

October 30, 2004

Mr. Mark E. Warner  
Site Vice President  
FPL Energy Seabrook, LLC  
Seabrook Station  
c/o Mr. James M. Peschel  
P.O. Box 300  
Seabrook, NH 03874

SUBJECT: SEABROOK STATION - NRC INTEGRATED INSPECTION REPORT  
05000443/2004004

Dear Mr. Warner:

On September 30, 2004, the Nuclear Regulatory Commission (NRC) completed an inspection at the Seabrook Nuclear Power Station. The enclosed report documents the inspection findings which were discussed on October 14, 2004, with Mr. G. St. Pierre and other members of your staff.

This 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.

This report documents three NRC-identified findings of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations, in accordance with Section VI.A of the NRC Enforcement Policy.

If you contest the non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Seabrook Nuclear Power Station.

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Sincerely,

*/RA/*

Ronald Bellamy, Chief  
Projects Branch 6  
Division of Reactor Projects

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

Enclosure: Inspection Report No. 05000443/2004004  
w/ Attachment: Supplemental Information

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**U. S. NUCLEAR REGULATORY COMMISSION**

REGION I

Docket No.: 05000443

License No.: NPF-86

Report No.: 05000443/2004004

Licensee: Florida Power & Light Energy Seabrook, LLC (FPL)

Facility: Seabrook Station, Unit 1

Location: Post Office Box 300  
Seabrook, New Hampshire 03874

Dates: July 1, 2004 to September 30, 2004

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Enclosure

## TABLE OF CONTENTS

SUMMARY OF FINDINGS .....	iii
REACTOR SAFETY .....	1
1R01 Adverse Weather Protection .....	1
1R04 Equipment Alignment .....	1
1R05 Fire Protection .....	2
1R11 Licensed Operator Requalification Program .....	3
1R12 Maintenance Effectiveness .....	4
1R13 Maintenance Risk Assessments and Emergent Work Evaluation .....	4
1R14 Personnel Performance Related to Non-Routine Plant Evolutions and Events ..	7
1R15 Operability Evaluations .....	9
1R19 Post-Maintenance Testing .....	11
1R22 Surveillance Testing .....	12
RADIATION SAFETY .....	13
2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems	13
2PS2 Radioactive Material Processing and Transportation .....	14
OTHER ACTIVITIES .....	16
4OA1 Performance Indicator Verification .....	16
4OA2 Identification and Resolution of Problems .....	17
4OA4 Cross Cutting Aspects of Findings .....	19
4OA5 Other Activities .....	20
4OA6 Meetings, including Exit .....	20
SUPPLEMENTAL INFORMATION .....	A-1
KEY POINTS OF CONTACT .....	A-1
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED .....	A-1
LIST OF DOCUMENTS REVIEWED .....	A-1
LIST OF ACRONYMS .....	A-6

Enclosure

## SUMMARY OF FINDINGS

IR 05000443/2004004; 7/1/2004-9/30/2004; Seabrook Station, Unit 1; Maintenance Risk Assessments and Emergent Work Evaluation, Personnel Performance During Nonroutine Plant Evolutions, Operability Evaluations.

The report covered a 13-week period of inspection by resident inspectors and announced inspections by two regional health physics (HP) inspectors. Three Green non-cited violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### A. NRC-Identified and Self-Revealing Findings

#### Cornerstone: Initiating Events

- C Green. The inspectors identified a non-cited violation of Technical Specification (TS) 6.7.1.a, "Procedures and Programs." Seabrook failed to properly implement their "Dig Safe" procedure which resulted in three incidents where underground utilities were damaged during site excavations. This finding, which involved Seabrook's failure to properly implement a procedure on multiple occasions, was associated with the cross-cutting areas of human performance and problem identification and resolution (PI&R).

The finding was more than minor because if left uncorrected the potential exists that an underground utility could be damaged and result in an initiating event. The finding is of very low safety significance since the damaged utilities did not actually impact plant operations. (Section 1R14)

#### Cornerstone: Mitigating Systems

- C Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B Criterion XVI "Corrective Action." Seabrook failed to promptly identify and correct a deficiency of a safety-related trip circuit relay. This failed safety-related trip circuit relay was identified to be degraded approximately 15 months before corrective actions were taken. This finding, which involved Seabrook's failure to promptly identify and correct a deficiency, was associated with the cross-cutting area of PI&R.

This finding is more than minor because it affected the Mitigating Events cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. Seabrook's failure to promptly identify and correct a deficiency of a safety-related trip circuit relay for

Enclosure

DC Bus 11C could impact the plant's ability to respond to an initiating event. The finding is of very low significance since the delayed time response of the trip circuit relay did not result in an actual loss of the safety function of a train or system. (Section 1R13)

- C Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B Criterion XVI "Corrective Action." Seabrook failed to take adequate corrective actions following pressurizer level recorder failures on June 7, and July 27, to preclude a repeat failure on September 20, 2004. The pressurizer level recorder was determined to have failed more than 10 times since 2002. This finding, which involved Seabrook's failure to take adequate corrective actions, was associated with the cross-cutting area of PI&R.

This finding is more than minor because it affected the Mitigating Events cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. To ensure the reliability of systems, operators must take the preplanned manual actions that are required for safety systems to accomplish their safety function. The pressurizer level recorder is an instrument that is used by control room operators to take the preplanned manual actions. The finding is of very low significance since additional instrumentation was available to allow operators to take the appropriate preplanned manual actions. (Section 1R15)

## REPORT DETAILS

### Summary of Plant Status

The plant began the period at full rated thermal power and operated at or near full power for the entire report period.

## 1. REACTOR SAFETY

### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### 1R01 Adverse Weather Protection (71111.01 - 1 Sample)

##### a. Inspection Scope

The inspectors performed walkdowns of several systems prior to predicted heavy rain conditions in September 2004, to ensure equipment was adequately protected against possible external flooding. The inspectors reviewed whether compensatory measures taken by Seabrook, prior to the adverse weather, were sufficient to maintain equipment operability. The inspectors also verified that yard drains were not blocked and that flow paths to the drains were not obstructed.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignment (71111.04)

##### a. Inspection Scope

##### Full System Walkdown - "B" Emergency Diesel Generator (71111.04S - 1 Sample)

The inspectors conducted a detailed review of the alignment and conditions of the "B" Emergency Diesel Generator (EDG). The inspectors performed a walkdown to verify system alignment was maintained in accordance with system drawings and procedures. Control room indications were verified to be appropriate and consistent with technical specification requirements and the Updated Final Safety Analysis Report (UFSAR). The inspectors reviewed and evaluated the potential impact on system operation from open work orders, condition reports (CRs), and tagged equipment. The system health report was reviewed, verified during the walkdown, and discussed with the system engineer.

