December 11, 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 50-443/01-10

Dear Mr. Feigenbaum:

On November 17, 2001, the NRC completed an inspection at the Seabrook nuclear power station. The enclosed report documents the inspection findings which were discussed on November 29, 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.

Based on the results of these inspections, the inspectors identified one issue of very low safety significance (Green). This issue was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a Non-Cited Violation, in accordance with Section VI.A.1 of the NRC' s Enforcement Policy. If you deny this Non-Cited Violation, you should provide a response with the basis for your denial, within 30 days of the date of these inspection reports, 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 facility.

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/reading-rm/adams.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. 50-443/01-10
Attachment: Supplemental Information

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
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
W. Meinert, Nuclear Engineer
S. Allen, Polestar Applied Technology, Incorporated
R. Shadis, New England Coalition Staff
J. Bean, Regional Director, FEMA RI

Distribution w/encl: **(VIA E-MAIL)**
H. Miller, RA/J. Wiggins, DRA
T. Bergman, RI EDO Coordinator
E. Adensam, NRR (ridsnrrdlpmlpdi)
G. Wunder, PM, NRR
C. Cowgill, DRP
K. Jenison, DRP
T. Haverkamp, DRP
J. Brand, RI - Seabrook
L. Prividy, DRS
T. Moslak, DRS
P. Frechette, DRS
N. McNamara, DRS
D. Barss, NRR
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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-443
License No.:	NPF-86
Report No.:	50-443/01-10
Licensee:	North Atlantic Energy Service Corporation
Facility:	Seabrook Generating Station, Unit 1
Location:	Post Office Box 300 Seabrook, New Hampshire 03874
Dates:	September 30, 2001 through November 17, 2001
Inspectors:	Glenn Dentel, Senior Resident Inspector Javier Brand, Resident Inspector Robert Summers, Project Engineer Tom Moslak, Health Physicist Paul Cataldo, Resident Inspector - Millstone 2 Jason Jang, Health Physicist Tony Cerne, Senior Resident Inspector - Millstone 3 Lois James, Resident Inspector - Indian Point 3 Paul Bissett, Senior Operations Engineer David Silk, Senior Emergency Preparedness Inspector
Approved by:	Curtis Cowgill, Chief Projects Branch 6 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000443-01-10, on 9/30 - 11/17/2001; North Atlantic Energy Service Corporation; Seabrook Station; Unit 1; Resident Inspection Report.

The inspection was conducted by resident inspectors, regional inspectors providing assistance to the resident inspectors, and regional specialists performing inspections of emergency preparedness, radiological environmental monitoring, radioactive material and occupational exposure controls, radiological effluents, and radiation monitoring instrumentation. The inspection identified no significant 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.

A. Inspector Identified Findings

Cornerstone: Mitigating Systems

• **Green.** The inspectors identified a Non-Cited Violation of Technical Specification 6.7, "Procedures and Programs," and station maintenance procedure, MA 3.3, "Housekeeping and Plant Material Condition," for the failure to implement appropriate caution to prevent damage to susceptible equipment important to safety during maintenance on the "B" emergency diesel generator on September 19, 2001. This resulted in a failure of a coupling on the diesel lube oil system and additional unavailability time for the associated emergency diesel generator.

This finding had a credible impact on safety because the design of the lube oil coupling does not prevent failure from excessive pipe movement that can result from workers stepping or climbing on the associated pipe and no appropriate restrictions were developed to prevent such activity. Since routine work is done in the area associated with this piping at times when the diesel is maintained in an operable, standby condition, the failure of the lube oil coupling could have prevented the diesel from operating in response to emergency conditions. Although this finding affected the availability of the "B" emergency diesel generator, the inspectors determined that this finding was of very low safety significance because the diesel generator was already out-of-service for maintenance and work was in progress at the time and necessary repairs were made to the failed lube oil coupling within the allowed outage time in the facility technical specifications. Because this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy. (Section 4OA3.2)

B. Licensee Identified Violations

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

Report Details

Summary of Plant Status: The plant was operated at approximately 100% power since the beginning of the period until October 15, when the plant experienced an automatic reactor trip. The reactor trip was due to a power range high flux negative rate that resulted from a rod drop (N-11, shutdown bank "D"). On October 21, operators returned the unit to 100% power, after successful completion of rod control system troubleshooting and testing. The plant was operated at 100% power until November 11, when power was reduced to 22% power to repair a steam leak on the heater drain tank man-way. The unit was returned to 100% power on November 13, after successful completion of heater drain tank man-way repair activities.

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

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors reviewed the licensee's preparation for adverse weather relative to the protection of safety-related structures, systems, and components from cold weather. This review included a walkdown of the condensate storage tank (CST) and emergency feedwater (EFW) pumps, which are accident mitigating systems, to verify implementation of cold weather protection features to ensure continued operability during adverse weather. Specifically, the inspectors verified that cold weather protection features associated with the CST and EFW pumps were identified in the following procedures, and that in general, were adequate to ensure continued operability during cold weather:

- ON1059.01, "Heat Trace Operation," Revision 4, Change 11, and
- ON1304.05, "Operation of CST Heating System," Revision 4.

Additionally, the inspectors reviewed the updated final safety analysis report regarding design features, and verified the adequacy of the following procedures relative to cold weather protection:

- ES1850.016, "Freeze Protection Program," Revision 00,
- OS1090.09, "Station Cold Weather Operations," Revision 00, Change 3, and
- ON1490.06, "Freeze Protection Control Surveillance," Revision 2, Change 8.

