March 11, 2005

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

SUBJECT: SEABROOK NUCLEAR POWER STATION -
NRC INSPECTION REPORT 05000443/2005002

Dear Mr. Warner:

On January 27, 2005, the U. S. Nuclear Regulatory Commission (NRC) completed an engineering team inspection at the Seabrook Nuclear Power Station. The enclosed report documents the results of that inspection, which were discussed with you and members of your staff at the exit meeting on January 27, 2005, and during a subsequent telephone conversation with Mr. M. O'Keefe on March 9, 2005.

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 inspection consisted of system walkdowns; examination of selected procedures, drawings, modifications, calculations, surveillance tests, and maintenance records; and, interviews with station personnel.

Based on the results of this inspection, there was one NRC-identified finding of very low safety significance (Green), which did not involve a violation of NRC requirements.

In accordance with 10 CFR 2.390 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 Public Electronic Reading Room Web site at http://www.nrc.gov/reading-rm/adams.html.

Sincerely,

/RA/

Lawrence T. Doerflein, Chief
Safety Systems Branch
Division of Reactor Safety

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

Enclosure: Inspection Report 05000443/2005002

w/Attachment: Supplemental Information

cc w/encl:
J. A. Stall, FPL Senior Vice President, Nuclear & CNO
J. M. Peschel, Manager - Licensing
G. F. St. Pierre, Station Director - Seabrook Station
R. S. Kundalkar, FPL Vice President - Nuclear Engineering
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Office of the Attorney General, Commonwealth of Massachusetts
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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.	05000443/2005002
License No.	NPF-86
Licensee:	FPL Energy Seabrook, LLC
Facility:	Seabrook Nuclear Power Station
Location:	P.O. Box 300 Seabrook, NH 03874
Dates:	January 10 - 27, 2005
Inspectors:	Barry Norris, DRS, Senior Reactor Inspector, Team Leader Jamie Benjamin, DRS, Reactor Inspector Leonard Cheung, DRS, Senior Reactor Inspector Karl Diederich, DRS, Reactor Inspector Shani Lewis, DRS, Reactor Inspector David Werkheiser, DRS, Reactor Inspector Yuriy Grigorov (observer - Bulgarian Nuclear Regulatory Agency)
Approved by:	Lawrence T. Doerflein, Chief Safety Systems Branch Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000443/2005002; 01/10/2005 - 01/27/2005; Seabrook Nuclear Power Station; Safety System Design and Performance Capability

This report is for an engineering team inspection, conducted by six Region I inspectors; in addition, the inspection was observed by a representative from the Bulgarian Nuclear Regulatory Agency. One Green finding was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection manual Chapter 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: Mitigating Systems

- Green. The team identified a finding regarding the licensee's failure to perform an adequate operability determination for a degraded outboard thrust bearing on the turbine-driven emergency feedwater (TDEFW) pump. Specifically, the licensee did not identify how this bearing would have affected the TDEFW pump's ability to provide core cooling during a Station Blackout (SBO). As a result, the TDEFW pump operability and the need for corrective action were based upon a non-conservative technical basis.

  The finding is more than minor because it is associated with the Mitigating Systems Cornerstone attribute of Equipment Performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Specifically, the licensee did not ensure the reliability of the TDEFW pump to perform its design function during a station blackout. This finding is of very low safety significance since it was a design or qualification deficiency that was confirmed not to result in a loss of function per Generic Letter (GL) 91-18. (Section 1R21.b)

B. Licensee-Identified Violations

None

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R21 Safety System Design and Performance Capability (IP 71111.21)

a. Inspection Scope

The inspectors reviewed the design and performance capability of the service water (SW) and auxiliary feedwater (AFW) systems at the Seabrook Nuclear Power Station. The inspection included a review of the condensate storage tank (CST) and select valves in the SW system. The systems and components were selected because of their risk-significance related to initiating events, mitigating systems, and barrier integrity. In addition, the risk insights and probabilistic risk assessment (PRA) information relative to the selected systems were used to focus inspection activities on components and procedures that would mitigate the effects of the selected events. The inspection procedure used for this effort was IP 71111, Attachment 21.

The AFW system includes the safety-related emergency feedwater (EFW) system and the non-safety related start-up feedwater (SUFW) system. There are two EFW pumps - a motor driven pump powered from the “B” emergency electrical bus, and a turbine driven pump which receives its steam from upstream of the main steam isolation valves. The SUFW pump is powered from a non-emergency electrical bus during plant startups and shutdowns. During power operation, the SUFW pump is powered from the “A” emergency bus and is used in the event that both EFW pumps are unavailable.

