector reviewed the list of deficiencies with the operations department work control supervisor. The majority of the work requests were assigned a medium priority for completion. Seventeen deficiencies are scheduled to be worked during the third refueling outage, which is scheduled to begin on March 26, 1994. Thirteen deficiencies need technical support review. A few deficiencies are on hold waiting for parts. A few deficiencies are ready to be worked. The work control supervisor indicated that a work control coordinator would generate and review the deficiency list each week. The work control supervisor also indicated that consideration would be given to increase the priority of control room deficiencies.

1.4 Special License Requirements

On May 29, 1992, the NRC issued license Amendment No. 10, which approved transfer of the Seabrook operating license from New Hampshire Yankee, a division of Public Service Company of New Hampshire, to North Atlantic Energy Service Corporation (North Atlantic), a wholly owned subsidiary of Northeast Utilities Company. The amendment included special requirements for the Joint Owner of Seabrook Station to report conditions that could have potentially adverse effects on facility safety to the Director of NRR. This amendment also imposed a requirement to report any changes to the annual operating and maintenance (O&M), or capital budgets to the NRC.

The inspector held discussions with the North Atlantic Senior Vice President and Chief Nuclear Officer and evaluated organizational performance during routine inspection activities.

The Joint Owner's Agreement and the Managing Agent Operating Agreement remained the same. The senior management changes announced for Northeast Utilities Company did not affect the principle duties of the Senior Vice President and Chief Nuclear Officer of North Atlantic.

The inspector reviewed two Seabrook Oversight Committee reports prepared for the Seabrook Nonoperating Participants Committee. The Joint Owner Executive Committee created the Seabrook Nonoperating Participants Committee to manage audits of North Atlantic's performance. Independent Advisory Service, Inc. (IAS) conducted the audits and prepared reports on a semi-annual basis.

The last IAS report did not identify any nuclear safety concerns, and made seven recommendations for improvements. The IAS reviewed ten recommendations from previous audits and determined that the recommendations were closed or acceptable corrective actions identified and scheduled for implementation. North Atlantic and the Joint Owner Executive Committee reviewed the IAS reports and believed that no report was required under the license conditions of Amendment No. 10.

To date, there have been three submittals to the NRC pursuant to the requirement to report any changes to the O&M or capital budgets. On December 17, 1992, the licensee, on behalf of the Joint Owners, informed the NRC of the approval by the Joint Owners Executive Committee of certain changes to the O&M and capital budgets. On January 26, 1993, the licensee informed the Commission of approved 1993 budgets that differed from forecasts provided in a letter dated May 13, 1992. On December 17, 1993, the licensee informed the Commission of approved O&M and capital budgets for 1994.

The NRR Project Manager reviewed the information provided in these submittals and has discussed the budgets with the licensee. A comparison of budgets for 1992, 1993, and 1994, show no significant variation in actual or projected spending for O&M for the years 1992 and 1994, but there was reduced spending for 1993. This reduction was due to the fact that there was no refueling outage in 1993. Adjusting for the estimated additional costs associated with a refueling outage, no significant variation is indicated. The approved capital budgets for these same years indicates an upward trend; however, actual capital expenditures in 1992 were significantly less than budgeted. This was due mainly to an accounting adjustment reflecting a settlement of a lawsuit. The Project Manager concluded that there has been no significant reduction in the O&M or capital budgets that could impact the safe operation of Seabrook Station.

The inspector concluded that North Atlantic continues to comply with the special reporting requirements contained in Amendment No. 10 to the Seabrook Station operating license.

2.0 MAINTENANCE (61726, 62703)

2.1 Routine Maintenance Observations

The inspector attended some morning maintenance planning meetings, the plan-of-the-day meetings, and work control meetings. The inspector observed portions of the following work activities or reviewed the following work packages:

- Replacement of the 'A' safety injection pump component cooling water system relief valve, CC-V26.
- Leak sealant repair of steam generator blowdown isolation valve SB-V9 body-to-bonnet mechanical joint.
- Troubleshooting and corrective maintenance activities on the 'B' emergency diesel generator cooling water control loop.
- Troubleshooting and corrective maintenance activities on containment building level indicator LI-2384.