The inspectors reviewed deficiencies identified during the implementation of cold weather protection procedures, and verified these deficiencies were entered into the corrective action program.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments

.1 Full System Walkdown - Emergency Feedwater

a. Inspection Scope

During the week of October 29, the inspectors performed a full system walkdown of the EFW system, involving equipment in both trains, including the motor driven and turbine driven EFW pumps and the common discharge piping. The inspectors also walked down and inspected the piping and in-line components from the EFW pump house to the East Main Steam and Feedwater Chase. These pipe lines represent the flow paths that provide the EFW supply to the "B" and "C" steam generators. A total of 42 pipe supports were examined during the walkdown, with the inspectors reviewing a sample of the as-built structural and welding details against the construction drawings used for the final ASME code certification.

The inspectors also inspected the piping and components from the "B" main steam line to the turbine driven emergency feedwater pump. This flow path serves as one of the redundant steam supply lines for starting the Terry Turbine that provides the mode of power for the train "A" EFW pump. The inspectors examined 18 pipe supports on this main steam (MS) pipe line, similarly evaluating the as-built configuration of each support against its individual design/construction drawing.

In addition to the piping and instrumentation drawings (P&ID) for the EFW and MS lines, the inspectors used the applicable system fabrication and isometric drawings to check the component orientation, elevation, and penetration details during the walkdown. The material conditions of the inspected equipment were also examined, as were the area "housekeeping" conditions and certain design features (e.g., seismic joints). Differences between the observed pipe support configurations and the construction drawings were discussed with the cognizant licensee engineering personnel to verify design change details, confirm procedural (e.g., MS0517.03) controls, and ensure licensee actions were initiated (e.g., condition report 01-11790) to correct minor drawing errors.

b. Findings

No findings of significance were identified.

.2 Partial Walkdown - Feedwater System

a. Inspection Scope

The inspectors conducted an inspection of the piping and components for a section of the feedwater (FW) system line supplying the "B" steam generator. The walkdown started with the first seismic restraint outside the East MS & FW Chase and ended at the pressure seal plate in proximity of the piping penetration into containment. In addition to reviewing the FW system P&ID and support isometric drawings, the inspectors examined and evaluated the as-built construction of six pipe supports and two pipe whip restraints against their detailed design drawings. The pipe configuration, components, and support construction for the "C" FW piping, also traversing the East

MS & FW Chase in a parallel path, were also reviewed for consistency with the “B” FW piping design.

The inspectors discussed design change details (e.g., engineering change authorizations) with the cognizant licensee engineers. The material condition of the piping and in-line components was examined, as were the details of specific pipe support/whip restraint weld repair conditions that were illustrated on the support drawings. The inspectors also verified compliance with specific ASME and American Welding Society criteria for selected pipe supports, whip restraints, and pipe lug welds.

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:

- Control Room and Computer Room
- Turbine Building, Essential Switchgear Room, Battery Rooms, 7' elevation
- All Vital Areas inside the Primary Auxiliary Building
- Emergency Feedwater Pump House 27' elevation
- Service Water Pump House 21' elevation
- Cooling Tower Pump House
- Waste Processing Building, Tank Farm - Refueling Water Tank, 20' elevation

Specific fire protection conditions examined included an inspection of Seabrook’s fire protection floor covering controls and processes, control of transient combustible materials, material condition of fire protection equipment, and the adequacy of any fire impairments and compensatory measures. The inspectors also reviewed CR-01-03407, which documents approximately 290 minor discrepancies involving controls of transient combustible materials at Seabrook, to determine the significance of the issues, and to verify that these issues did not adversely affect the plant systems and components. The following documents were also reviewed:

- SS-EE-97-007, Engineering Evaluation of Protective Floor Mating and Floor Coverings throughout the Station, Rev. 00
- SS-EV-97-0011, Engineering Evaluation of Combustible Materials Storage Containers, Rev.00
- SS-EV-97-0012, Engineering Evaluation for Permanent Combustible Storage Locations
- MSE 99-0344, Maintenance Support Evaluation for Revision of Carpet Performance Specifications, Revs. 00 and 01
- List of fire protection impairments/disablements
- Portions of Seabrook SER, page 9-52, and SSER 4, page 9-11, which discuss requirements for carpet in the control room

- FPI.22, Fire Protection Instruction for Semi-Annual Inspection of Flammable Liquids Storage Cabinets.
- Nuclear Oversight Audit Report No. 01-A09-02, Fire Protection Program Audit.
- Permit No. Co1080, Transient Combustible Material Permit.
- Several condition reports, including CR's 01-08839, documenting oversight's audit findings, and CR-01-03407.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed Seabrook's actions to address the potential for and the effects of flooding of underground man-ways containing safety and non-safety related electrical cables. The inspectors interviewed plant personnel and discussed specific design details with cognizant engineers, and reviewed applicable engineering evaluations and other supporting documentation. This inspection was conducted to ensure that electrical cables which could be submerged had been properly evaluated and to verify that adequate corrective actions had been implemented. In addition, the inspectors verified that no cable splices exist in potentially submerged applications, and performed field walkdowns of the external portion of the electrical man-ways involved. The following documents were reviewed:

- Engineering Evaluation 94-41, Submerged Electrical Cables and Supports, dated January 30, 1995.
- Commitment Change Request CCR 94-07, and 10 CFR 50.59 evaluation, dated February 21, 1995, which evaluated the reduction in monitoring and surveillance of man-ways, cables, and supports which may be subjected to submerged conditions.
- Commitment Change Request CCR 94-02, dated July 20, 1994, which evaluated the removal of insulation resistance testing ("meggering") requirements for cables which may be subjected to submerged conditions.
- Engineering Evaluation 90-10, Evaluation of Submerged Electrical Cables, which conclude that the cables and supports are qualified for operation in the submerged condition.
- RTS 00RM44223002, 00RM44222002, 00RM44987001, 98RM44223002, 98RM44224002, 98RM44222001, 96RM44223001, 96RM44224001, and 96RM44222001 , which document completion of time domain reflectometer (TDR) testing of selected cables in electrical man-way enclosures.
- RTS 99RM30421002, completed September 28, 1999, which documents a 5 year inspection of supports in safety related electrical man-way enclosures