The inspectors reviewed the following documents to support the walkdown and to verify proper system alignment:

- C Piping and instrumentation drawings (P&IDs) for the "B" EDG;

Enclosure

- C A sample of historical condition reports (CRs) related to the “B” EDG and its support systems (CRs 03-07222, 03-09288, 04-01609, and 04-06983).

Partial System Walkdowns. (71111.04Q - 3 Samples)

The inspectors performed the following partial system walkdowns:

- C On July 20 and 21, the inspectors performed a walkdown of the “A” train of the containment building spray (CBS) system while the “B” CBS train was out-of-service for maintenance;
- C On July 28 through August 6, the inspectors performed walkdowns of the switchyard and associated relay rooms while various maintenance activities associated with the offsite power lines and breakers were conducted;
- On September 8 and 9, the inspectors performed walkdowns of the “B” safety injection system while the "B" train was considered the "protected" train.

The inspectors conducted a walkdown of each system to verify that the critical portions of selected systems, such as valve positions, switches, and breakers, were correctly aligned in accordance with Seabrook's procedures and to identify any discrepancies that may have had an effect on operability.

The inspectors reviewed the applicable piping and instrumentation drawings and operational lineup procedures to support the walkdowns and to verify proper system alignment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope (71111.05Q - 8 Samples)

The inspectors examined several areas of the plant to assess: 1) the control of transient combustibles and ignition sources; 2) the operational status and material condition of the fire detection, fire suppression, and manual fire fighting equipment; 3) the material condition of the passive fire protection features (fire doors, fire dampers, fire penetration seals); and 4) the compensatory measures for out-of-service or degraded fire protection equipment. The following areas were inspected:

- C Transformer Yard;
- C Relay Room - Turbine Building, 21' 0" elevation;
- C Primary Auxiliary Building, 25' 0" elevation;

Enclosure

- C Electrical Tunnel - Control / Protected Area Boundary (PAB) & Residual Heat Removal (RHR), 30' 8" elevation;
- C Emergency Feedwater Pumps, 27' 0" elevation;
- Service & Circulating Water Pump House, 21' 0" elevation;
- C Control Building - Control Room Complex, 75' 0" elevation;
- C Control Building - Cable Spreading Rooms & Mechanical Rooms, 50' 0" elevation.

The inspectors verified that the fire areas were in accordance with the fire protection pre-fire strategies and fire hazard analysis and reviewed the compensatory list of fire protection equipment out-of-service.

Fire Drill Evaluation (71111.05A - 1 sample)

On September 10, the inspectors observed an unannounced drill involving a simulated fire in breaker 1-ED-MCC-241 on Unit Sub-24 (1-ED-US-24), located at the 25-foot elevation of the waste processing building. The inspectors evaluated the fire brigade's performance against the critical criteria listed in the drill objectives and verified the following: 1) the communication between the fire brigade leader, brigade members, and the control room operators was clear and effective; 2) the equipment (radios, protective clothing, self-contained breathing apparatus, fire extinguishers) was in good condition and properly used; and 3) the fire fighting strategies and proper fire fighting practices were used. In addition, the inspectors observed the fire brigade drill critique and reviewed the fire drill evaluation report to ensure any deficiencies were identified and evaluated.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

Quarterly Resident Inspector Review (71111.11Q - 1 Sample)

a. Inspection Scope

On September 30, the inspectors observed an operator training session focusing on human performance of time critical tasks. The inspectors reviewed the operators' abilities to correctly evaluate the training scenario and implement the emergency plan. Operator actions were reviewed against Seabrook's procedural requirements. The inspectors also evaluated whether deficiencies were identified and discussed during critiques. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified

1R12 Maintenance Effectiveness (71111.12)a. Inspection Scope (71111.12Q - 4 Samples)

The inspectors evaluated Maintenance Rule (MR) implementation for the EDG system, primary component cooling water (PCCW) system, containment building spray (CBS) system, and the switchyard and associated relay room. The inspectors reviewed the effectiveness of maintenance through the review of deficiencies identified, historical performance, and overall system performance. The following documents were reviewed:

- C CRs issued for the past year on the applicable system, selected items were reviewed in greater detail;
- Open work requests for the applicable system;
- C MR scoping document and MR performance criteria;
- C System Health and System Walkdown Reports;
- C MR performance data including maintenance rule function failures (MRFFs) and unavailability data;
- C Vibration, Oil Analysis, and Inservice Testing (IST) Data.

Based on issues identified in the review of the above documents, the inspectors assessed: 1) the application for MR scoping and MR reliability/availability performance criteria; 2) the corrective actions for deficient conditions; 3) the extent of condition reviews for common cause issues; and 4) the contribution of deficient work controls or work practices to any degraded conditions.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13 - 4 Samples)1. Relay for the ED-I-2A DC Supply Circuita. Inspection Scope

On July 14, a safety-related trip circuit relay for DC Bus 11C failed to actuate within 15 minutes as required by TS 3.8.3.3. The inspectors interviewed operators, electricians, and system engineers; and reviewed the relay's historical performance, preventive and corrective maintenance activities, and corrective actions to determine the impact on

Enclosure

current and past operability. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

Introduction. The inspectors identified that Seabrook failed to promptly identify and correct a deficiency for the trip circuit relay for DC Bus 11C. This finding was determined to be of very low safety significance (Green) and was characterized to be a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI "Corrective Action."

Description. On April 13, 2003, a trip circuit relay was tested to be within the 15 minute TS time requirement; however, it was outside the administrative tolerance range of  $\pm 5\%$ . In accordance with procedure LS0563.22, operators issued condition report (CR) 04-06590 and work order (WO) 0311964 to adjust the deficient relay. On July 14, during "as found" testing in accordance with WO 0311964, electricians found the relay outside of the 15 minute TS time requirement. The inspectors determined that Seabrook failed to promptly correct the deficiency, in that, the work order was not completed in a timely manner and when the work order was conducted approximately 15 months later, the relay had already exceeded the TS time limit.

On six separate occasions from 1992 through 2003 during routine testing, the relay was found to exceed Seabrook's administrative tolerance limit. In June 2000, a system engineer identified in CR 00-07534 that the relay used in this application frequently has a setpoint drift and fails to meet its required accuracy. However, no actions were taken to address the condition prior to the July 2004 failure.

The function of the safety-related trip circuit relay is to trip the 2 "A" inverter coming from DC Bus 11C in order to conserve battery 1C power in the event of a loss of AC power. The impact of losing the DC battery includes losing one set of reactor protection system inputs.

Analysis. Seabrook's failure to promptly identify and correct a condition adverse to quality is considered a performance deficiency. Traditional enforcement does not apply because the issue did not have any actual safety consequence or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or Seabrook's procedures.