The inspector observed maintenance supervisors providing oversight activities in the plant. Maintenance technicians closely followed procedural instructions. After reviewing the CC-V26 work package, the mechanical maintenance staff returned the work package to technical support for enhancement. The initial work package rotated the leaking relief valve, and did not address the need to install a new relief valve. The inspector determined that the mechanical maintenance staff exhibited an excellent questioning attitude.

The technical support staff exhibited an excellent safety perspective during the SB-V9 leak repair by requiring the removal of the existing clamp and the old sealant. These actions eliminated the uncertainty of adding a quantity of sealant to an existing clamp with unknown voids. The inspector observed that the leak injection successfully stopped the body-to-bonnet leak. The operators performed a valve stroke test as a post maintenance test.

The inspector identified no problems with the performance or documentation of maintenance activities. The inspector concluded that the maintenance was well planned and completed by knowledgeable technicians with direct support from technical support engineers.

2.2 Surveillance Activities

Moderator Temperature Coefficient Surveillance

The inspector reviewed and observed the performance of reactor engineering procedure RX 1704, "Moderator Temperature Coefficient Surveillance." The operators performed the procedure in conjunction with reactor engineers to verify that the moderator temperature

coefficient was within the limits of the core operating limit report.

The test director briefed the operators on the procedure and the expected plant response. Operators discussed coordination of reactivity changes, parameters to monitor, and situations that would warrant aborting the test.

After verifying completion of the prerequisites, the operators completed the test without any problems. During the surveillance, the operators varied reactor coolant system average temperature with control rods, while maintaining a constant delta T power with the turbine generator.

The inspector reviewed the calculation of the moderator temperature coefficient and verified that the moderator temperature coefficient was within the required technical specification limits. The inspector concluded that the surveillance test was well planned and completed in a controlled manner.

3.0 ENGINEERING (71707,37828)

3.1 Replacement of Turbine Building Service Air Compressors: Unresolved Item 93-21-01 (Closed)

The inspector reviewed an inconsistency between design coordination report (DCR) 93-16 and the actual implementation. DCR 93-16 specified that two automatic-start temporary air compressors would be used during the installation of the new compressors. The two temporary compressors would satisfy 10 CFR 50 Appendix 'R' commitments. During phase two of the actual implementation, the reciprocating air compressors were removed, leaving the installed centrifugal and one temporary compressor available. The centrifugal compressor loses power during a loss of offsite power event, leaving one temporary air compressor.

The inspector reviewed the Seabrook Station fire protection of safe shutdown capability equipment lists. North Atlantic took credit for the availability of the 1A and 1B reciprocating air compressor skids. The inspector noted that one temporary air compressor provided at least the same capacity as the sum of the two reciprocating air compressors. The inspector concluded that North Atlantic complied with the Appendix 'R' commitments.

Although the Appendix 'R' commitments were met, the inspector evaluated the reasons why the licensee implemented phase two of the DCR with only one temporary compressor in place, contrary to the DCR considerations. The design engineer indicated that the DCR intended for two temporary compressors to be available. However, technical support engineers did not realize that the DCR intended to have two temporary compressors. The design engineer and system engineer did not adequately discuss the implementation of the DCR. The inspector concluded that a lack of communication between the system and design engineer resulted in the discrepancy.

Station information report 93-100 evaluated several different problems associated with the implementation of DCR 93-16. North Atlantic identified that Procedure MA 4.13, "Design Change Implementation And Post Modification Testing," needs to be enhanced to require a detailed implementation plan for complex modifications. The inspector determined that the licensee performed a thorough and self-critical review.

The inspector concluded that the lack of communication between the system and design engineer resulted from a programmatic weakness. North Atlantic met the Appendix 'R' commitments, performed a thorough review of the problems associated with the implementation of DCR 93-16, and is tracking any identified corrective actions. This unresolved item is considered closed.