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

.1 Quarterly Resident Inspector Review

a. Inspection Scope

The inspectors observed operator training focusing on human performance of time critical tasks. The inspectors reviewed the operators ability to correctly evaluate the training scenario and implement the emergency plan. The inspectors also evaluated whether deficiencies were identified and discussed during critiques.

b. Findings

No findings of significance were identified

.2 Biennial Regional Inspector Review

a. Inspection Scope

A review was conducted of recent operating history documentation found in inspection reports, licensee event reports, the licensee's corrective action program, and the most recent NRC plant issues matrix (PIM). The inspectors also reviewed specific events from the corrective action program which indicated possible training deficiencies, to verify that they had been appropriately addressed. The senior resident inspector was also consulted for insights regarding licensed operators' performance. These reviews did not detect any operational events that were indicative of possible training deficiencies.

The following inspection activities were performed using NUREG 1021, Rev. 8, Supplement 1, "Operator Licensing Examination Standards for Power Reactors," "Licensed Operator Requalification Program," Appendix A "Checklist for Evaluating Facility Testing Material," Appendix B "Suggested Interview Topics," and Inspection Procedure Attachment 71111.11.

The operating tests for the week of November 5, 2001 were reviewed for quality and performance.

The results of the annual operating tests for years 2000 and 2001 and the biennial written exam for 2001 were reviewed for quality, performance and grading. An assessment of whether failure rates are consistent with the guidance of NUREG-1021, Revision 8, Supplement 1, "Operator Licensing Examination Standards for Power Reactors" and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)," was also performed. The SDP review verified the following:

- Crew pass rates were greater than 80%. (Pass rate was 100%)
- Individual pass rates on the written exam were greater than 80%. (Pass rate was 100%)
- Individual pass rates on the job performance measures (JPMs) of the operating exam were greater than 80%. (Pass rate was 98%)

- More than 75% of the individuals passed all portions of the exam. (96% of the individuals passed all portions of the examination)

Observations were made of the dynamic simulator exams and JPMs administered during the week of November 5, 2001. These observations included facility evaluations of crew and individual performance during the dynamic simulator exams and individual performance of 5 JPMs. One operating and one staff crew were observed during the conduct of two scenarios each.

The remediation plan for a crew/individual's poor performance during the conduct of a recent emergency plan training exercise was reviewed.

Three licensed operator license reactivations were reviewed. These three reactivations included a senior reactor operator (SRO), a reactor operator and a refueling SRO license.

Operators, instructors and training/operation's management were interviewed for feedback on their training program and the quality of training received.

Simulator performance and fidelity were reviewed for conformance to the reference plant control room.

A sample of records for requalification training attendance, program feedback, reporting, and medical examinations were reviewed for compliance with license conditions, including NRC regulations.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

.1 Main Feed Water 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 Main FW System. During this inspection, 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 FW system had appropriate performance criteria consistent with the plant configuration. The inspectors interviewed various licensee personnel, including the FW system engineer, Instrumentation & Control personnel, and the maintenance rule coordinator. The inspectors reviewed several CRs, as well as the following procedures:

- Main Feedwater (FW) System Performance Report, dated March 2001

- Technical Support Group Instruction TSG-21, "Maintenance Rule Unavailability Monitoring," Revision 2;
- TSGI 22, “Maintenance Rule Functional Failure Monitoring,” Revision 1;
- TSGI 23, “Maintenance Rule Plant Level Monitoring,” Revision 1;
- Seabrook procedure OE 4.8, “Apparent Cause Evaluation,” Revision 4; and
- Seabrook Operating Experience Manual SSOE.

The inspectors also verified that minor identified deficiencies have been entered into the corrective action program for resolution.

b. Findings

No findings of significance were identified.

.2 Reactor Coolant Loop Delta Temperature and Average Temperature

a. Inspection Scope

The inspectors reviewed a deficiency identified during periodic calibration of the Reactor Coolant System (RCS) loop change in temperature (Delta T) and average temperature (Tavg) as documented in Condition Report 01-10377 to assess the effectiveness of the licensee’s maintenance efforts. In addition, the inspectors reviewed the instrument maintenance history which documented three similar deficiencies. Maintenance rule documents including PEG-45 Maintenance Rule Program Monitoring Activities and TSGI-22 Maintenance Rule Functional Failure Monitoring were used to determine whether any of the deficiencies were functional failures or could cause a functional failure if not corrected in a timely manner.

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 October 2, metal debris was found on the discharge of the "A" RHR equipment vault return air fan. Subsequent inspections revealed additional deficiencies with the damper associated with the fan. The inspectors observed various troubleshooting activities, performed field inspections of the dampers, examined the initial operability evaluations, and examined the potential risk. An operability and reportability review was completed and is documented in Section 1R15.
- On October 31, the inspectors reviewed the on-line maintenance assessment for work on the service water vacuum breaker check valves. The inspectors interviewed operators, probability risk analysts, and Operation management to assess understanding of the availability of the service water pumps to perform their function. The inspectors also verified that minor identified deficiencies have been entered into the corrective action program for resolution (CR 01-11811 and 01-11892).
- On November 2, the "A" high head safety injection/charging pump was declared inoperable due to a faulty toggle switch on the breaker associated with the pump. The inspectors visually inspected the breaker, interviewed the electrical engineer, and reviewed corrective actions taken in response to the failure. The inspectors questioned operators on the initial operability and availability assessments and communication of the deficiency between crews.
- On November 7, the inspectors reviewed the risk evaluation associated with replacement of 345 kV bushing in the switchyard coincident with slave relay testing that made the turbine driven emergency feedwater pump inoperable. The inspectors reviewed the compensatory measures taken to minimize risk and reviewed the management evaluation and assessment of the risk. The inspectors also verified that minor identified deficiencies have been entered into the corrective action program for resolution (CR 01-12020).