The finding was more than minor because it affected the Mitigating System cornerstone and challenged the operability and availability of Battery 1C in the event of a loss of AC power. Using Appendix A, Phase 1 of Manual Chapter (MC) 0609, the finding was determined to be of very low safety significance (Green) since there were no instances when the relay was not able to actuate and only one instance where the relay was beyond the TS limit of 15 minutes. In the one instance, the TS limit was exceeded by 29 seconds, which would not challenge the functional capability of the battery. This finding,

Enclosure

which involved Seabrook's failure to promptly identify and correct a deficiency, was associated with the cross-cutting area of corrective actions.

Enforcement. 10 CFR 50, Appendix B, Criterion XVI "Corrective Action," requires that for conditions adverse to quality, measures shall be established to assure that deficiencies are promptly identified and corrected. Contrary to this requirement, Seabrook did not implement prompt corrective actions to preclude the failure of the safety-related trip circuit relay on July 14, following identification of a degraded condition of the relay on April 13, 2003. Because this violation was of very low safety significance and Seabrook entered this finding into its corrective action program (CR 00-07534 and 04-06590), this violation is being treated as a NCV consistent with section VI.A.1 of the NRC Enforcement Policy (**50-443/2004-04-01, Failure to Take Prompt Corrective Actions for a Trip Circuit Relay**).

## 2. Other Maintenance Risk Assessments and Emergent Work Evaluations

### a. Inspection Scope

The inspectors reviewed the scheduling and control for activities and emergent work troubleshooting activities in order to evaluate the effect on plant risk. The inspectors conducted interviews with operators, risk analysts, maintenance technicians, and engineers to assess their knowledge of the risk associated with the work, and to ensure that other equipment was properly protected. The inspectors evaluated the compensatory measures and work practices against Seabrook procedures, Maintenance Manual 4.14, "Troubleshooting," Work Management Manual 10.1, "On-Line Maintenance," and Work Management Manual (WM) 8.4, "Work Control Practices," Rev. 2. Specific risk assessments were conducted using Seabrook's "Safety Monitor." The inspectors reviewed the following items.

- C On July 9 and 10, the inspectors reviewed the on-line maintenance assessment for troubleshooting work on the level transmitter for the "D" Accumulator (1-SI-L-957). The inspectors observed portions of the work activity, and reviewed WO 0424946 and associated documents.
- C On August 30 through September 1, the inspectors reviewed the on-line maintenance assessment for troubleshooting work on service water pump 1-SW-P-41-D. The inspectors reviewed CR 04-08236 and procedure ES1850.002, "Vibration Program" Rev. 2.
- C On August 23 through September 7, the inspectors reviewed the troubleshooting plan for evaluating unplanned automatic starts of the emergency lube oil pump for the main feedwater pump. The inspectors reviewed the work activities (WO 0431626), the degraded condition, and past feedwater system problems in evaluating the potential risk to the plant.

Enclosure

b. Findings

No findings of significance were identified.

1R14 Personnel Performance Related to Non-Routine Plant Evolutions and Events (71111.14 - 1 Sample)

a. Inspection Scope

Site Excavations

On August 30, August 31, and September 14, contractors for Seabrook encountered and damaged underground utilities/equipment during site excavations. The inspectors conducted interviews with the supervisors and manager involved in the excavations. The inspectors evaluated the events against Seabrook's procedure "Dig Safe SH 6.4," which covers excavation activities on-site. The inspectors reviewed CR's 04-08428, 04-08493, and 04-08910.

The inspectors also evaluated compensatory actions, repair activities, and corrective actions taken in response to the unearthing of a two inch hydrogen gas line and a six inch fire protection line during excavations on August 30 and 31.

b. Findings

Introduction. The inspectors identified that Seabrook failed to properly implement their Dig Safe procedure. This finding was determined to be of very low safety significance (Green) and was characterized as an NCV of TS 6.7.1.a, "Procedure and Programs."

Description. On August 30, August 31, and September 14, contractors for Seabrook used procedure "Dig Safe SH 6.4," Rev. 4, to perform site excavations to facilitate modifications to the site. The August excavations were performed under Trenching/Excavation Permit WR No. 0407547. On August 30, a six inch fire protection line was damaged during excavation work. On August 31, a two inch hydrogen line was damaged after excavation was resumed in the same area. On September 14, contractors damaged a 240 volt electrical line while excavating fence post holes under Trenching/Excavation Permit WR No. 0338278.

The Dig Safe procedure requires in part that a ground penetrating radar survey be completed, utility drawings be reviewed, and that electrical maintenance be contacted to verify temporary power and light (TP&L) issues are identified. The inspectors reviewed site drawings and determined that all the underground utilities were identified on site drawings and therefore should have been identified during the reviews required by procedure "Dig Safe SH 6.4." Corrective actions taken by Seabrook after the August 30 incident were ineffective in preventing the August 31, and September 14 events.

Enclosure

The damaged equipment included a six inch fire pipe, a two inch hydrogen pipe, and a 240 volt TP&L line. The six inch fire pipe supplies water to part of the fire protection system ring header. The two inch hydrogen pipe provides the supply of hydrogen for cooling of the stators on the turbine and is the source of hydrogen for the waste processing building. The 240 volt TP&L line was for temporary power to outage trailers which were not being powered at the time of the event. The fire protection pipe and the hydrogen pipe had the outer insulation coating damaged, but the pipes remained undamaged. The 240 volt TP&L line was damaged and needed to be replaced, however, at the time it was not providing power to any loads.

Analysis. Seabrook's failure to properly implement the Dig Safe procedure is a performance deficiency since contractors are required to conduct activities in accordance with Seabrook procedures. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or Seabrook procedures.

Systems that could increase the likelihood of an initiating event include underground utilities and are therefore vulnerable to damage from excavation activities. The finding was more than minor because if left uncorrected the failure to conduct adequate reviews prior to commencing excavations could result in a more safety significant concern. Specifically, the potential exists that an underground utility could be damaged and result in an initiating event.

Using Appendix A, Phase 1 of MC 0609, the finding was determined to be of very low safety significance (Green) since the finding does not contribute to a Loss of Coolant Accident (LOCA), increase the likelihood of a reactor trip combined with a mitigating system failure, nor increase the likelihood of a fire or flood, and no actual impact on the operation of the plant occurred. This finding, which involved Seabrook's failure to properly implement a procedure, was associated with the cross-cutting areas of human performance and problem identification and resolution.

Enforcement TS 6.7.1.a, "Procedures and Programs," requires that written procedures be implemented covering the activities in Regulatory Guide 1.33, "Quality Assurance Program Requirements," Rev. 2, Appendix A. Regulatory Guide 1.33, requires procedures for modification work including site excavation. Seabrook procedure "Dig Safe SH 6.4," Rev. 4 requires in section 4.4.2, item 1, "Underground utilities are identified, as much as practical, before work begins and measures are taken to prevent possible damage." Contrary to the above, on three separate occasions, Seabrook failed to identify underground utilities and take measures to prevent damage to systems which were either safety related or could be event initiators. Because this finding is of very low safety significance and Seabrook entered this finding into their corrective action program (CRs 04-08428, 04-08493, and 04-08910), this finding is being treated as an NCV consistent with Section VI.A of the Enforcement Policy (**NCV 50-443/2004-04-02, Failure to Properly Implement Dig Safe Procedure**).