3.2 Cold Weather Preparations

The inspector held discussions with operators, and reviewed the revised video alarm system (VAS) response procedures for heat tracing. The procedures reviewed included ON 1059.01, "Heat Trace Operation," ON 1490.06 "Freeze Protection Control Surveillance," and the freeze protection log. Electricians raised the setpoints for high temperatures on the heat trace circuits to reduce the number of spurious alarms received in the main control room. The VAS response procedures for heat trace panels incorporated a list of heat tracing circuits to safety related equipment, heat trace control panel locations, power supplies to the panel, and backup heat tracing circuits. The records for the completed procedures appropriately documented any identified deviations.

During routine plant tours, the inspector noted an awareness by operators and engineers of cold weather freeze concerns. Operations management directed auxiliary operators to look for potential freeze problems. An auxiliary operator noted there was no heating in the building where construction workers installed and filled a new auxiliary steam boiler. Electricians installed a temporary space heater in the building.

Technical support engineers are recording turbine building temperatures for a year to determine how to design a ventilation control system that will maintain relatively constant temperatures throughout the year. North Atlantic installed a temporary modification that closed turbine building louvers to prevent freezing of components on the lower level of the building. The modification opened roof dampers and secured roof fans to cool the upper levels of the building.

The inspector walked down equipment in areas that had experienced freezing problems in the past. Most areas were either insulated, heated, or protected from the cold weather. However, a control line to the auxiliary steam supply regulator for the waste handling building froze this year, even though utility workers built a tent around the regulator. Neither operators nor engineers had inspected the adequacy of the tent to assess its cold weather protection capability.

Technical support engineers have traced the temporary instrument air supply hose from the temporary diesel driven air compressors. However, the engineers did not anticipate other cold weather problems associated with the temporary diesel air compressors such as the delay in loading a compressor due to cold lube oil, the reduced capacity of batteries, and the responses of the microprocessors that controlled the compressors. The technical support engineers implemented changes to address the cold weather problems associated with the temporary air compressors.

The inspector concluded that the station's freeze protection program was good. However, freezing problems associated with non-safety related equipment continued to occur.

4.0 PLANT SUPPORT (71707)

4.1 Security

The inspector toured the protected area, observed security guards on patrol, and monitored activities in the secondary alarm station. The security force posted a continuous watch for the mechanical cooling tower when operations switched to the cooling tower mode of the service water system. The security force successfully implemented compensatory measures for an inoperable intrusion detection zone. The security force adequately monitored individuals and packages that entered the protected area. The inspector concluded that the security force conducted routine activities in a meticulous manner.

4.2 Radiological Controls

The inspector observed health physics (HP) technicians perform routine activities and found them to be well planned and carried out. The HP manager implemented the following new performance improvement initiatives: 1) questioning of plant workers by HP supervisors regarding knowledge and familiarization with radiation work permit (RWP) requirements before entering the controlled area; 2) implementation of a new computer generated RWP that provides better reliability, standard language, and an ability to retrieve data; and 3) reorganization of the ALARA planning effort to better interface with routine HP operations.

4.3 Fire Protection

During the performance of a fire seal surveillance, maintenance technicians identified a degraded control room floor fire seal. The fire seal is located in the bottom of a control room cabinet. The inspector performed a visual inspection of the degraded fire seal. Fire protection personnel implemented the proper compensatory measures and operators verified that the control room emergency makeup air and filtration system could still perform its design basis function. The maintenance technicians did not identify any other degraded control room floor fire seals. The maintenance workers initiated a corrective action document to repair the fire seal, identify the root cause, and implement corrective actions. The inspector determined that maintenance technicians performed well by identifying the

degraded fire seal.

4.4 Chemistry

Chemists closely monitored the emergency diesel generator fuel oil characteristics. Plant management utilized a vendor to filter the fuel oil before exceeding any technical specification limits. The inspector determined that chemistry personnel performed routine activities well.