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

a. Inspection Scope

The inspectors reviewed operator performance during the following nonroutine plant evolutions:

- On October 31, the inspectors observed a leak seal repair on the "D" bypass feedwater regulating valve. The inspectors reviewed the controls on the vendor performing the repair, the oversight by quality assurance, and the involvement by

maintenance engineers. The inspectors also observed the repair activities to ensure proper care was taken not to affect the risk significant valves in close proximity to the actual repair.

- On November 13, the inspectors observed portions of a leak seal repair on the heater drain tank man-way to stop a gasket leak. The inspectors attended the pre-job briefing, reviewed the controls on the vendor performing the repair, the oversight by quality assurance, and the involvement by maintenance engineers. The inspectors also reviewed temporary modification TMOD-0021, used by the licensee to seal the leaking man-way.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed several operability evaluations (OD's) 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:

- OD 01-10365, Debris found in the discharge plenum of enclosure air handling fan (EAH-FN-31A).
- OD 01-12090, which evaluated the increased torque required to close the primary auxiliary building (PAB) air supply tornado dampers 1-PAH-DP-364 A and B, during recent post maintenance testing activities.
- Two electrical connection in the "B" emergency diesel generator (EDG) control panel were found seriously overheating during infrared thermography testing. The inspectors reviewed the operability and reportability determinations associated with this deficiency documented in Condition Report (CR) 01-10979. Engineering Procedure ES1807.016, "Thermography Program," Administrative Procedure OE 4.5, "Operability Determination," and Generic Letter 91-18, "Resolution of Degraded And Nonconforming Conditions" were used to evaluate the licensee's operability determination. 10 Code of Federal Regulations (CFR) 50.72, " Immediate notification requirements for operating nuclear power reactors," 10 CFR 50.73, "License Event Report System," and NUREG 1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" were used to review the reportability determination.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors reviewed the licensee's current listing of active operator workarounds. The inspectors reviewed Operations Administrative Instruction OAI.20, Revision 13, "Operations Workarounds and Operational Impact Items," and verified that this procedure provided the necessary guidance to the licensee to adequately address the cumulative effects these workarounds had on the operation, reliability, and availability of affected systems. Additionally, the inspectors verified that the workarounds did not adversely impact the ability of the operators to implement emergency procedures or respond to plant transients. The inspectors reviewed various CRs regarding operator workarounds, and verified that workarounds were being identified at the appropriate threshold, and were being tracked via the corrective action program for resolution.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed several completed 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 PMTs were reviewed:

- On, November 19, LN0561.19, "345 KV SF6 Bus Duct Repair Retest, and LS0568.21, "Wiring Verification And Functional Checks, Rev. 2, following replacements of the 345 KV bushings.
- Work Request 01W003084 replaced electrical connection that were found to be seriously overheating in the "B" emergency diesel generator control cabinet 1-DG-CP-76A (CR 01-10979)

The inspectors reviewed four work requests that remained in the open status with work complete to ensure that post maintenance testing was performed and documented appropriately. This inspection was completed by reviewing the post maintenance documentation in the work request package. The four work requests are listed below:

- WR 01W001009 replaced damaged cable insulation and restored leads on the lower limit switch on containment spray valve 1-CS-Y-311.
- WR 01W000662 repaired an oil leak from the oil level gauge on the waste gas compressor.

- WR 01W001157 repaired "A" boric acid storage tank sample isolation valve which was leaking.
- WR 01W002306 repaired the "B" waste gas compressor to correct degradation identified during compressor outlet flow trending.

The inspectors also reviewed two work requests that remained in the open status with work still to be performed. The inspectors reviewed the post maintenance documentation in the work request package to ensure that post maintenance tests had been performed and documented appropriately on those portions of the work that had been performed. The work requests reviewed are:

- WR 97W002751 implemented modification MMOD 97-606 to replace vent and drain valves on feedwater heaters.
- WR 01W002553 performed leak repair on a man-way cover of the "B" moisture separator to repair a steam leak.

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 walkdowns, observed operators and technicians perform test evolutions, reviewed system parameters, and interviewed the system engineers and field operators. The following surveillance procedures were reviewed.

- On October 31, IX1605.067, “FW-P-535 Steam Generator C Pressure Protection Channel II Time Response Test,” Rev. 4. The inspectors also verified that minor identified procedural deficiencies have been entered into the corrective action program for resolution (CR 01-11772).
- On November 7, OX1436.02, “Emergency Feed Pump A Quarterly Testing,” Rev. 8., and OX1456.27, Rev.7 and OX1456.61, Rev.7, “Train A ESFAS Slave Relay Go Test”.
- On November 15, OX1426.05, “D/G 1B Operability Test,” Rev.8.

b. Findings

No findings of significance were identified.

Emergency Preparedness (EP)

1EP2 Alert and Notification System (ANS) Testing

a. Inspection Scope

The inspectors reviewed the design, maintenance, and testing of the siren system to ensure that planning standard 10CFR50.47(b)(5) for notification of the public can be met. The documents used in this review were the "Seabrook Station Public Alert and Notification System FEMA-REP-10 Design Report Addendum 5," "Seabrook Station Emergency Preparedness Planning Basis," and "Seabrook Station Site-Specific Offsite Radiological Emergency Preparedness Public Alert and Notification System Quality Assurance Verification Final Report."