Enclosure

1R15 Operability Evaluations (71111.15 - 4 Samples)1. Pressurizer Level Recorder Failuresa. Inspection Scope

On September 20, instrumentation and controls (I&C) technicians identified that a feedback potentiometer for a pressurizer level recorder (1-RC-LR-460) failed during scheduled testing. The inspectors reviewed the failed pressurizer level recorder to determine the impact on current and past operability. The inspectors reviewed the historical performance, preventive and corrective maintenance activities, and corrective actions. The inspectors evaluated the various actions against 10 CFR 50, Appendix B, "Corrective Action," Inspection Manual Part 9900, "Operable/Operability - Ensuring the Function Capability of a System or Component," and UFSAR 7.5.4 "Accident Monitoring Instrumentation." Documents reviewed during the inspection are listed in the Attachment.

b. Findings

Introduction. The inspectors identified that Seabrook failed to take adequate corrective actions to prevent repetitive failures of the pressurizer level recorder. This finding was determined to be of very low safety significance (Green) and was characterized as an NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."

Description. On September 20, I&C technicians identified that the feedback potentiometer for a pressurizer level recorder failed during scheduled testing. Operators considered the recorder inoperable and entered TS 3.3.3.6. The potentiometer for this recorder was also identified to be failed on June 7, and July 27, during preventive maintenance tasks to replace the potentiometer. Following these failures, Seabrook failed to establish adequate corrective actions to prevent repeat failure of the instrument. Seabrook recognized the unreliable performance of this equipment in 2002 through 2004, when the level recorder's potentiometer failed numerous times; however, their corrective actions were ineffective to prevent the additional failures.

The function of the pressurizer level recorder, 1-RC-LR-460, is to provide post accident monitoring indication. The Seabrook UFSAR states that the pressurizer level instrumentation is one of the instruments that provides "primary information for the control room operators to take specific preplanned manual actions for which no automatic control is provided. These actions are required for safety systems to accomplish their safety function for design basis accident events." Redundant pressurizer level indication is provided through the pressurizer level recorder, 1-RC-LR-459.

Enclosure

Analysis. Seabrook's inadequate corrective actions for repetitive pressurizer level recorder failures are considered a performance deficiency since the corrective action program (CAP) is required to assure that corrective actions are taken to preclude repetitive failures for significant conditions adverse to quality.

Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or Seabrook's procedures.

The finding was more than minor because it affected the Mitigating Systems cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. To ensure the reliability of systems, operators must take the preplanned manual actions that are required for safety systems to accomplish their safety function. The pressurizer level recorder is one of the instruments that is used by control room operators to take the preplanned manual actions. The cornerstone attribute of equipment reliability was affected due to the repetitive failure of the recorder and the potential impact on operator performance.

Using Appendix A, Phase 1 of MC 0609, the finding was determined to be of very low safety significance (Green) since additional instrumentation was available to allow operators to take the appropriate preplanned manual actions. Therefore, the failure of the pressurizer level recorder did not result in loss of a safety function or train of a mitigating system, nor did it affect response to a seismic, fire, flooding, or severe weather initiating event. This finding, which involved inadequate corrective actions, was associated with the cross-cutting area of problem identification and resolution.

Enforcement. 10 CFR 50 Appendix B Criterion XVI, "Corrective Action," states, in part, that "in the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition." Contrary to the above, Seabrook failed to take adequate corrective actions following pressurizer level recorder failures on June 7, and July 27, to preclude a repeat failure on September 20, 2004. Because this finding is of very low safety significance and Seabrook entered this finding into its corrective action program (CR 04-09099), this violation is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy (**NCV 50-443/2004-04-03, Failure to Prevent Repetitive Failures of the Pressurizer Level Recorder**).

2. Other Operability Evaluations

a. Inspection Scope

The inspectors reviewed operability evaluations and/or condition reports in order to verify that the identified conditions did not adversely affect safety system operability or plant safety. The evaluations were reviewed using criteria specified in Generic Letter 91-18, "Resolution of Degraded and Nonconforming Conditions" and Inspection Manual

Enclosure

Part 9900, "Operable/Operability - Ensuring the Function Capability of a System or Component." 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:

- C CR 04-04346, which documented an elevated amount of visible wear debris in the 1-CC-P-11D motor inboard bearing oil sample. The engineering evaluation determined that this bearing had a history of elevated copper which was attributed to wearing of an internal oil distribution device (slinger ring). The inspectors reviewed other applicable conditions including wobbling of the motor slinger ring (CR 03-07505), oil leaks (CR 04-01378), and increased wear products (CR 04-02479).
- C CR 04-06009 and CR 04-06020, which describe the spurious Hydrogen concentration "High" alarms on the waste gas analyzers and a missed TS surveillance. The inspectors reviewed the CRs, event notification 40842, and procedures CS0932.30, "Operation and Maintenance of Portable Orbisphere H<sub>2</sub> and O<sub>2</sub> Analyzer," Rev. 7 and IX1686.910,, "WG-A-1629 Waste Gas Oxygen Monitoring Calibration."
- C CR 04-09384, which describes the failure to meet an acceptance criteria for a level amplifier during a source range channel test. The inspectors examined the revised acceptance criteria and reviewed WO 0232023 and 0415389, procedures IX1656.910, "N-31 Source Range Channel N31 (Protection Channel I) Calibration," Rev. 5 and IX1656.912, "N-31 Source Range Channel N31 (Protection Channel I) Operational Test," Rev. 5.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 5 Samples)

a. Inspection Scope

The inspectors reviewed post-maintenance testing (PMT) 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.

- C On July 21, OX1406.02, "Containment Spray Pump and Valve Quarterly Operability, 18 Month Position Indication and Comprehensive Pump Testing," was performed following preventive maintenance on a containment spray valve.

Enclosure

The inspectors also reviewed work order (WO) 0337736, "Limitorque Inspection 1- CBS-V-43" and maintenance procedure, LS0569.01, "Inspection and Testing of Limitorque Valve Actuators Types SMB, SB and SBD."

- C On August 2, OX1436.02, "Turbine Driven Emergency Feedwater Pump Quarterly Test," Rev. 8, was performed following lube oil replacement on the outboard thrust bearing for the pump. In addition, the inspectors reviewed WO 0410412, and observed portions on the work activities.
- C On September 9, WO 0412829, "Tornado Damper Inspection/Maintenance." The inspectors observed the maintenance and testing and reviewed the work order.
- C On September 13, OX1456.81, "Operability Testing of IST Valves" was performed following lubrication and adjustment of the "D" atmospheric system dump valve. The inspectors reviewed the work orders and the testing procedures.
- C On September 17, under WO 0433597 solenoid CS-FY-7419 was replaced and CS-V-170 stroked tested satisfactorily. The inspectors interviewed the operators and reviewed the work order.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 5 Samples)

a. Inspection Scope

The inspectors observed portions of 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 and surveillance procedures.

