UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

January 12, 2005

Southern Nuclear Operating Company, Inc.
ATTN: Mr. H. L. Sumner, Jr.
Vice President - Hatch Project
P. O. Box 1295
Birmingham, AL 35201-1295

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT - NRC SAFETY SYSTEM DESIGN AND PERFORMANCE CAPABILITY INSPECTION REPORT 05000321/2004006 AND 05000366/2004006

Dear Mr. Sumner:

On December 3, 2004, the U. S. Nuclear Regulatory Commission (NRC) completed a safety system design and performance capability inspection at your Hatch Nuclear Plant. The enclosed report documents the inspection findings which were discussed on December 2, 2004, with Mr. George Frederick and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of the inspection, no findings of significance were identified.

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 the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

\\RA

Charles R. Ogle, Chief
Engineering Branch 1
Division of Reactor Safety

Docket Nos.: 50-321, 50-366
License Nos.: DPR-57, NPF-5

Enclosure: Inspection Report 05000321/2004006 and
05000366/2004006: w/Attachment: Supplemental Information

cc w/encl:
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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-321, 50-366
License Nos:	DPR-57, NPF-5
Report No.:	05000321/2004006 and 05000366/2004006
Licensee:	Southern Nuclear Operating Company, Inc. (SNC)
Facility:	Edwin I. Hatch Nuclear Plant
Location:	P.O. Box 2010 Baxley, Georgia 31515
Dates:	November 1-5, 2004 November 29 - December 3, 2004
Inspectors:	F. Jape, Senior Project Manager, Team Leader C. Smith, Senior Reactor Inspector D. Mas-Peneranda, Reactor Inspector M. Thomas, Senior Reactor Inspector M. Maymi, Reactor Inspector R. Taylor, Reactor Inspector
Approved By:	Charles R. Ogle, Chief Engineering Branch 1 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000321/2004-006, 05000366/2004-006; 11/01/2004 - 11/05/2004 and 11/29/2004 - 12/3/2004; Edwin I. Hatch Nuclear Plant, Units 1 and 2; Safety System Design and Performance Capability Inspection.

This inspection was conducted by a team of regional inspectors. No findings of significance were identified. 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

No findings of significance were identified.

B. Licensee-Identified Violations

None.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events and Mitigating Systems

1R21 Safety System Design and Performance Capability (71111.21)

The inspection team reviewed selected components and operator actions that would be used to prevent or mitigate the consequences of a loss of off-site power (LOSP) event. This primarily included components in the emergency electrical power distribution system, high pressure coolant injection (HPCI) system, and reactor core isolation cooling (RCIC) system. The inspectors performed partial walkdowns of the systems to verify the operability of diverse trains and components. The inspectors attempted to identify any discrepancies that could impact the function of the systems, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, walked down control systems components, and verified that selected breakers, valves, and support equipment were in the correct position to support system operation. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program.

.1 System Needs

.11 Process Medium

a. Inspection Scope

The team conducted system walkdowns, observed instrument indications, and reviewed selected operations surveillances to verify that power supply components would be available and unimpeded during accident/event conditions. Reviews were based on the Updated Final Safety Analysis Report (UFSAR) system descriptions and Technical Specification (TS) requirements. Specifically, the team reviewed the documents listed in the Attachment to verify proper design configuration and control.

The team reviewed the condensate storage tank (CST) elevation drawings, the UFSAR, and design volume specifications to verify adequate water volume is available and in accordance with design specifications for the HPCI (1E41-C002) and RCIC (E51-C002) pumps. Also, the team reviewed tank level instruments (E41-LS-N002 and E41-LS-N003) setpoint calculations and TSs for the HPCI suction valve transfer switches (transfer from CST to suppression pool) to verify that the setpoints were consistent with design bases assumptions.

In addition to the above, the team reviewed calibration procedures and calibration records for the instruments used on the CST to verify that the procedures accurately incorporated setpoint values delineated in calculations of record.

b. Findings

No findings of significance were identified.

.12 Energy Sources

a. Inspection Scope

The team reviewed design documentation, TSs, drawings, system health reports, vendor manuals, and installed equipment to verify the air start system capabilities and that the sizing of fuel oil storage tanks (1R43-A001A/B/C, 1R43-A002A/B/C, 2Y52-A101A/C, 2Y52-A001A/C) were adequate to start and operate the emergency diesel generators, (EDGs) (1R43-S001A/B/C and 2R43S-001A/C), for the period of time assumed in the accident analysis.

A review of the adequacy of the EDG fuel oil transfer system was also included. This included review of calculations determining the fuel oil volume required for seven days operation, fuel oil tank volume calculations, TSs, tank drawings, and fuel oil quality sampling test results and acceptance criteria, to verify these were consistent with design specifications.