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Augmentation Testing

a. Inspection Scope

The inspectors reviewed the commitments for ERO staffing and facility activation, as well as, the licensee's capabilities to ensure that planning standard 10CFR50.47(b)(2) can be met. Staff depth for key ERO positions was reviewed to ensure that sufficient numbers of responders were available. The procedure for initiating ERO call-in was reviewed and walked through with responsible licensee personnel. Documentation from pager tests, call-in drills, and response drills were reviewed to ensure ERO responsiveness and consistency. CRs addressing this area were reviewed to assess priority and effectiveness of corrective actions (CAs) to assure operability and reliability of the notification process and system.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes

a. Inspection Scope

The inspectors reviewed recent emergency plan and implementing procedure changes, as well as, the change review process, to determine if changes resulted in a decrease in the effectiveness of the emergency plan as cautioned against in 10CFR50.54(q). The inspectors also verified that the changes do not diminish the plan's ability to meet the planning standards of 10CFR50.47(b) and the requirements of 10CFR50 Appendix E.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

a. Inspection Scope

The inspectors reviewed CAs for issues identified by the licensee in quality assurance audits, the 2001 notification drills, selected self-assessment reports, and the 2001 drill reports. CRs assigned to the EP department were also reviewed to determine the significance of the issues and to determine if repeat problems were occurring. The inspectors reviewed the reports for the 2000 and 2001 10CFR50.54(t) reviews to assess whether the reviews met the requirements and if any repeat issues were identified. CRs, and their associated CAs, resulting from three 2001 combined functional drills were reviewed for effectiveness and compliance with 10CFR50 Appendix E, Section IV.F.2.g, concerning the identification and correction of weaknesses and deficiencies.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

2OS3 Radiation Monitoring Instrumentation

a. Inspection Scope

During the period of October 29 - November 1, 2001, the inspectors conducted the following activities to evaluate the operability and accuracy of radiation monitoring instrumentation and the adequacy of the respiratory protection program. Implementation of the radiation monitoring program was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and the licensee's procedures.

- The inspectors observed technicians performing radioactive source and functional checks on a variety of instrumentation including the whole body counter, contamination monitors, low range/ high range portable survey instruments, and a personnel contamination monitor.
- The inspectors reviewed the calibration records for five electronic dosimeters (DMC-100 Nos. 132865, 122563, 141344, 120372, and 132819), a whole body counting system (System No. 1), installed area monitors (Nos. 6550, 6534, 6576 A&B, 6538, and 6539), three (3) personnel contamination monitors, two (2) portal monitors, and three (3) radio-chemistry laboratory (Germanium) counting systems.
- The inspectors observed the calibration of a portable neutron survey instrument (REM-500 No. 183) and three portable area monitors (AMP-100 Nos. 5089-086 & 5000-052, EC4-3 No. 268)

- The inspectors reviewed the operating procedure and current calibration source activity/dose rate characterizations for the Shepard Model 81 beam irradiator used for instrument calibrations and observed a technician perform safety interlock tests.
- The inspectors evaluated the adequacy of the respiratory protection program regarding the issuance and maintenance of self-contained breathing apparatus (SCBA). Training and qualification records for licensed operators, required to wear SCBA's in the event of an emergency, were reviewed. Three (3) SCBA's staged for use in the Control Room were physically checked and the maintenance and testing records for other selected SCBA's, staged in other plant areas, were also reviewed.
- The inspectors reviewed sixteen (16) CRs related to radiation instrumentation, SCBA's, and the monitoring of plant radiation levels to determine if problems were identified in a timely manner and appropriate corrective actions were taken to resolve the related issues. Included in this review were CR Nos. 01-01561, 01-03751, 01-04244, 01-05997, 01-08690, 01-08820, 01-09032 01-09464, 01-09696, 01-11215, 01-11474, 01-11475, 01-11515, 01-11721, 01-11722, and 01-11723.

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program

.1 Radiological Environmental Monitoring Program

a. Inspection Scope

The inspectors reviewed the following documents to evaluate the effectiveness of the Radiological Environmental Monitoring Program (REMP) at the Seabrook Station and at the Contractor Laboratory (Duke Engineering and Services, Environmental Laboratory, Westboro, Massachusetts). The requirements of the REMP are specified in the Technical Specifications/Technical Requirements Program 5.2/Offsite Dose Calculation Manual (TS/TRP 5.2/ODCM).

Seabrook Station

- 1999 and 2000 Annual REMP Reports;
- Selected analytical results for 2001 REMP samples;
- Most recent ODCM (Revision 21, April 12, 2000) and technical justifications for ODCM changes, including sampling media and locations;

- The 2000/2001 QA Audits for the REMP/ODCM and Meteorological Monitoring Program implementations and corrective actions (Audit Nos., 00-A10-01 and 01-A06-01) ;
- REMP Self-Assessment Reports (01-0263 and 01-1274);
- 2000/2001 REMP Condition Reports (CRs) and corrective actions;
- REMP Field Work Observation and Coaching Cards (May, June and July 2001);
- Most recent calibration results (May 2001) for all TS/ODCM air samplers;

- 2001 quarterly calibration results of the primary and backup meteorological monitoring instruments for wind direction, wind speed, and temperatures;
- The 2000/2001 meteorological monitoring data recovery statistics;
- Implementation of the environmental thermoluminescent dosimeters (TLDs) program;
- Land Use Census procedure and the 2000/2001 results; and
- Associated procedures.

Duke Engineering and Services, Environmental Laboratory

- QA/QC Manual;
- The 2000 Semi-annual Analytical and Dosimetry QA Status Reports;
- The implementation of the quality control program;
- The implementation of the interlaboratory and intralaboratory comparisons; and
- 2001 condition reports.

The inspectors toured and observed the following activities to evaluate the effectiveness of the REMP.

- Operability of meteorological monitoring instruments at the tower and the control room;
- Air iodine/particulate and water sampling techniques; and
- Walkdown for determining whether all air samplers, milk farms, and 25%TLDs were located as described in the ODCM (including control and indicator stations) and for determining the equipment material condition.

b. Findings

No findings of significance were identified.