4.5 Plant Housekeeping

During routine tours of plant areas, the inspector noted good plant cleanliness. The inspector observed several poorly lit plant areas due to burned out light bulbs. The inspector discussed this with the regulatory compliance engineer who indicated that plant personnel would assess the poor lighting during the next scheduled plant clean-up day.

5.0 SAFETY ASSESSMENT/QUALITY VERIFICATION (40500,92702)

5.1 Personnel Error Response Team

Background

In response to NRC concerns documented in NRC Inspection Report 93-13, dated August 31, 1993, North Atlantic formed a five member personnel error response team (PERT), which evaluated and developed recommendations for reducing personnel errors. The PERT used both qualitative and quantitative analyses. The PERT presented preliminary assessments to a 25 member Sounding Review Committee for validation. Some changes to the PERT recommendations were made based on comments from the Sounding Review Committee. The PERT issued a final report on September 24, 1993.

The PERT identified eight issues in the categories of cultural, management, and programmatic areas. The PERT developed 22 recommendations to address the eight issues. Enclosure 2 contains further details of the issues and recommendations contained in the PERT report. North Atlantic issued a detailed PERT commitment schedule on November 29, 1993. This schedule included PERT recommendations and other miscellaneous performance improvements, such as trip reduction initiatives, configuration control training, self assessment initiatives, and a four year procedure upgrade program. The PERT is scheduled to conduct effectiveness evaluations of the PERT program every three months.

As a result of the implementation of the PERT recommendations, the plant manager anticipated seeing an improving personnel error trend by mid-1994. The senior vice president projected that the full benefit of the PERT effort would not be realized until the end of 1994. The longer term aspects of the PERT effort are captured in the North Atlantic

strategic plan (five year plan).

NRC Inspection Methodology

An NRC human factor specialist, quality program specialist, and a contracted organizational behavior specialist performed a review of the PERT effort from November 30 to December 2, 1993. The inspectors reviewed the PERT report, the 1991 North Atlantic attention-to-detail task force, and the 1991 configuration control task force reports. The inspectors interviewed 20 workers and management personnel. The resident inspector reviewed the PERT report, attended PERT working level meetings, and attended a PERT presentation meeting delivered by senior North Atlantic management. The resident inspector held several discussions with senior plant management.

Safety Assessment

The inspectors determined that PERT conducted a comprehensive and self-critical review. The PERT identified the need to develop a "zero tolerance for error" philosophy, and emphasized the need to make a cultural shift to effect the desired changes. The inspectors noted one weakness with the PERT effort in that the effectiveness assessment plan, which should be developed to identify how the PERT corrective action efforts would be assessed, was not being developed in conjunction with the PERT report. As a result, the PERT is developing a detailed effectiveness assessment plan that has recommendations, a success statement, and a method to measure success for each of the eight issues. The inspectors determined that the PERT recommendations, when implemented, appear to provide a reasonable approach to reduce the number and significance of personnel errors.

North Atlantic is starting to implement the PERT recommendations. The plant manager and senior vice president facilitated the initial department briefings that lasted several hours. In these briefings, the plant manager discussed the PERT issues, explained the need for accountability, and clearly explained the difference between accountability and discipline. The plant manager used well prepared briefing material. The department level managers are scheduled to conduct follow-up meetings with department personnel. Lastly, the plant manager and executive vice president are scheduled to facilitate department meetings to further develop success strategies. The inspectors determined that the graded approach to bring about a cultural change will represent a significant effort.

Department level managers now attend a biweekly performance improvement scheduling meeting in which plant management is assigned as a facilitator to lead the meeting. The detailed PERT schedule is routinely updated to reflect progress. The PERT team leader and plant manager participate in the biweekly meetings; however, department managers are responsible for implementing many of the PERT recommendations. In addition, the PERT continues to meet weekly. Each of the eight issues identified by the PERT has been assigned a PERT member who is responsible for assuring the effectiveness of corrective actions. The inspector attended several PERT and scheduling meetings. The inspectors determined that

North Atlantic has developed a systematic process to implement the PERT recommendations.