The inspectors attended selected 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 test data recorded was compared to procedural and technical specification requirements, and to prior tests to identify any adverse trends. The following surveillance procedures were reviewed.

- C On July 1, OX1405.07, "Safety Injection Quarterly and 18 Month Pump Flow and Valve Test," Rev. 8.

Enclosure

- C On July 28 and 29, IS1616.122, CC-F-2091-2, "Reactor Coolant Pump Cooler PCCW Flow Train B Loop A," Rev. 5, and IS1616.124, "CC-F-2291-2, "Reactor Coolant Pump Cooler PCCW Flow Train B Loop B," Rev. 5.
- C On August 18, OX1426.05, "1-DG-0T004-000, DG 1B Monthly Operability Surveillance," Rev. 09, Chg. 09.
- C On August 31, CS0910.01, "Primary Systems Sampling at SS-CP-166A," Rev 9 and CX0901.02, "Determination of Dose Equivalent I-131," Rev 10.

The inspectors also performed a documentation review of surveillance testing for reactor coolant pump undervoltage and underfrequency relays. The inspectors inspected these relays following identification of unreliable performance of a similar relay described in Section 1R13. The inspectors reviewed eight years of test results to evaluate overall performance of the relay and the impact of corrective actions taken in 2000.

b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

### Public Radiation Safety [PS]

#### 2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

a. Inspection Scope (10 samples)

The inspectors reviewed radioactive effluent treatment and monitoring equipment, work activities, practices, and procedural implementation during observations and tours of the facilities, and inspected procedures, records, and other program documents to evaluate the effectiveness of Seabrook's radioactive gaseous and liquid effluent treatment and monitoring systems with respect to public exposure to radiation. This inspection activity represents the completion of 10 samples relative to this inspection area (i.e., inspection procedure sections 02.01.a thru d (1), 02.02.a thru k (8), and 02.03.a thru c (1)) in complete fulfillment of the biennial inspection requirements.

#### Inspection Planning and In-Office Inspection (02.01.a thru d)

The inspectors selectively reviewed the Annual Radiological Effluent Release Report for 2003 to verify that the program was implemented as described in Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual (RETS/ODCM). The inspectors selectively examined the report for significant changes to the ODCM and to radioactive waste system design and operation, for technical justification and documentation, and for dose consequence to the public. The inspectors also selectively reviewed the Updated Final Safety Analysis Report (UFSAR) description of the radioactive waste systems.

Enclosure

### Onsite Inspection (02.02.a thru k)

In July, the inspectors walked down the major components of the gaseous and liquid release systems (e.g., radiation and flow monitors, demineralizers and filters, tanks, and vessels) to observe current system configuration with respect to the description in the UFSAR, ongoing activities, and equipment material condition. On July 13, the inspectors observed the change-out of the particulate and charcoal filters and the implementation of compensatory sampling for the wide range gas monitoring system. On July 15, the inspectors examined several radioactive liquid and gaseous waste release permits and dose calculations, including the monthly, quarterly, and annual doses to members of the public.

The inspectors selectively reviewed air cleaning system surveillance test results, records of instrument calibrations performed since the last inspection, for point-of-discharge effluent radiation monitors, and calibration records for flow measurement devices. The inspectors also examined calibration records for counting-room radiation measurement instrumentation associated with effluent monitoring and release activities, and the associated quality control records. The inspectors also reviewed the results from Seabrook's most recent quality assurance audit and surveillances.

### Identification and Resolution of Problems (02.03.a thru c)

For a description of the inspection activity in this area, see Section 4OA2 of this report.

### Related Activities

The inspectors performed a selective examination of documents (as listed in the Attachment) to evaluate the effectiveness of Seabrook's radioactive gaseous and liquid effluent treatment and monitoring systems with respect to public exposure to radiation. The review in this area was against criteria contained in Subpart D and Appendix B to 10 CFR 20, Appendix A (Criteria 60 and 64) and Appendix I to 10 CFR 50, "Radiological Effluent Technical Specifications, and the Offsite Dose Calculation Manual."

#### b. Findings

No findings of significance were identified.

### 2PS2 Radioactive Material Processing and Transportation (71122.02)

During the period August 31 through September 2, the inspectors conducted the following activities to verify that Seabrook's radioactive material processing and transportation programs complied with the requirements of 10 CFR 20, 61, and 71; and Department of Transportation (DOT) regulations 49 CFR 170-189.

Enclosure

### Radioactive Waste System Walkdown

The inspectors walked down accessible portions of the radioactive liquid and solid waste collection/processing systems with the cognizant system engineer. The inspectors evaluated if the systems and facilities were consistent with the descriptions contained in the UFSAR and Process Control Program (PCP), evaluated the general material conditions of the systems and facilities, and identified any changes to the systems. The inspectors evaluated recent changes made to radwaste processing systems and their potential radiological impact, and reviewed the current processes for transferring radioactive resin and sludge to shipping containers and the subsequent de-watering process.

The inspectors discussed with the system engineer the status of various laid-up systems and the administrative and physical controls for these systems including components of the Boron Recovery System, Steam Generator Blowdown System, and Asphalt Solidification System.

The inspectors visually inspected various radioactive material storage locations including the Radioactive Materials Storage Building (RMSB), the Asphalt Building, and the Unit 2 Cooling Tower.

### Waste Characterization and Classification

The inspectors reviewed selective items of the waste characterization and classification program for regulatory compliance, including:

- C The radio-chemical sample analysis results for various radioactive waste streams, including spent resins, dry active waste (DAW), and mechanical filters;
- C The development of scaling factors for hard-to-detect radionuclides;
- C Methods and practices to detect changes in waste streams;
- C Characterization and classification of waste relative to 10 CFR 61.55 and to determine DOT shipment subtype per 49 CFR 173.

### Shipment Preparation

The inspectors reviewed radioactive waste program records, shipment preparation procedures, and observations of in-progress activities for regulatory compliance, including:

- C Observations of technicians performing radiation surveys and a vehicle inspection, on a shipment of dry active waste (Shipment No. 04-028). The inspectors confirmed that the shipping packages were properly labeled and marked, and that the vehicle was properly placarded. The inspector attended the driver's briefing and observed that the driver was provided emergency instructions and the proper shipping papers;

Enclosure

- C Review of radioactive material shipping logs for the calendar years 2003 and 2004 to date;
- C Review of certificates-of-compliance and related procedures for in-use shipping casks;
- C Verification of appropriate NRC (or agreement state) license authorization for shipment recipients for six recent shipments listed in the shipping records section;
- C Verification that training was provided to appropriate personnel responsible for classifying, handling, and shipping radioactive materials, in accordance with NRC Bulletin 79-19, and 49 CFR 172 Subpart H.