The SW system normally uses the safety-related SW pumps. In the event of a seismic event which collapses the SW suction and/or discharge tunnels, the safety-related mechanical draft cooling tower is available for use. Also included as part of the SW system is a non-safety related portable cooling tower makeup pump system, to fill the tower after about seven days.

The inspectors reviewed licensing and design basis documents for the SW and the AFW systems to determine the functional requirements during normal operation and accident mitigation. The design and licensing documents reviewed for the systems included the Updated Final Safety Analysis Reports (UFSARs), the Technical Specifications (TSs), and the applicable design basis documents for each system and component.

The inspectors reviewed the associated vendor manuals, engineering analyses and calculations, equipment qualification records, instrument set-points and electrical calculations, system modifications, piping and instrument drawings, electrical schematics, instrumentation and control drawings, and logic diagrams. The inspectors conducted this review to verify consistency with the design and licensing basis documents. The inspectors also reviewed completed corrective and preventive

maintenance packages, post-maintenance tests, instrument calibration records and surveillance tests to determine the operational readiness, configuration control, and material condition of the systems and components to verify the systems and components were operated and maintained in conformance with the design and licensing bases. In addition, the inspectors reviewed the applicable system health reports to evaluate the current status of the systems and components, as well as any maintenance rule actions being taken as required by 10 CFR 50.62. The inspectors reviewed selected industry operating experience for applicability to Seabrook, and their associated disposition for adequacy.

The inspectors reviewed the system operating procedures, the abnormal and alarm response procedures, and the emergency operating procedures, as applicable. The inspectors reviewed the associated training lesson plans and simulator scenarios to evaluate the consistency between the assumptions made in the design basis and the expected system response. The inspectors conducted detailed walkdowns of the accessible portions of the plant to independently assess the physical condition of the systems and components, and to ensure that availability, reliability, and functional capability had been maintained.

The electrical aspects of the systems were reviewed to assure adequate voltage existed at the components of the selected systems and components. The inspectors reviewed electrical control and logic diagrams for the major components and valves to assure that interlocks and permissive logic were in accordance with system requirements. The inspectors also reviewed 1) the short circuit calculations to assure that circuit breakers were of adequate capacity, and 2) the coordination studies to verify that circuit breakers were set properly to ensure that electrical faults would be isolated locally and that unnecessary tripping of feeder breakers would be avoided. The mechanical inspection of the systems included a walkdown of the accessible portions of the equipment to assess the material condition, and to confirm the existence of adequate controls over nonconforming material and any hazards that could potentially compromise the design function of the systems and components.

The inspectors reviewed how design change work had been implemented and controlled, particularly with regard to system operability status, and to verify system and component availability for the performance of design functions. In addition, field inspections were conducted with particular emphasis upon train separation, physical independence, and other common mode concerns that the design features were intended to address.

The inspectors reviewed training material associated with the operation and maintenance of the selected systems and components, and assessed the Seabrook control room simulator for fidelity with specific plant controls, particularly where field modifications had been effected. The inspectors interviewed applicable personnel responsible for operation and maintenance of the systems, licensing basis controls, and the development and implementation of modifications affecting the systems.

b. Findings

Introduction. The inspectors identified a Green finding regarding the licensee's failure to perform an adequate operability determination for a degraded outboard thrust bearing on the TDEFW pump.

Description. On May 19, 2004, the outboard thrust bearing on the TDEFW pump approached the alarm set point of 180 degrees Fahrenheit (EF) during an extended (75 minutes) post-maintenance test. The licensee performed an apparent cause evaluation (CR-04-04780) and determined the elevated temperature was most likely caused by the use of an incorrect spacer when the pump was reassembled following an overhaul in March 2001. The spacer was used to set the disc-to-drum clearance, and balance the axial thrust developed by the pump. The apparent cause evaluation also noted that the previous pump runs since the overhaul were not as long and therefore did not reveal the degraded condition. However, this bearing did reach 170EF as the system responded to a plant trip that occurred on October 31, 2001.

On May 20, 2004, the vendor supported the licensee's use of 205EF as the revised alarm setpoint for the upper thrust bearing skin/metal temperature. This recommendation was based on, in part, the determination that operation for extended periods on minimum flow recirculation was unlikely to result in other than minor degradation to the outboard thrust bearing. The TDEFW pump was run on May 20, 2004, and allowed to operate until the outboard bearing temperature stabilized at 185EF. However, the bearing is air-cooled and data collected during the run demonstrated that the outboard bearing temperature increased when the EFW pump house ventilation cycled off toward the end of the test. The ventilation system automatically cycles to maintain ambient temperature approximately 90EF. Based on the test run, the licensee determined that the pump was degraded but operable, with a maximum expected bearing temperature of 185EF. In November 2004, the licensee replaced the TDEFW outboard thrust bearing.