The resident inspector observed some tangible changes stemming from the PERT effort, including the following:

- North Atlantic assigned a full-time human performance enhancement system (HPES) coordinator, and plant management is initiating more HPES reviews of personnel errors.
- Plant management lowered the threshold of problem reporting as evidenced by the increase in the number of operation information reports.
- Technical projects personnel provide a more thorough and timely examination of performance trends.
- North Atlantic has allocated the resources necessary to support a four-year procedural upgrade program to increase the quality of procedures.
- The inspector observed better maintenance worker procedural adherence.
- Maintenance supervisors provided increased oversight of field activities.
- Corrective actions for identified problems are starting to more thoroughly address personnel errors.

The resident inspector determined that these changes are positive indicators of the PERT effort.

Overall, the inspectors concluded that the PERT performed a comprehensive and self-critical review. The PERT seems to be a reasonable way of reducing the number and significance of personnel errors. Although some positive changes have occurred, the effectiveness of the PERT effort cannot be measured since the PERT recommendations have not been fully implemented. Continued senior management attention is necessary to ensure the success of the PERT effort.

5.2 Diesel Generator Special Report

The inspector reviewed an emergency diesel generator (EDG) special report dated January 3, 1994, in which North Atlantic reported several non-valid test failures. The inspector held discussions with the system engineer and regulatory compliance engineer. The inspector reviewed Regulatory Guide 1.108 "Periodic Testing of Diesel Generator Units Used As Onsite Electric Power Systems At Nuclear Power Plants", Procedure OS1426.12, "Diesel Generator A and B Weekly Surveillance," and the EDG start load data for the previous five years.

North Atlantic reported that the 'B' EDG had three valid failures in the last 100 starts, and the 'A' EDG had two valid failures in the last 100 starts. The inspector determined that North Atlantic properly classified each EDG non-valid failure. The EDG testing frequency did not change. Figure 10.1, "Information For Failure Determination And Classification" of Procedure OS1426.12 provides five pages of detailed reportability guidance. The inspector noted that the reporting guidance was an asset. The inspector determined that North Atlantic properly reported EDG start and load failures.

5.3 Licensee Event Reports

The inspector reviewed the following licensee event reports (LERs) for completeness, clarity, timeliness, and consistency with inspector assessments. The inspector concluded that the reports were accurate and of high quality.

Diesel Generator Control Air Not Analyzed to Function During Seismic Event: LER 93-08 and 93-08-01 (Closed)

LER 93-08 and Supplement 1 address a violation identified during an NRC electrical distribution system functional inspection. The NRC inspection identified a condition contrary to the design description in the updated final safety analysis report. A failure of the air supply to the emergency diesel generator jacket cooling water temperature control valves during a seismic event could cause the diesel generators to be inoperable. The resolution of the violation is being tracked as VIO 50-443/80-08. The LER and Supplement 1 are administratively closed.

Engineered Safety Features Actuation Feedwater Isolation: LER 93-10 (Closed)

The inspector assessed this event in NRC Inspection Report No. 50-443/93-10. This LER is closed.

Service Water Pumps: LER 93-11 (Closed)

North Atlantic issued this voluntary LER to report the details of three service water pump failures. The inspector assessed North Atlantic's response to the pump failures in NRC Inspection Report No. 50-443/93-05. This LER is closed.

Reactor Trip Due to Electrical Fault in Solid State Protection System Cabinet: LER 93-12 (Closed)

The inspector assessed this event in NRC Inspection Report No. 50-443/93-16. This LER is closed.

Automatic Reactor Trip Due to Main Generator Exciter Brush Failure: LER 93-18 (Closed)

The inspector assessed this event in NRC inspection report No. 50-443/93-17. This LER is closed.