### Shipment Records

The inspectors selected and reviewed records associated with six non-excepted shipments of radioactive materials made since the last inspection of this area. The shipments were Nos. 03-018, 04-013, 04-015, 04-016, 04-019, and 04-028. The following aspects of the radioactive waste packaging and shipping activities were reviewed:

- C Implementation of applicable shipping requirements including proper completion of manifests;
- C Implementation of specifications in applicable certificates-of-compliance, for the approved shipping casks, including limits on package contents;
- C Classification of radioactive materials relative to 10 CFR 61.55 and 49 CFR 173;
- C Labeling of containers relative to container dose rate;
- C Radiation and contamination surveys of packages;
- C Placarding of transport vehicles;
- C Conduct of vehicle checks;
- C Providing of emergency instructions to the driver;
- C Completion of shipping papers;
- C Notification by the recipient that the radioactive materials have been received.

#### b. Findings

No findings of significance were identified.

## **4. OTHER ACTIVITIES [OA]**

### 4OA1 Performance Indicator Verification (71151 - 3 Samples)

#### a. Inspection Scope

The inspectors sampled licensee submittals for the performance indicators (PIs) listed below for the period from July 2003 through June 2004. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in Nuclear

Enclosure

Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Rev. 2 were used to verify the basis in reporting for each data element.

Mitigating Systems Cornerstone

C Safety System Functional Failures

Barrier Integrity Cornerstone

C Reactor Coolant System Specific Activity

C Reactor Coolant System (RCS) Leakage

The inspectors reviewed the PI data for safety system functional failures, 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 the accuracy of the reported data through reviews of the Licensee Event Reports submitted.

The inspectors reviewed the PI data for reactor coolant system activity to determine whether NEI 99-02 was properly implemented during the period of July 2003 to June 2004. The inspectors verified the calculations and observed the reactor coolant system sample and analysis using CS0910.01 and CX0901.02 (See Section R22, Surveillance Testing). The inspectors reviewed the following documents in the evaluation of the PI data:

- C Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Rev. 1;
- C JD0999.910, "Reporting Key Performance Indicators Per NEI 99-02," Rev. 0;
- C RCS sample results given in iodine 131 to 135 and as dose equivalent iodine;
- C TS 3.4.8, "Specific Activity."

The inspectors reviewed the RCS leakage PI through a sampling of the data used to determine the maximum monthly leakage. The inspectors also reviewed the method in which operators performed the required TS surveillance for RCS leakage.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

1. Radioactive Material Processing and Transportation

a. Inspection Scope

The inspectors reviewed the 2003 Annual Radioactive Effluent Release Report, eight Condition Reports, a Quality Assurance Audit Report (SBK-04-01), four Nuclear

Enclosure

Assurance Quality Reports, and recent Seabrook Daily Quality Summary Reports relating to radioactive material control and shipment. Through this review, the inspectors assessed Seabrook's threshold for identifying problems, and the promptness and effectiveness of the resulting corrective actions. This review was conducted against the criteria contained in 10 CFR 20.11(c), TS, and Seabrook's procedures.

b. Findings

No findings of significance were identified.

2. Public Radiation Safety

a. Inspection Scope

The inspectors reviewed four condition reports (CRs 03-05688, 04-05353, 04-05354, and 04-05405). The issues were associated with unmonitored release pathways, including the aspects of awareness, communications, assignment of responsibilities, and revision of procedures.

The documented reports for the issues were reviewed to determine whether the full extent of the issues were identified, appropriate evaluations were performed, and appropriate corrective actions were specified and prioritized.

b. Findings

No findings of significance were identified.

3. Annual Sample Review

a. Inspection Scope

The inspectors reviewed Condition Report 99-3948 in detail. This condition report was generated to document the root cause evaluation for tritium contamination found in the containment annulus. In September 1999, a project team was commissioned to fully investigate the source of the tritium, to determine the mechanism by which it was getting into the containment annulus area, and to assess methods to stop this migration. The existence of a project team has continued to this day. Seabrook's investigation into the source of the tritium eventually led to the identification of leakage in the cask loading pool which is connected to the fuel transfer canal (spent fuel pool side) and spent fuel storage pool. Major corrective actions have included the initiation of a spent fuel pool monitoring program, an onsite well water sampling and analysis program included in the radiological effluents quality assurance program, performance of nondestructive examination and repair on specific locations in the spent fuel pool's refueling canal and cask handling areas, a plant dewatering program, and the cleaning of the spent fuel pool leak detection collection lines. Onsite well water sampling for tritium was

Enclosure

implemented in 2000. Corrective action to minimize further leakage of tritium to areas adjacent to the spent fuel pool was implemented in 2001. A weld repair to the liner in the cask handling area was completed in September 2004 and drilling of additional monitoring wells has been scheduled for the fall of 2004. The inspector reviewed the tritium concentration measurement data for the collected water samples. These samples were taken from onsite dewatering wells and from cathodic protection wells which were located within and immediately adjacent to the plant structures within the restricted area and from the pipe chase connecting Unit 1 to structures associated with Unit 2.

b. Findings and Observations

No findings of significance were identified. The inspector's review of this condition report indicated that the full extent of the issue was identified, an appropriate evaluation was performed, and appropriate corrective actions have been specified and prioritized. The additional tritium monitoring wells, scheduled for completion this year, will provide additional data to evaluate the effectiveness of the corrective actions which have been taken. The inspector concluded that there were no immediate health and safety concerns for plant workers, the public, or the environment. The inspector verified that Seabrook evaluated the issue in accordance with the requirements of their corrective action program as described in Site Procedure OE 3.6, CRs, and Appendix B of 10 CFR 50.

4. Cross-references to PI&R Findings

Section 1R13 describes a corrective action violation for failure to promptly identify and correct a deficiency of a safety-related trip circuit on DC Bus 11C, in accordance with 10 CFR 50, Appendix B, Criterion XVI "Corrective Action."

Section 1R14 describes multiple failures to properly implement Seabrook's Dig Safe procedure, which demonstrated that corrective actions to the initial failure were ineffective to prevent repeat failures.

Section 1R15 describes a corrective action violation for failure to prevent repetitive failures of the pressurizer level recorder in accordance with 10 CFR 50, Appendix B, Criterion XVI "Corrective Action."

4OA4 Cross Cutting Aspects of Findings

Cross-references to Human Performance Findings

Section 1R14 describes multiple human performance errors in the failure to properly implement Seabrook's Dig Safe procedure.

4OA5 Other Activities

NRC Inspection Report 05000443/2004005 was used as tracking mechanism for the pilot program for the efficiency focus group procedures and was administratively closed.