On January 12, 2005, the inspectors identified that the licensee did not conservatively evaluate how the degraded TDEFW outboard thrust bearing would have affected EFW system performance during a station blackout (SBO). One of the design features of the TDEFW pump is to provide core cooling for up to four hours during an SBO. Since both trains of EFW pump house ventilation would not operate during an SBO, ambient temperature could have reached 128EF during this period as indicated by the Seabrook SBO coping analysis. Based on the inspectors' questions, the licensee initiated CR-05-01053. As a result, the licensee reevaluated TDEFW pump operability and concluded that the bearing could have reached 223EF with a corresponding oil temperature of 188EF during an SBO. This was approximately 38EF higher then initially determined in May 2004.

On January 27, 2005, the licensee revised their operability determination for past operability and determined that the TDEFW pump was operable based upon discussions with the bearing and oil manufacturer. The licensee determined that the oil

would have still retained its lubricating properties and the bearing could have operated at temperatures in excess of 223EF for the four-hour SBO coping period. The inspectors reviewed this evaluation and determined this was a reasonable conclusion.

Analysis. The performance deficiency was that the licensee failed to adequately evaluate, as required by procedure OE 4.5, "Operability Determination," how the degraded bearing on the TDEFW pump could have affected the operability of the pump during an SBO. The procedure requires that an operability determination demonstrate how a system, structure, or component could continue to perform its design safety functions. This procedure was not followed since the operability evaluation technical basis did not support the specific design function of the TDEFW pump to provide core cooling during an SBO.

The finding is greater than minor because it is associated with the Mitigating Systems Cornerstone attribute of Equipment Performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Specifically, the licensee did not ensure the reliability of the TDEFW pump to perform its design function during a station blackout. The finding was evaluated using MC 0609, "Significance Determination Process," Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," affecting the Mitigating Systems Cornerstone. The finding was determined to be of very low safety significance (Green) because it was a design or qualification deficiency that was confirmed not to result in a loss of function per Generic Letter (GL) 91-18.
(FIN 05000443/2005-02-01) Failure to Perform an Adequate Operability Determination for the TDEFW Pump

Enforcement. No violation of regulatory requirements occurred.

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's effectiveness in identifying and resolving problems associated with the SW and AFW systems and the selected components. The inspectors reviewed CRs, maintenance work orders, engineering change requests, quarterly system health reports, and quality assurance audit reports to assess plant performance and licensee corrective actions. This review was to verify that identified issues were appropriately entered into the corrective action program and resolved in a timely manner. In addition, the inspectors reviewed CRs associated with the licensee's audits and self-assessments of these systems.

b. Findings

No findings of significance were identified.

4OA6 Exit Meeting Summary

On January 27, 2005, at the conclusion on the inspection, the inspectors presented the inspection findings to Mr. M. Warner, Site Vice President and members of his staff. A subsequent telephone conversation was held on March 9, 2005 with Mr. M. O'Keefe to discuss changes from the information presented at the exit meeting. The inspectors confirmed that the inspection report does contain any proprietary information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

In addition to the documentation that the inspectors reviewed (listed in the attachment), copies of information requests and email correspondence between the NRC and licensee personnel are in ADAMS, under accession numbers ML050400217 and ML050400212, respectively.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

R. Belanger, Principal Design Engineer - Systems
W. Bladow, Oversight Manager
R. Campo, Supervisor - Plant Engineering
L. Carlson, Simulator Instructor
J. Codi, Work Week Manager
R. Dean, Senior I&C Engineer
R. Faix, Supervisor - Design Engineering
P. Freeman, Engineering Manager
R. Huntress, Maintenance Technician
D. Kelly, Emergency Operating Procedure Coordinator
M. Kiley, Operations Manager
J. Klempa, Emergency Feedwater System Engineer
A. Kodal, Component Cooling System Engineer
J. Kotkowski, Supervisor - Electrical Design
P. Leary, Shift Manager
J. Mayer, Condition Based Maintenance – Vibration Monitoring
R. McCormack, Service Water System Engineer
S. Morrissey, Assistant Operations Manager
G. Myers, Nuclear Fuels Engineer
M. O'Keefe, Supervisor - Regulatory Compliance
R. Parry, Supervisor - Condition Based Maintenance
V. Petel, Electrical Design Engineer
E. Spader, Supervisor - Operations Training
G. St. Pierre, Plant General Manager
M. Taylor, Supervisor - Work Control
E. Trump, Fire Protection Engineer
M. Warner, Site Vice President
R. White, Design Engineering Manager
L. Wilson, Seabrook Fire Chief

NRC

G. Dentel, Senior Resident Inspector, Seabrook
L. Doerflein, Branch Chief, DRS, Region I
W. Lanning, Director, Division of Reactor Safety, Region I