.2 Radioactive Material Control Program

a. Inspection Scope

The inspectors reviewed the following documents to ensure that the licensee met the requirements specified in the licensee's program for the unrestricted release of material from the Radiologically Controlled Area (RCA):

- Most recent calibration results for the radiation monitoring instrumentation (Small Article Monitor, SAM-9), including the (a) alarm setting, (b) response to the alarm, (c) the lower sensitivity, and (d) failure rate at the alarm setting;
- Criteria for the survey and release of potentially contaminated material using a gamma spectroscopy (calibrations efficiency for bulk sample analyses);
- Methods used for control, survey, and release from the RCA; and
- •) Procedures and records to verify for the lower limits of detection for bulk sample analyses.

The review was against criteria contained in 10CFR20, NRC Circular 81-07, NRC Information Notice 85-92, NUREG/CR-5569, Health Position Data Base (Positions 221 and 250), and the licensee's procedures.

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

.2 Safety System Functional Failures

a. Inspection Scope

The inspectors reviewed the performance indicators for safety system functional failures to determine whether the NRC approved guidance, provided in NEI 99-02, was properly implemented. Verification included review of the data collected, PI definitions, and 10 CFR 50.73 requirements described in detail in NUREG 1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," Rev. 2. The inspectors verified accuracy of the reported data through reviews of Licensee Event Reports submitted during the period of October 2000 through November 2001.

b. Findings

No findings of significance were identified

.3 RETS/ODCM Radiological Effluent Occurrences

a. Inspection Scope

The inspectors reviewed the following documents to ensure the licensee met all requirements of the performance indicator from the third quarter 2000 to the third quarter 2001:

- monthly projected dose assessment results due to radioactive liquid and gaseous effluent releases;
- quarterly projected dose assessment results due to radioactive liquid and gaseous effluent releases; and
- associated procedures.

The information contained in these records was compared against the criteria contained in Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 1, to verify that all conditions that met the NEI criteria were recognized, identified, and reported as a Performance Indicator.

b. Findings

No findings of significance were identified.

.4 Emergency Preparedness DEP/ERO/ANS

a. Inspection Scope

The inspectors reviewed the licensee's process for identifying the data that is utilized to determine the values for the three emergency preparedness performance indicators (PIs) which are: 1) Drill and Exercise Performance (DEP), 2) ERO Participation, and 3) ANS Reliability. Attendance records for drill and exercise participation were reviewed. ANS test data was reviewed in conjunction with inspection efforts associated with Section 1EP2 above. Selected scenarios were reviewed to verify opportunities for classification, notification, and protective action recommendations that counted in the DEP data. The inspectors reviewed data from the fourth quarter of 2000 through the third quarter of 2001 using the criteria of NEI 99-02, Revision 0, "Regulatory Assessment Performance Indicator Guideline," Revision 1.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up

.1 Automatic Reactor Trip Event of October 15, 2001

a. Inspection Scope

On October 15, at 1:07 p.m., the reactor automatically tripped from 100 percent power during quarterly rod surveillance testing. Control rod, N11, dropped into the reactor core causing a reactor trip on power range high flux negative rate. The inspectors responded to the control room to evaluate plant equipment and mitigating system response to the plant trip, operator actions including communications and use of correct emergency operating procedures, and plant stabilization to a safe shutdown condition. The inspectors reviewed various instruments and sequence of events recorders and conducted interviews to verify safe plant conditions. All safety equipment performed properly as required.

The inspectors verified that identified corrective actions were completed prior to the restart of the reactor to verify proper operation of the control rod. The inspectors reviewed the event report and examined various maintenance and testing completed during the troubleshooting activities.

b. Findings

The licensee's root cause evaluation was ongoing at the end of the inspection period. The inspectors concluded that additional inspection was needed to determine if a performance issue and/or a violation of NRC requirements were a contributing cause of the reactor trip. This issue will be evaluated after completion of the root cause and is tracked as an unresolved item **(URI 50-443/01-010-01)**.

.2 (Closed) URI 50-443/01-009-01: Failure of a Lube Oil Coupling on the "B" Emergency Diesel Generator (EDG).

a. Inspection Scope

On September 20, 2001, the coupling on the discharge of the "B" EDG pre-lube oil pump failed, causing a lube oil spill of approximately 200 to 300 gallons. This event and an associated Unresolved Item were discussed in NRC Inspection Report 50-443/2001009. At the time of the event, the "B" EDG had been out-of-service for a lube oil replacement to implement planned corrective actions for a prior failure of the diesel engine.

During this inspection, the licensee's event evaluation, root cause evaluation, and proposed corrective actions were reviewed. Also, the inspector reviewed a followup evaluation conducted by the licensee's engineering organization to ascertain the proximate time of the coupling failure. The inspector observed tests conducted by the engineering organization to determine the amount of external force that was necessary to cause the coupling to fail and an assessment of the maintenance activities that could have led to the external force being applied to the piping. Finally, the inspector walked

down representative portions of the lube oil piping for both the "A" and "B" EDGs to verify that the Dresser-style couplings were intact with: no visible signs of leakage, no gross evidence of misalignment present for the repaired coupling, and that the corrective action to install a missing pipe support on the "B" EDG was in place.

b. Findings

The inspectors identified one Green finding. The licensee failed to implement effective measures to prevent damage to important to safety equipment during the conduct of maintenance on the "B" EDG on September 19, 2001, affecting the availability of the "B" EDG. This finding was dispositioned as a Non-Cited Violation.

The licensee's root cause analysis concluded that the cause of the coupling failure was due to three separate causal factors, being: (i) an associated piping structural support was not installed as designed; (ii) installation of coupling during the refueling outage in January, 2001, did not meet vendor specifications; and, (iii) an external force was applied to the piping that pulled the coupling apart during a recent maintenance activity.