4OA6 Meetings, including Exit

Exit Meeting Summary

On October 14, the inspectors presented the inspection results to the Station Director, Mr. G. St. Pierre, and other members of his staff. The licensee acknowledged the findings presented. The licensee did not indicate that any of the information presented at the exit meeting was proprietary.

Site Management Visit

On August 25, Mr. Samuel Collins, Regional Administrator and Dr. Ronald Bellamy, Chief, Projects Branch 6, toured the site and met with Mr. Mark Warner and other members of licensee management.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee personnel

M. Bianco	Radiological Waste Services Supervisor
W. Cash	HP Department Manager
W. Cox	Radiological Waste Services, Senior Technical Analyst
E. Carley	Regulatory Compliance Engineer
R. Essex	Senior Radiation Protection Technician
F. Hannify	Radiological Waste Services, Senior Technical Analyst
P. Harvey	Chemistry Manager
B. McAllister	Radwaste Systems Engineer
V. Robertson	Regulatory Compliance Specialist
D. Robinson	Chemistry Technical Supervisor
M. Smith	Chemistry Technician
T. Smith	Radiological Technical Specialist (Training)
G. St Pierre	Station Director

State of New Hampshire:

G. Kwasnick            Health Physicist

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened and Closed

50-443/2004-04-01	NCV	Failure to Take Prompt Corrective Actions for a Trip Circuit Relay (Section 1R13)
50-443/2004-04-02	NCV	Failure to Properly Implement Dig Safe Procedure (Section 1R14)
50-443/2004-04-03	NCV	Failure to Prevent Repetitive Failures of the Pressurizer Level Recorder (Section 1R15)

**LIST OF DOCUMENTS REVIEWED**

**Section 1R11, Licensed Operator Requalification Program**

Procedures

E-0, "Reactor Trip or Safety Injection," Rev. 35  
E-1, "Loss of Reactor or Secondary Coolant," Rev. 31  
ER 1.1, "Classification of Emergencies," Rev. 37

**Section 1R13, Maintenance Risk Assessments and Emergent Work Evaluations**

Procedures

OX1447.01, Inverter ED-I-2A 18 month trip circuit test, Rev. 06, Chg. 04  
LS0550.09, Agastat timing relay acceptance testing and maintenance program, Rev. 02,  
Chg. 08  
LS0563.22, Testing of agastat 120 VAC (7000 Series) TDPU timing relays, Rev. 01, Chg. 04  
OS1248.01, Loss of a vital 125 VDC bus, Rev 09

Condition Reports

04-06590

Work Orders

0311964, 0244020, 0431375, 0425594

**Section 1R15, Operability Evaluations**

Condition Reports

02-04196, 02-04129, 02-13202, 02-0074, 02-06727, 02-14779, 03-03219, 03-05645, 04-05352,  
04-07044, 04-09099

Other Documents

Seabrook Station Maintenance Rule (a)(1) Improvement Plan for Post Accident Monitoring  
Instruments  
WO 0428660  
Troubleshooting Control Forms for 1RC-LR-460  
Maintenance History, RC-LR-460

**Section 2PS1, Radioactive Gaseous And Liquid Effluent Treatment and Monitoring Systems**

Procedures

CD 0917.04, Monitoring of plant systems for radioactivity, Rev. 03  
CP 4.1, Effluent surveillance program, Rev. 17, Chg. 04  
CS 0908.01, Offsite dose assessment, Rev. 13, Chg. 07  
CX 0917.01, Liquid effluent releases, Rev. 15, Chg. 01  
CS 0917.02, Gaseous effluent releases, Rev. 10, Chg. 09  
CS 0917.03, Unmonitored plant releases, Rev. 07, Chg. 06

CS 0930.03, Packard Tri-Carb Liquid scintillation counter operation, Rev. 01  
JS 0999.300, Calibration of gamma spectroscopy detectors using the count room analysis system, Rev. 01

Documents

Main steam line radiation monitor calibration records, RM-6481 and -6482, IX 1660.801, Rev. 05, June 27, 2003 and September 4, 2003  
RDMS Geiger-Mueller detector tube primary calibration record, IS 1660.310, Rev. 05, Chg. 02, September 4, 2003  
WG compressors inlet radiation monitor calibration record, RM-6503, IN 1660.813, Rev. 02, Chg. 01, July 23, 2003  
WG compressors discharge radiation monitor calibration record, RM-6504, IX 1660.814, Rev. 05, Chg. 01, January 26, 2002  
Condenser air evacuators discharge radiation monitor calibration record, RM-6505, IX 1660.815, Rev. 01, Chg. 03, March 9, 2004  
Loop A and loop B PCCW radiation monitor calibration records, RM-R-6515 and -6516, IX 1660.823, Rev. 05, Chg. 01, February 12 and January 20, 2004  
SGBD flash tank discharge radiation monitor calibration record, RM-6519, IX 1660.824, Rev. 07, Chg. 02, January 23, 2004  
Turbine building sump pump discharge radiation monitor calibration record, RM-6521, IX 1660.826, Rev. 05, December 16, 2003  
Containment on-line purge train A and B radiation monitor calibration records, RM-6527A and B, IX 1660.720, Rev. 6, Chg. 01, August 4 and June 26, 2003  
Plant vent wide range gas radiation monitor (WRGM) calibration record, R-6528, IX 1660.730, Rev. 05, Chg. 02, October 25, 2002  
Waste test tank discharge flow calibration record, F-1458-1, IX 1688.110, Rev.04, Chg. 02, March 27, 2003  
Waste distillate flow to circulating water intake structure discharge calibration record, F-1458-2, PM# 1-WL-F-1458-2-CAL-1-000, April 7, 2004  
Steam generator blowdown flash tank discharge flow calibration record, F-1918, IX 1684.110, Rev. 05, Chg. 02, March 25, 2003  
Plant vent stack flow transmitter calibration record, RM-F-6577, IX 1660.110, Rev. 06, Chg. 04, April 21, 2004  
Plant vent stack accident flow control calibration record, F-6497, IS 1660.120, Rev. 00, Chg. 02, April 30, 2003  
Eighteen-month surveillance of 1-CAH-F-8, containment recirc and cleanup filter for CAH-FNs-3A and 3B, PM# 1-CAH-11.1-NTS-R15-000, October 20, 2003  
Eighteen-month surveillance of 1-CAP-F-40, containment air purge filter unit, PM# 1-CAP-11.1-NTS-R17-000, April 24, 2003  
Eighteen-month surveillance of 1-CBA-F-38, control room emergency makeup air filter, PM# 1-CBA-11.1-NTS-R13-000, April 15, 2003  
Eighteen-month surveillance of 1-CBA-F-8038, control room emergency makeup air filter, PM# 1-CBA-11.2-NTS-R13-000, May 8, 2003  
Eighteen-month surveillance of 1-EAH-F-9, containment enclosure fan 4A filter, PM# 1-EAH-11.1-TS-R01-000, April 23, 2003