LIST OF ITEMS OPENED & CLOSED

Opened and Closed:

05000443/2005002-01	FIN	Inadequate Operability Determination of the TDEFW Pump Relative to SBO

LIST OF DOCUMENTS REVIEWED

Design and Licensing Basis Documents

DBD-EFW-01, Emergency Feedwater System, Rev. 4
DBD-SW-01, Service Water System, Rev. 3
FP-56488-01, Hatz Diesel Engine Manual, dated February 4, 1984
FP-92380, Fisher/Continental Butterfly Valve Manual, Issue 7
SD-24F-1, Service Water System Description
Seabrook Updated Final Safety Analysis Report
Seabrook Technical Specifications

Design Change Packages

DCR-86-584-00, Increase Stroke Time for SW-V-16 & 18, December 1987
DCR-87-315-10, Add Restricting Orifices to DG-E-42A and 42B Outlets
DCR-87-331-11, ATWS Mitigation System
DCR-87-412-00, Portable Tower Make-Up Pump Engine Hour Meter
DCR-87-427-03, Minimize Flow Oscillations for DS/SW Flow Annubar
DCR-95-012-11, B-Train Service Water Underground Piping Refurbishment
DCR-96-016-00, PCCW Heat Exchanger Replacement
DCR-00-008-00, CST Inventory Requirement Update
DCR-02-008-00, Reduced ECCS Pump Head Requirements
DCR-02-019-05, Startup Feed Pump Alignment to Bus 5
DCR-04-004-03, CST Inventory Enhancement
ECA-99-117587, 1-FW-V-346 and 1-FW-V-347 Valve Time Torque Switch, Revision A
ECA-99-108705, 10CFR50.55e Deficiency with EFW System High Flow Isolation, Revision B
EOP Step Change Request Change Nos. 2002-101, 2003-017, 2003-030
MMOD-90-0588-00, CST Temperature Control
MMOD-91-0639-07, MCB Modifications
MMOD-00-0534-00, Alternate CST Makeup Source
MMOD-01-0549-01, Dead Bus Control
MMOD-02-0517-00, AMSAC Setpoint Change
MMOD-02-0539-03, Service Water Piping Refurbishment
UFCR-No. 04-040, CST Inventory Depletion by EFW, Rev. 1

Calculations

4.3.8-19F, Tower Basin Water Temperature Transient, Rev. 1
4.3.8-28F, Portable Tower Makeup Pump Performance Requirement, February 08, 1982
4.3.8-36F, Service Water Instrument Setpoints, Rev. 3
4.3.8-38F, 7-30 Days Cooling Tower Basin Make-Up, October 21, 1983
4.3.8-40F, Pressure Transient Evaluation, Rev. 0
4.3.8-52F, Load & Pressure Downstream of SW Pump, Rev. 0
4.3.8-53F, Vacuum Breakers in PCCW & FCCW Heat Exchanger Loop, Rev. 0
4.3.8-55F, Cooling Tower Basin Water Consumption-Single Unit Operation, Rev. 1
4.3.8-56F, Tower Basin Temp & Operator Action Time, Rev. 1
4.3.8-60F, UHS Response to LOCA, Rev. 1
4.3.8-72F, SW System-Steady State Analysis, Rev. 6
4.3.8-74F, Tower Water Level Variation Curves, Rev. 0
4.4.17-04F, Service Water System - Temperature/Pressure Conditions, Rev. 6
6.01.61.02, Emergency Feedwater Pump House Heating & Vent. System, Rev. 3
6.01.61.03, Emergency Feedwater Pump House THE & Vent. System, Rev. 4
6.06.52.10, PSNH-Seabrook 1&2, dated December 16, 1983
737-15, EFW Pump NPSHA, Rev. 2
737-23, Startup Feed water Pump NPSHA and Upstream Line Loss, Rev. 1
737-52, EFW Pump Suction Pressure Range, dated September 25, 1985
737-60, PSNH-Seabrook, dated December 16, 1983
737-65, CST Level as a Function of EFW Pump Suction Pressure, dated September 2, 1986
9763-3-ED-00-01-F, Calculation of Short Circuit Currents, Rev. 7
9763-3-ED-00-02-F, Voltage Regulation, Rev. 7
9763-3-ED-00-23-F, Medium Voltage Protective Relay Coordination and Miscellaneous Relay Settings, Rev. 5
9763-3-ED-00-83-F, Diesel Generator Loading Calculation, Rev. 7
9763-F-414601, Feedwater Piping Erection Isometric 1-FW-4610-5, Rev. 1
C-S-1-20801, Emergency Feedwater System Flow Study, Rev. 1
C-S-1-28092, CST Minimum Volume, Rev. 0
C-S-1-61007, EFW Pump House Environmental Temperature, Rev. 1
C-S-1-80904, FW-V-4234A MOV Calculation, Rev. 1
C-S-1-80904, FW-V-347 MOV Calculation, Rev. 1
C-S-1-83608, SW - Qualification of AMEX-10/WEKO Seals, Rev. 2
C-S-1-83612, SW - Ocean and Cooling Tower Service Water Pump Design Flows, Rev. 0
C-S-1-E-0161, DG Maximum Allowable Fuel Oil Consumption Rate, Rev. 12
Engineering Evaluation 93-21, Compensatory Actions for Non-functional Safety Related HVAC Systems and Components, Rev. 4
Engineering Evaluation 88-019, Evaluation of I&E Bulletin 88-04
Report TP-7, Seabrook Station Moderate Energy Line Break Study, Rev. 5
SBC-689, Cycle 5 Main Steam Line Break Analysis, Rev. 3
SBC-792A, Update of Seabrook Station NSSS Cooldown Study, Rev. D1