Based on a review of a subsequent engineering evaluation of the causal factors for the failure, observations of supporting testing activities, and discussions with engineering and maintenance staff, the inspector determined the following regarding the above listed causes:

i. A piping structural support near the failed coupling was missing. This support was part of the "skid" mounted equipment to be provided by the licensee's vendor during original construction. This support was originally installed on the "A" EDG, as well as on both Unit 2 EDGs, which are located on site in the unfinished Unit 2 facility. This support could have prevented or limited some external forces on the piping system from being transmitted to the coupling as an axial force. However, it was clear to the inspector that the design of the support was not to provide axial load limitation on the coupling. The piping connected to this coupling is an arrangement of a series of threaded pipe spools connected by three threaded 90 degree elbows. The elbows had been replaced during the January outage. The threaded fit-up allows the piping to move relatively easily when pushed by hand. Once the gasket is compressed and takes a set on the pipe, the coupling design alone provides sufficient resistance and flexibility to normal pipe movement for operational loads, such that coupling pull out will not occur. Therefore, the lack of this support alone could not have caused the coupling failure, although the piping system was more susceptible to excessive movement by someone unintentionally stepping on or pushing the pipe.

ii. During the licensee's event and root cause evaluations, it was concluded that the vendor installing the coupling in January 2001, failed to implement a recommended installation activity to re-torque the coupling holding bolts following initial system pressurization. This recommendation was made by the coupling vendor to ensure proper leak tightness of the compressed gaskets, after the gaskets form a final set. The inspector determined that while this recommendation was not implemented, the licensee identified no system leakage from the associated coupling during the subsequent nine month period of operation. This particular portion of piping,

associated with the lube oil keep-warm system, is in service and pressurized, even when the EDG is in a standby condition. Further, it experiences a higher operating pressure when the EDG is started. The inspector noted that this EDG had run for about 150 hours since the coupling was replaced, which included three separate runs for greater than 24 hours and eight monthly surveillance tests normally lasting 4 hours each. No evidence of gasket seal leakage was observed during these runs. Subsequent licensee analysis indicated that if the gaskets had not been properly compressed during installation that leakage would have been evident. Therefore, while the installation may not have met all the coupling vendor's recommendations, there was sufficient evidence to conclude that the coupling gasket was properly compressed.

iii. The licensee also concluded that an external force was applied to the piping resulting in a break of the gasket seal and subsequent pull out of the pipe. The most recent maintenance activities that had opportunity for personnel to step on or push the piping in such a way to cause a break in the seal involved either the replacement of the lube oil and the lube oil filter on September 19, or work on the turbo charger bolting on August 1 and 2, 2001. Given that the coupling had not evidenced any sign of leakage prior to the September failure, the inspector judged that the coupling failure was most likely caused by an external force during the September maintenance activity. The licensee provided an assessment of the failure mechanism to better ascertain when the failure occurred. The licensee's analysis showed that the failure would involve leakage past the gasket prior to pipe pull out from the coupling. Further, it was demonstrated by test and analysis that once the gasket was distorted enough for pipe pull out to occur, that leakage would occur initially, and that internal operational loads would be sufficient to overcome remaining frictional forces holding the coupling together. These two factors provided sufficient basis to determine that the failure resulted from incidental contact with the pipe or coupling during the September maintenance outage.

The licensee has provided expectations concerning employees or contractors standing on equipment in procedure MA 3.3, "Housekeeping and Plant Material Condition." These expectations are written very generally in terms of exercising caution when working near equipment susceptible to damage, etc.,. Also, there is a specific prohibition from standing on some components like, small bore pipe and instrument lines; however, the lube oil pipe on the EDG would not be included in this prohibition. The manufacturer for the coupling clearly states in its installation instructions that the basic design does not provide for anchoring the pipes against pull out and further states that suitable anchorage must be provided when excessive pipe movement could cause the pipe to pull out. The fact that the licensee provided no anchorage in its design, nor any specific procedural prohibition for craft using the pipe for climbing in the area that could cause excessive pipe movement, is considered a performance problem that resulted in a temporary loss of equipment important to safety.

The inspectors reviewed this issue under the SDP and determined that this issue had a credible impact on safety because a lube oil coupling failure on the EDG could have prevented the diesel from operating appropriately under emergency conditions. The inspectors also determined that this issue affected the availability of the "B" EDG, which is a mitigating system train under the SDP, because the diesel remained out of service

for an additional 19 hours to make repairs to the lube oil system. The inspectors concluded that this finding was of very low safety significance (Green) because the diesel was returned to service within the allowed outage time prescribed in the facility technical specifications.

Technical Specification 6.7, "Procedures and Programs," requires procedures for the proper conduct and control of maintenance activities. Maintenance procedure, MA 3.3, "Housekeeping and Plant Material Condition," requires appropriate caution to be exercised when working on or near equipment susceptible to damage. Contrary to the above, the licensee failed to implement measures to prevent damage to the EDG lube oil system piping, during maintenance activities on September 19, 2001. This resulted in a failure of a coupling on the diesel lube oil system and additional unavailability time for the associated emergency diesel generator. This is considered to be a violation of Technical Specification 6.7. In accordance with Section VI.A.1 of the NRC Enforcement Policy, this violation is being treated as a Non-Cited Violation **(NCV 50-443/01-010-02)** . This violation was entered into the licensee's corrective action program as CR 01-09865.

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 November 29, 2001. 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 October 19, 2001, Mr. Jeffrey Merrifield, NRC Commissioner, Mr. Hubert Miller, Regional Administrator and Mr. Brian McCabe, Technical Assistant to the Commissioner, toured Seabrook Station and met with station personnel and New Hampshire U.S. Senator, Mr. Robert Smith, to discus plant security measures.