6.0 MEETINGS (30702)

Two resident inspectors were assigned to Seabrook Station throughout the period. The inspectors conducted a back shift inspection on January 3, and deep back shift inspections on January 3, 9, and 17. Two NRR specialists and one contractor assisted the resident inspectors in assessing the PERT effort from November 30, to December 2, 1993. On January 12, the Deputy Director of the Division of Reactor Projects toured the facility, met with the plant manager, and met with the executive management team.

Throughout the inspection, the inspector met with station management to discuss inspection findings. At the conclusion of the inspection, the inspector met with the station manager and his staff to discuss the inspection findings and observations. Licensee comments concerning the findings are documented in the applicable sections of this report. No proprietary information was covered within the scope of the inspection. No written material regarding the inspection findings was given to the licensee.

Region based inspectors conducted the following exit meetings during this inspection period.

<u>DATE</u>	<u>SUBJECT</u>	<u>REPORT NO.</u>	<u>INSPECTOR</u>
1/7	Radwaste/ Transportation	94-01	L. Eckert

FINAL REPORT

Response To Personnel Error

Executive Summary

In response to an unacceptably high frequency of personnel error during 1993, the Station Manager asked the Training Division Director to head up a committee to determine the underlying issues relating to the errors. The committee, named the Personnel Error Response Team (PERT), held seven meetings during August and September. The team with five members was kept small to promote efficiency. The members represented various departments, providing a cross disciplinary approach to ensure a broad perspective in defining issues.

The team applied both quantitative and qualitative analysis in considering incidents involving personnel error. The quantitative approach consisted of using North Atlantic's Methodology for Event Reduction Evaluation to analyze five incidents involving personnel error. The analyses led to the identification of eight issues. Each issue was identified as belonging to one of three categories identified as cultural, programmatic, and management oversight. The team developed a total of twenty recommendations relative to the eight issues.

The statements for the issues and the recommendations were modified on the basis of reviews by the following groups: 1) a twenty-five member sounding committee, 2) the upper management of the Station Organization, and 3) the Senior Vice President and Chief Nuclear Officer with management personnel reporting directly to him.

The Station Manager will ensure that actions are implemented addressing all of the recommendations stated in this report. To institute these actions, he will assign appropriate managers responsibility for implementing corrective actions relative to designated recommendations. Responsibility for the last recommendation on the issue of lack of follow-up on Corrective Actions (Issue 1M) has been assigned to PERT. The Station Manager will inform the Senior Vice President and Chief Nuclear Officer of the assignments of recommendations to managers.

The issues and recommendations resulting from the activities of PERT are listed below.

Cultural Issues and Recommendations:

Issue 1C: Personnel errors are tolerated and rationalized as being acceptable. They are shielded from scrutiny by overemphasis on confidentiality, with resultant lack of accountability.

Note: Management must provide a reaffirmation of North Atlantic's policy on discipline. The reaffirmation should delineate the distinction between non-disciplinary activities, such as performance coaching and counseling, and disciplinary actions, such as verbal/written reprimand and suspension/termination.

Recommendations:

- Management's expectations should be verbally communicated frequently and visibly.

- Establish accountability and Promote Open Communication.
 - Personnel involved in an incident related to human error should prepare a presentation on the incident to be delivered at a department meeting or during a session of requalification or continuing training.
 - Develop a basic outline, or agenda, for the presentation which is based on answering Who?, What?, Where?, When?, and providing action recommendations designed to prevent recurrence.
 - The manager, department head, or supervisor responsible for personnel involved in an incident related to human error should deliver a presentation on the incident to the Station Manager's daily meeting or the weekly Group Managers' meeting.
 - Interdepartmental communication on operating experiences should be improved by implementing the following action.

Make operating experience, including specific incidents in the industry or at Seabrook, a topic for presentation and discussion at each weekly Group Managers' meeting. The first presentation should include a general discussion on preparing and interpreting trend charts, with following presentations using trend charts to support interpretations of current operating experience. Publish the content of the presentations in the Station Manager's Messenger.