System Piping and Instrumentation, Electrical, Logic, and Loop Drawings

1-CO-D20426, Condensate System Detail, Rev. 28
1-DG-D20466, Diesel Generator Cooling Water System Train B Detail, Rev. 15
1-FW-D20686, Feedwater System Details, Rev. 10
1-FW-D20686, Feedwater System Details, Rev. 10
1-FW-D20687, Feedwater System Details, Rev. 22
1-FW-D20687, Feedwater System Details, Rev. 22
1-FW-D20688, Emergency Feedwater System Details, Rev. 17
1-FW-D20689, Feedwater System Miscellaneous Vents & Drains Details, Rev. 7
1-FW-D20690, Feedwater System Wet Lay-Up, Rev. 5
1-FW-D20691, Lube Oil Piping for SKD-26, Rev. 1
1-FW-D20691, Lube Oil Piping for SKD-26 [for the SUFWP], Rev. 1
1-MS-D20580, Main Steam System Main Steam Headers Detail, Rev. 7
1-MS-D20581, Main Steam System Main Steam Headers Detail, Rev. 9
1-MS-D20582, Main Steam System Emergency Feedwater Pump Supply Detail, Rev. 16
1-NHY-301107, Sheets 1a through E54/3b and Sheet 213b, Service Water System Schematic Diagram, Rev. 51
1-NHY-301705, Cooling Tower Electrical Switchgear Room 460V Motor Control Center 1-E513 & 2-E513 One Line Diagram, Rev. 17
1-NHY-310002, Unit Electrical Distribution One Line Diagram, Rev. 33
1-NHY-310007, 4160 Switchgear Bus 1-E5 One Line Diagram, Rev. 18
1-NHY-310008, 4160 Switchgear Bus 1-E6 One Line Diagram, Rev. 17
1-NHY-310009, 4160 Switchgear Buses 1-3 and 1-4 One Line Diagram, Rev. 1
1-NHY-310013, 480V Unit Substation Buses E-51 & E52 One Line Diagram, Rev. 18
1-NHY-310106, Sheet E54a, 120/240V Distribution Panel Schedule 460V MCC 1-E513, Rev. 13
1-NHY-310106, Sheet E54b, 460V MCC 1-E513 120V AC Motor Heater Bus, Rev. 2
1-NHY-503954, Service Water Pump Discharge Valve Logic Diagrams, Rev. 7
1-NHY-503960, Service Water Cooling Tower Pump Discharge Valve Logic Diagram, Rev. 11
1-NHY-503962, Service Water Cooling Tower Actuation Logic Diagram, Rev. 15
1-NHY-503966, Service Water Cooling Tower Pump P-110A Train A Logic Diagram, Rev. 12
1-NHY-503967, Service Water Cooling Tower Pump P-110B Train B Logic Diagram, Rev. 12
1-NHY-503968, Service Water Pump Logic Diagrams, Sheet 1, Rev. 8
1-NHY-503969, Service Water Pump Logic Diagrams, Sheet 2, Rev. 7
1-NHY-503996, Service Water Cooling Tower Pump Discharge Valve Logic Diagram, Rev. 11
1-NHY-506235, Condensate Storage Tank, Condensate Hotwell Level Control, Loop Diagram, Rev. 17
1-NHY-506831, Service Water Cooling Water Train A Control Loop Diagram, Rev. 16
1-NHY-506832, Service Water Cooling Water Train B Control Loop Diagram, Rev. 15
1-NHY-506833, Service Water Cooling Tower Pump Train A Control Loop Diagram, Rev. 15
1-NHY-506834, Service Water Cooling Tower Pump Train B Control Loop Diagram, Rev. 15
1-NHY-506835, Service Water Cooling Tower Fans Control Loop Diagram, Rev. 12
1-NHY-506836, SW Service Water Pumps P-41A & P 41C Control Loop Diagram, Rev. 9
1-NHY-506839, SW Service Water Pumps P-41B & 41D Control Loop Diagram, Rev. 9
1-SCW-B20709, Screen Wash System, Rev. 14
1-SW-B20792, Service Water System Nuclear Overview, Rev. 5
1-SW-B20794, Service Water System Nuclear Detail, Rev. 30