Eighteen-month surveillance of 1-EAH-F-69, containment enclosure fan 4B filter (in containment enclosure ventilation area (CEVA)), PM# 1-EAH-11.2-TS-R01-000, May 7, 2003

Eighteen-month surveillance of 1-FAH-F-41, fuel storage building cleanup filter train A, PM# 1-FAH-11.1-TS-R07-000, April 23, 2003

Eighteen-month surveillance of 1-FAH-F-74, fuel storage building cleanup filter train B, PM# 1-FAH-11.2-TS-R07-000, May 6, 2003

Eighteen-month surveillance of 1-PAH-F-16, PAB exhaust ventilation filter for FN-8A/8B, PM# 1-PAH-11.1-NTS-R16-000, September 19, 2003

Eighteen-month surveillance of 1-WAH-F-143, WPB exhaust roll filter, PM# 1-WAH-11.1-NTS-R18-000, April 17, 2003

Gamma spectroscopy system no. 2, detector no. 664, efficiency calibration record on December 22, 1997, 20cc simulated gas sample in vacutainer

Quality assurance checks for gamma spectroscopy detectors 2, 3, and 5, for June 1 and 2, 2004

Quality assurance checks for gamma spectroscopy detectors 2, 3, 4, and 5, for July 1, 2004

Tri-Carb Tritium QC checks for January 2003 through July 2004

Gaseous effluent plant vent release data for April 6 through May 25, 2004

Gaseous effluent condenser air removal release data for April 30 through May 26, 2004

Gaseous effluent release permit no. 04-228, May 26, 2004

Gaseous effluent turbine gland seal exhaust release data for April through June 2004

Liquid effluent steam generator blowdown sump/waste test tank release data for April through June 2004

Liquid effluent turbine building sump release data for April through June 2004

Liquid effluent steam generator flash tank release data for April through June 2004

Radioactive effluent dose projection report, projection period of August 1 to 31, 2004, reference period June 1 to 30, 2004, dated July 9, 2004 90TSEV007, Tritium unmonitored release pathways

Functional area audit of chemistry, radiological effluent technical requirement program, and offsite dose calculation manual, August 12, 2003

Quality report (QR)/surveillances: QR 03-0054, Chemistry gaseous effluent surveillance program surveillance (March 23, 2003); QR 03-0120, NRC PI-RETS/ODCM radiological occurrences assessment (July 23, 2003); QR 04-0039, Chemistry procedures-content and document control (April 14, 2004)

Chapter 11 Radioactive Waste Management of the UFSAR

Annual Radiological Effluent Release Report for 2003

## **Section 2PS2, Radioactive Material Processing and Transportation**

### **Procedures**

ES0825.001, Abandoned and Infrequently Used Equipment

RP 13.1, Radiological Controls for Material, Rev 19

WN0598.071, Instructions for Spent Resin Sampling, Rev 1

WN0598.072, Shipment of Radioactive Material, Rev 3

WN0598.077, Resin Transfer and Dewatering, Rev 0

A-5

WN98-01-08, Bead Resin/Activated Carbon Dewatering Procedure for Duratek 14-215 or Smaller Liners, Rev 3  
HD0958.38, Evaluation of Isotopic Mix, Rev 23  
HD0958.32, Release of Material From Radiological Controls, Rev 15  
HD0963.41, Calibration of Nuclear Enterprises SAM-9, Rev 8  
CP 5.1, Isotopic Characterization of Radwaste, Rev 15  
CS0918.02, Radwaste Analysis Methods, Rev 5  
WD0598.064, Radioactive Material Shipment Vehicle Inspection  
WD0598.069, Storage of Radioactive Material/Waste Controlled by the Waste Services Department, Rev 1

Quality assurance surveillance reports

SBK -04-01 Functional Area Audit of Radiation Protection/Process Control/Radwaste Program  
03-0067, 03-0172, 03-0061, 03-0059

Condition reports

04-01509, 04-07890, 04-07257, 04-01510, 04-00327, 04-01755, 03-05815, 03-01477

Shipping manifests

Ship No. 03-018, Dewatered Resin, LSA II  
Ship No. 04-013, Dewatered Resin, LSA II  
Ship No. 04-015, Dewatered Resin, LSA II  
Ship No. 04-016, Dewatered Resin, LSA II  
Ship No. 04-019, Dewatered Filter Cartridges, LSA II,  
Ship No. 04-028, DAW, LSA II

Health physics technical documents

Documentation of Health Physics Review of Isotopic Mixture # 03-01  
2002-10 CFR61 Analysis Results  
2003 Waste Stream Report - DAW  
2003 Waste Stream Report - Spent Fuel Pool Filter  
2003 Spent Resin Sluice Tank "A" Sample Results  
2003 Spent Resin Sluice Tank "B" Sample Results

Other

Process Control Program, Rev. 41  
Radwaste Training Qualification Matrix  
Updated Final Safety Analysis Report, Rev. 9

## **Section 40A2, Problem Identification and Resolution, Subsection 2, Annual Sample Review**

### Documents

Root cause analysis for ACR 99-3948, tritium contamination in containment annulus, November 1999  
 Outside assessment of tritium root cause, April 18, 2001  
 Tritium leak chronology from June 1999 to May 2003  
 Consultant recommendations for siting of ground water monitoring wells at Seabrook Station, June 17, 2004  
 Tritium remediation project schedule for monitoring well drilling and baseline sampling, May through September 2004  
 Tritium remediation project schedule for performing weld repair on lower embedment plates in fuel cask loading area, June through August 2004  
 Seabrook Station 10 CFR 50.75(g) file  
 HPSTID 01-05, Historical site radiological assessment - Initial construction through December 31, 2000  
 HPSTID 02-21, Historical site radiological assessment from January 1, 2001 to December 31, 2002  
 Procedure OE 3.6, Rev. 05, Condition Reports

### **LIST OF ACRONYMS**

CAP	Corrective Action Program
CBS	Containment Building Spray
CFR	Code of Federal Regulations
CR	Condition Report
DAW	Dry Active Waste
EDG	Emergency Diesel Generator
HP	Health Physicist
IMC	Inspection Manual Chapter
IST	Inservice Testing
OA	Other Activities
OE	Operating Engineer
ODCM	Offsite Dose Calculation Manual
NEI	Nuclear Energy Institute
MC	Manual Chapter
MR	Maintenance Rule
NRC	Nuclear Regulatory Commission
PCCW	Primary Component Cooling Water
PCP	Process Control Program
PI	Performance Indicator
PI&R	Problem Identification and Resolution
P&ID	Piping and Instrumentation Drawing

PMT	Post Maintenance Test
PS	Public Radiation Safety
RCS	Reactor Coolant System
RETS	Radiological Effluent Technical Specifications
RMSB	Radioactive Materials Storage Building
TS	Technical Specification
TP&L	Temporary Power and Light
UFSAR	Updated Final Safety Analysis Report
WO	Work Order