Issue 2C: Absence of management's attention and priority for incidents leads to lack of ownership and responsiveness to activities, with inability to effectively institute corrective actions.

Recommendations:

- Proceduralize a post event evaluation in accord with Methodology - Event Reduction Evaluation.
- Develop and implement a process to assess the effectiveness of corrective actions taken in response to post event recommendations.
- Management's expectation message needs to include content, priority, ownership, and responsiveness to incidents, particularly those involving personnel error.
- Evaluate the effectiveness of the Maintenance Improvement Plan (MIP) as related to the reduction of personnel error. Refer to the following MIP action items: A-2, C-2, and C-4.
- The Station Manager needs to more frequently require a Human Performance Enhancement System (HPES) evaluation of incidents.

Issue 3C: Upper management is sometimes insulated from the exact details of an event due to incomplete documentation of event information.

Recommendations:

- Include nonconfidential portions of the HPES report in Operational Information Reports (OIRs) and/or Station Information Reports (SIRs).
- Include the Stop, Think, Act, and Review (STAR) Worksheet in reports.

(Note: References to people identified by name could be removed from HPES and STAR information that is included in other reports.)

- Management's expectation message should address the issue of open and candid communication. Management should adopt a "Tell it like it is" policy.
- Revise the Station Operating Experience Manual (SSOEM) to require Cause and Failure Analysis for events.

Programmatic Issues and Recommendations:

Issue 1P: The STAR Program is ineffective.

Recommendations:

- Develop and implement a site-wide (not limited to just the Station) program on self verification to achieve the following objectives:
 - improvement in awareness,
 - direct linkage with OIRs and SIRs,
 - timely development of STAR worksheets, and
 - worksheet distribution identified.

Issue 2P: The Supervisory Walk-Down Program is ineffective.

Recommendations:

- Revise the Supervisory Walk-Down Program to include needed structure and appropriate portions of the Northeast Utilities program.
 - Define program objectives that encompass more than housekeeping and safety. For example, define objectives for:

- Procedure Adequacy
 - Procedure Compliance
 - Job Performance
 - Personnel and Equipment Concerns
 - Programmatic Issues

Issue 3P: Overly complex processes, programs, and procedures.

Recommendations:

- The work control program should be improved through communication and feedback among the key applicable organizations. The Work Control Interface Committee (WCIC) should be the focal point for this effort and use specific examples of problems, or enhancement ideas, to improve work package quality by designating appropriate level of instruction, documentation, program guidance, format, and package size.
- Implement Procedures Task Force recommendations.
- Complete implementation of the recommendations of Configuration Control Task Force II.
- Evaluate results of Northeast Utilities' Performance Enhancement Program (PEP) as they relate to Work Control.

Management Oversight Issues and Recommendations:

Issue 1M: Lack of follow-up on Corrective Actions (CAs)

Recommendations:

- Develop a system of priority for responding to events and for reviewing the effect of corrective actions. The highest level of priority should be designated for safety related events. The lowest level of priority should be designated for housekeeping-related problems.
- Develop and implement a review process for OIRs and SIRs which requires that the responsible manager assigned to an OIR or SIR must prepare to meet with the Station Manager to discuss the resolution of the issues involved, if requested.
- PERT must ensure that the actions implemented by the Station Manager in response to the PERT recommendations are effective. Three to four months after a majority of the actions have been implemented, PERT will:
 - evaluate the effectiveness of each action,
 - evaluate the effectiveness for the combined impact of all the actions, and
 - make suggestions to the Station Manager for any changes needed to improve the actions.

Issue 2M: Too many conflicting trend reports

Recommendations:

- Develop specific performance measurement indicators having a statistically significant correlation to work activity, e.g. the number of personnel errors per RTS completed as computed by the following ratio.

Number of personnel errors in RTS work performance
Number of RTSs completed

(Note: "RTS" signifies "Repetitive Task Sheet.")

- Evaluate and implement recommendations made by the Trend Task Force documented in report SS 56655.