1-SW-B20795, Service Water System Nuclear Detail, Rev. 34
1-SW-B20796, Service Water System Nuclear Detail, Rev. 5
1-SW-D20794, Service Water System Nuclear Detail, Rev. 31
1-SW-D20795, Service Water System Nuclear Detail, Rev. 35
1-SW-D20796, Service Water System Nuclear Detail, Rev. 5
C-300D438APX2, dated 12/20/1979, Orifice Assembly, dated December 20, 1979
SKM-000534-2000, 1-DM-B/D-F20349, Enclosure B, Pg 2, dated October 2, 2000
SKM-000534-2001, Enclosure B, Pg 3, dated September 19, 2000
SKM-000534-2002, Enclosure B, Pg 4, dated October 12, 2000

Procedures

E-0, Reactor Trip or Safety Injection, Rev. 35
ECA-0.0, Loss of All AC Power, Rev. 29
ECA-0.1, Loss of All AC Power without SI Required, Rev. 24
ECA-0.2, Loss of All AC Power with SI Required, Rev. 20
ES 1850.003, Motor Operated Valve Performance Monitoring, Rev. 4, Change 6
ES-0.1, Reactor Trip Response, Rev. 28
ES-0.2, Natural Circulation Cooldown, Rev. 25
EX 1804.031, Portable Tower Makeup Pump Operability 18 Month Surveillance Test, Rev. 4, Change 2; and Rev. 6, Change 5
F-0.0, CSF [Critical Safety Function] Status Tree Worksheet, Rev. 18
F-0.3, Heat Sink, Rev. 17
FR-H.1, Response to Loss of Secondary Heat Sink, Rev. 26
FR-S.1, Response to Nuclear Power Generation / ATWS, Rev. 24
IS1672.091, Service Water Train A Actuation Logic Test, Rev. 3
IS1672.316, SW-P-8284 Service Water Pump A/C Discharge Head Pressure Calibration, Rev. 5
IS1672.317, SW-P-8284 Service Water Pump B/D Discharge Head Pressure Calibration, Rev. 6
LS0569.27, Inspection/PM of Rotork Valve Actuators, Rev. 1, Change 3
LS0569.01, Inspection and Testing of Limitorque Valve Actuators Types SBM, SB, and SBD, Rev. 3, Change 13
MA 4.3, Temporary Modifications and Temporary Alterations, Rev. 16, Change 5
OE3.6, Condition Reports, Rev. 5, Change 1
OE4.5, Operability Determination, Rev. 11, Change 1
ON1416.11, Cooling Tower Portable Makeup Pump Diesel Engine Run, Rev. 3, Change 6
OP9.2, Emergency Operating Procedure Users Guide, Rev. 12
OS0443.108, FP-P-374. Fire Protection Booster Pump 18 Month Operability Test, Rev. 0, Change 13
OS1016.07, Cooling Tower Portable Makeup Pump Operation, Rev. 7, Change 6
OS1023.74, Maintenance of Safety Related HVAC Systems - Compensatory Ventilation Procedure, Rev. 1, Change 5
OS1027.01, Steam Generator Filling, Rev. 6, Change 12
OS1035.02, Startup Feed Pump Operation, Rev. 8, Change 5
OS1036.01, Aligning the Emergency Feedwater System for Automatic Initiation, Rev. 8, Change 19
OS1036.04, Emergency Feedwater Pump B Operation, Rev. 2, Change 4
OX0443.88, Hydrostatic Hose Testing, Rev. 1, Change 5