ATTACHMENT 1
SUPPLEMENTAL INFORMATION

a. Key Points Of Contact

John Baer	Emergency Planning Coordinator
Patrick Casey	Emergency Planning Coordinator
R. Bryant	Instrumentation & Control Supervisor
B.Clark	Radiological Services Supervisor
W. Cash	Health Physics Department Manager
D. Chorlian	Radiation Technician, Instrument Calibration Facility
W. Cox	Radiological Technical Specialist
C. Ellis	Senior Health Physics Technician
D. Flahardy	Senior Health Physicist
P. Freeman	Manager, Nuclear Design Engineering (Electrical)
J. Grillo	Assistant Station Director
D. Hampton	Health Physics Supervisor
R. Hickok	Licensing Coordinator
R. LeGrand	Manager, Work Control and Outages
W. Leland	Manager, Chemistry/Health Physics
Timothy Lucca	Technical Services Supervisor
T. Nichols	Manager, Plant Engineering
Susan Perkin-Grew	Emergency Planning Manager
J. Peschel	Manager, Regulatory Programs
B. Plummer	Manager, Operations
D. Roy	Manager, Nuclear Training
R. Sherwin	Manager, Maintenance
G. St. Pierre	Station Director
*R. Thurlow	Health Physics Technical Supervisor
J. Vargas	Director, Engineering
R. White	Manager, Nuclear Design Engineering (Mechanical)
David Young	Emergency Planning Coordinator

b. List of Items Opened, Closed and Discussed

Opened and Closed

50-443/01-010-02	NCV	Licensee failed to implement appropriate measures to prevent damage to the "B" emergency diesel generator during maintenance. (4OA3.2)

Closed

50-443/01-009-01	URI	Failure of a Lube Oil Coupling on the "B" Emergency Diesel Generator. (4OA3.2)

Opened:

50-443/01-010-01	URI	Automatic Reactor Trip From 100 percent Power During Quarterly Rod Surveillance Testing (4OA3.1)

c. List of Acronyms

ANS	Alert and Notification System
ASME	American Society of Mechanical Engineers Boiler and Pressure Vessel Code
CA	Corrective Action
CCR	Commitment Change Request
CFR	Code of Federal Regulations
CR	Condition Report
CST	Condensate Storage Tank
DEP	Drill and Exercise Performance
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
EFW	Emergency Feedwater
EP	Emergency Preparedness
ERO	Emergency Response Organization
FEMA	Federal Emergency Management Agency
FW	Feed Water
JPM	Job Performance Measures
MS	Main Steam
NEI	Nuclear Energy Institute
ODCM	Offsite Dose Calculation Manual
PAB	Primary Auxiliary Building
PI	Performance Indicator
PIM	Plant Issues Matrix
P&ID	Piping and Instrumentation Drawings
PMT	Post maintenance Testing
QA	Quality Assurance
QC	Quality Control
RCA	Radiologically Controlled Area
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
RHR	Residual Heat Removal System
RTS	Repetitive Task Sheet
SCBA	Self-contained Breathing Apparatus
SRO	Senior Reactor Operator
SDP	Significance Determination Process

Tavg	Average Temperature
TDR	Time Domain Reflectometer
TLD	Thermoluminescent dosimeter
TS	Technical Specifications
URI	Unresolved Item

d. Partial List of Documents Reviewed

Procedures:

EPDP-02	Control of EP Program Changes, Rev 8
EPDP-03	Emergency Preparedness Performance Indicators, Rev 7
CT60071	Emergency Plan Change Reviews Instructor Guide
GN1332.00	Security Response to a Declared Radiological Emergency, Rev 25
NM 11700	Emergency Response Organization Members. Rev 13
HD0955.19	Use of the Model 81 Shepard Beam Irradiator
HD0955.05	Operation of Portable Radiation & Contamination Survey Instruments
HD0955.31	Determination of Portable Instrument Response Check Data
HD0955.39	Use of the Shepard Model 89 Box Calibrator
HD0961.32	Canberra Whole Body Counting System Calibration
HD0961.31	Canberra Whole Body Counting System Operation
CP 8.1	Verification of Analytical Systems Performance
CS0905.1	Chemistry Response to RDMS Failure or Alarm
HD 0963.02	Administrative Guidelines For Health Physics Instrumentation
HD0963.46	Calibration of the TSA Model SPM-906 Portal Monitor
HD0963.47	Tennelec Series 5XLB Calibration
HD0965.01	Respiratory Protection Quality Assurance and Maintenance Program
HD0965.02	Repair, Inspection, & Maintenance o Respiratory Equipment
HD0992.02	Issuance and Control of Personnel Monitoring Devices
JS0999.30	Calibration of Gamma Spectroscopy Detectors Using the Countroom Analysis System

Reports:

- Radiation Data Monitoring System Steering Committee Meeting Minutes (01-01 & 01-02)

Supplemental information

- HPSTID 01-010 (Health Physics Study/Technical Information Document), Beam Irradiator Verification and Characterization of new planar positions
- 2001 First & Second Quarterly Whole Body Counter Results for the Collaborative Quality Assurance Program
- Self-Assessment No. 00-0254, HP Instrument Failure Trends
- Self-Assessment No. 01-0049, HP Bi-Annual Trend Analysis
- Breathing Air Quality Sample Analyses
- 01/21/01 Off-hours and Unannounced ERO Augmentation Drill Report
- Seabrook Team Management Manual, Section 3.11, Emergency Preparedness, Rev 00

- Emergency Preparedness Responsibilities of On-call, Subject-to-Call and Secondary.
- Root Cause Analysis for CR 00-08986, Failure of 8/16/00 ERO Augmentation Drill

Condition Reports:

CR 00-08986
CR 00-09865
CR 01-03027
CR 01-03030
CR 01-03052
CR 01-05476
CR 01-05724
CR 01-09303
CR 01-09308
CR 01-10309
CR 01-10313