OX1416.09, Portable Cooling Tower Makeup Pump Monthly Operability Surveillance, Rev. 6, Changes 5 & 6
OX1416.11, Portable Cooling Tower Makeup Pump Semi-Annual Diesel Run, Rev. 3, Change 6
OX1426.20 Diesel Generator 1A 18 month Operability and Engineered Safeguards Pump and Valve Response Time Testing Mode 5 Surveillance, Rev. 3, Change 4
OX1426.21 Diesel Generator 1B 18 month Operability and Engineered Safeguards Pump and Valve Response Time Testing Mode 5 Surveillance, Rev. 3, Change 4
OX1436.02, Turbine Driven Emergency Feedwater Pump Quarterly and Monthly Valve Alignment, Rev. 8, Change 28
OX1436.03, Electric Driven Emergency Feedwater Pump Quarterly, 18 Month/30 Days Cold Shutdown and Comprehensive Pump Tests, and Monthly Valve Verification Surveillance, Rev. 8, Change 18
OX1436.05, Startup Feed Pump 18 Month Operability Surveillance, Rev. 4, Change 9
OX1436.07, Main Feedwater System Valve, Cold Shutdown Operability Tests and 18 Month Position Verification, Rev. 6, Change 11
OX1436.08, Startup Feed Pump Quarterly Surveillance, Rev. 9, Change 14
OX1436.13, Turbine Driven Emergency Feedwater Pump Post Cold Shutdown or Post Maintenance Surveillance and Comprehensive Pump Test, Rev. 8, Change 7
OX1436.18, Emergency Feedwater System Valve Testing, Rev. 3, Change 5
OX1436.20, Startup Feed Pump Monthly Valve Operability Surveillance, Rev. 0, Change 2
STP-124, Flow Verification Test of Cooling Tower Makeup Pump, Rev. 0
WM8.0, Work Control Practices, Rev. 3, Change 10

Maintenance Work Orders / Completed Surveillance Test Procedures

0-FP-ON341-000, Emergency CST Makeup Equipment Inventory & Inspection (January 04, 2005)
0205109, Semi-Annual Battery Charge (1-SW-P-329)
0211174, Lubrication Only PM for Limitorque Actuators
0214963, Approximately 1 Ounce of Oil Was Found in the Limit Switch Cover During OR08 Actuator PM Inspection
0215019, Approximately 1.5 Ounces of Oil Was Found in the Limit Switch Cover During OR08 Actuator PM Inspection
0217507, Limitorque Actuator for MSD-V55 Is Not Seated Properly on the Valve Yoke
0217589, On the SUFWP, Both Inboard and Outboard Mechanical Seals Are Leaking about 1 Drop per Second on Minimum Flow in Mode 3
0217635, A-EFW Pump Turbine Has Increased Steam Leakage from the Turbine Governor Valve Stem Bushings
0219135, SW-P-8282 Service Water Pump B/D Discharge Head Pressure Calibration (October 15, 2002)
0219141, SW-P-8284 Service Water Pump B/D Discharge Head Pressure Calibration (October 15, 2002)
0225736, 1-SW-ON001-000, Semi-Annual Portable SW Diesel Run
0236928, Diesel Generator 1B 18 month Operability and Engineered Safeguards Pump and Valve Response Time Testing Mode 5 Surveillance
0236932, Diesel Generator 1A 18 month Operability and Engineered Safeguards Pump and Valve Response Time Testing Mode 5 Surveillance

0237045, Turbine Driven EFW Post Cold Shutdown Operability Test
0302750, 1-SW-ON001-000, Semi-Annual Portable SW Diesel Run
0305680, SW-P-8283 Service Water Pump B/D Discharge Head Pressure Calibration (December 10, 2003)
0313881, Condensate Storage Tank Enclosure and Seal Inspection (TSSR 4.7.1.3b)
0314653, Portable Tower Make Up Pump Operability 18 Month Surveillance Test
0319230, 1-SW-ON001-000, Semi-Annual Portable SW Diesel Run
0324441, Remove 1-SW-V-28 and Replace with the Spare Valve from Stock
0326562, SW-P-8272 Service Water Pump A/C Discharge Head Pressure Calibration (April 15, 2004)
0326568, SW-P-8274 Service Water Pump A/C Discharge Head Pressure Calibration (April 15, 2004)
0403077, Thermal Overload Relay Replacement
0405312, SW-P-8273 Service Water Pump A/C Discharge Head Pressure Calibration (July 8, 2004)
0405533, Replace 1-SW-P-329 Battery
0412166, Cooling Tower Train A Actuation Channel Logic Test (March 30, 2004)
0420997, Cooling Tower Fan B Monthly Operability Test
0420998, Cooling Tower Fan Monthly Operability Test
0421000, Service Water Test Train B Comprehensive Pump Test
0421613, Service Water Valve Verification
0422275, Cooling Tower Fan A Monthly Operability Test
0422281, Cooling Tower Basin Temperature Weekly Surveillance
0422282, Cooling Tower Portable Monthly Operability Surveillance Test
0422537, 1-SW-ON001-000, Semi-Annual Portable SW Diesel Run
0429438, SUFW Pump Monthly Operability Surveillance
0430182, Visually Inspect All Hoses and Hydro Test Select Hose for 1-SW-P-329
0430189, Weekly SW Pump Vibration Monitoring / Operating Pumps
0501740, Clean Corroded 120V Junction Box
0502994, Hydrostatic Hose Testing
0503003, Cooling Tower Portable Monthly Operability Surveillance
1-PT-15.11, Preoperational Test Procedure and Data for Service Water Cooling Tower Portable Makeup Pump (May 10, 1986)
L-6139, Service Water Cooling Tower Basin Water Level Calibration and Level Transmitter Level Winch (SW-CR-48) Maintenance (March 20, 2004)

Audits and Self -Assessments

Daily Quality Summary for EFW, January 2003 - January 2005
Daily Quality Summary for SW, January 2003 - January 2005
NAQR No. 03-0047, Emergency Feedwater Configuration Assessment
NAQR No. 03-0156, OR09 Plant Engineering Activities
NAQR No. 04-0072, Cathodic Protection System
NAQR No. 03-0036, Service Water Cooling Tower Clogged Spray Nozzles
System Engineer Checklist/Heath Report for SW, 3rd & 4th Quarters 2004
System Engineer Checklist/Heath Report for AFW, 3rd & 4th Quarters 2004

Training Lesson Plans

Initial Licensed Operator Training - Emergency Feedwater
Initial Licensed Operator Training - Service Water
Requalification Training for Licensed Operators - Emergency Feedwater
Requalification Training for Licensed Operators - Service Water

Miscellaneous Documents

Adverse Condition Report, 96-1023, dated October 10, 1996
Background Information for WOG ERGs, FR-S.1, HP-Rev. 1
Change Action Request 04CAR220, Funding for Portable Cooling Tower Makeup Pump
CO-05, Seabrook Maintenance Rule Function Description for SW Portable Makeup Pump
ERG-EOP Deviation Documentation, EOP No. FR-S.1, Rev. 24
Jaflite Style Fire Hose Specification (1.5 - 5 inch), Jaffrey Fire Protection Company, Inc.
LER 89-002-00 Non-compliance with Technical Specification 3.7.5 - UHS
NCT-673-705-PS1, Engineering Report Standby Service Water Cooling Tower Thermal Performance Analysis and Verification
Purchase Specification 9763-006-238-25, Cooling Tower Portable Make-Up Pump, Rev. 2
Purchase Specification 9763-4224, Special Condition for Service Water, Rev. 10
SB-14607, Cooling Tower Makeup, dated November 29, 1982
SB-18571, Portable Cooling Tower Makeup Pumps, dated November 09, 1984
SBU-98443, Cooling Tower Operating Guidelines, dated March 18, 1986
SS-EV-98006, Minimum Pump Requirements (Service Water)
T19182A, Herguth Laboratory Report for 1-SW-P-329 Oil, dated September 29, 2004
Unit Operators' Journal, Seabrook Station, dated January 26, 2005

Condition Reports: *(* - initiated due to NRC inspection-related activities)*

92-00055	99-03467	01-13179	03-03614	04-08236	05-00473*
96-01442	99-06517	01-13403	03-05028	04-08634	05-00538*
96-01446	99-07166	02-00119	03-07668	04-08679	05-00684*
96-24130	99-12764	02-00378	03-09177	04-09315	05-00686*
96-25984	00-01388	02-00915	03-09423	04-09325	05-00687*
96-29046	00-04302	02-03389	03-11042	04-09782	05-00938*
96-32037	00-06034	02-06760	04-00553	04-10266	05-00970*
96-34314	00-10323	02-07037	04-00568	04-10612	05-00971*
96-35833	01-01536	02-08999	04-02782	04-11026	05-00994*
96-36995	01-02120	02-14978	04-03004	04-11122	05-00995*
97-00032	01-05262	02-15056	04-03313	04-11447	05-00996*
97-00180	01-05342	02-15347	04-03549	04-11617	05-01038*
97-00589	01-07774	02-15578	04-03619	04-12157	05-01053*
98-00600	01-10349	02-16455	04-04870	05-00117	05-01061*
98-17103	01-11303	03-01234	04-05608	05-00427	05-01074*
99-01260	01-12746	03-02892	04-06996	05-00460*	

LIST OF ACRONYMS

AFW	Auxiliary Feedwater
CR	Condition Report
CST	Condensate Storage Tank
DBD	Design Basis Document
DCP	Design Change Package
ECCS	Emergency Core Cooling System
EFW	Emergency Feedwater
EF	Degrees Fahrenheit
gpm	gallons per minute
MDEFW	Motor Driven EFW
NAQR	Nuclear Assurance Quality Report
OP	Operating Procedure
P&ID	Piping and Instrumentation Drawings
SDP	Significance Determination Process
SUFW	Start-Up Feedwater
SW	Service Water
TDEFW	Turbine Driven EFW
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report