The team also reviewed design documentation and drawings to verify that the air start system capabilities were consistent with design basis assumptions. This included a review of test documentation to verify the 5-start capability of the air start system receivers and check valves (1R43-F3034A, 1R43-F3035A, 2R43-F095C, 2R43-F029A) (between the air compressors and the receivers), surveillance leak testing, and related condition reports.

The team performed a design review of 4160 volt Emergency Bus 1E in order to verify that the 4160 volt circuit breakers and their associated interlocks, and the 4160 volt emergency bus loss of voltage protection scheme, will operate in accordance with the plant's licensing and design bases requirements. Specifically, the team reviewed electrical elementary diagrams of the loss of voltage relays and degraded voltage relays in order to verify that the undervoltage protection scheme was consistent with the plant's design and licensing bases requirements. The scope of the review included verifying that upon an LOSP, 4160 Volts Emergency Bus 1E is separated from Startup Auxiliary Transformers 1C and 1D. The team also reviewed electrical elementary diagrams for EDG 1A and the loads fed from 4160 Emergency Bus 1E which included Residual Heat Removal, (RHR) Pump 1A, RHR Service Water Pump 1A, Core Spray Pump 1A, Plant Service Water Pump 1A, Control Rod Drive (CRD) Pump 1A and Electrical Fire Pump 1, in order to verify that upon a LOSP, the bus was stripped and loaded in accordance with licensing and design bases requirements, and within the loading capability of EDG 1A. The team evaluated the loss of voltage initiation logic for consistency with requirements of the TS, and reviewed a plant procedure that is used for responding to a loss of voltage event in order to verify that it has precautionary statements which ensures that manual loading of the EDG during this event will not result in overloading of EDG 1A.

b. Findings

No findings of significance were identified.

.13 Instrumentation and Controls

a. Inspection Scope

The team reviewed the last two completed surveillance procedures and calibration test records for EDG instruments listed in the Attachment to verify that the instruments are properly calibrated and maintained in accordance with design output documents and vendor specifications.

In addition, the team reviewed the setpoint and uncertainty calculations for the EDG expansion tank level switches (1R43-LS-N28A, 1R43-LS-N29A) to verify that the existing setpoint for these switches has sufficient margin in order to actuate within operating limits. Also, the team reviewed the plant instrument calibration procedures to verify that for these switches have accurately incorporated setpoint values delineated in the uncertainties calculation.

The team reviewed design documentation, TSs, drawings, calculations, and equipment specifications to verify adequate air supply quality and capacity available to operate the safety relief valves (1B21-F013A through H,J,K,L, and 2B21-F013A through H,K,L,M) (SRVs). The review of the air supply to the SRVs also included surveillances, preventive maintenance, and corrective maintenance.

The team reviewed completed calibration and functional test procedures for the degraded (1S32-K206-4,5) and loss of voltage relays (1S32-K206-3,6) associated with the load shedding and sequencing control logic for the 4160 volt emergency buses. The completed calibration procedures were reviewed to verify that the subject relays had been calibrated and tested in accordance with TSs limits. Also, the team reviewed the last four calibrations performed on the loss of voltage relays on the 4160 volt emergency buses to determine if the instruments were continuously drifting outside the operating limits between calibrations.

b. Findings

No findings of significance were identified.

.14 Operator Actions

a. Inspection Scope

The team assessed the plant and the operators' response to a LOSP events. The team focused on the installed equipment and operator actions that could be used to mitigate the event. The team reviewed portions of emergency operating procedures (EOPs), abnormal operating procedures (AOPs), annunciator response procedures (ARPs), and operating procedures (OPs) to verify that the operators could perform the necessary actions to respond to a LOSP event. The team also observed simulation of a LOSP event on the plant simulator and walked down portions of selected AOPs and ARPs. The simulator observations and procedure reviews focused on plant response and on verifying that operators had adequate instrumentation and procedures to respond to the event. The team reviewed operator training records (lesson plans, completed job

performance measures, etc.) to verify that operators had received training related to a LOSP event.

b. Findings

No findings of significance were identified.

.15 Heat Removal

a. Inspection Scope

The team reviewed EDG design documentation, drawings, calculations, and equipment specifications to verify that the ventilation systems, and the internal cooling systems for the engine cooling and lubricating oil were adequate to maintain operation of the EDGs within vendor specifications.

Jacket water system capability and reliability reviews included the review of jacket water system thermostatic three-way bypass valves (1R43-F077B and 2R43-F076A) element replacements and system alarm/trip setpoint values to verify these were consistent with vendor specifications.

The team also reviewed plant service water (PSW) vendor specifications, ultrasonic thickness inspection of alternate service water supply lines from the standby diesel service water pump (2P41-C002), system operability test results, condition reports, and maintenance work orders to verify PSW reliability and minimum flow requirements to the EDGs.

To verify EDG heat exchanger performance the inspectors reviewed surveillance testing and periodic maintenance on the jacket water, after cooler, and lube oil heat exchangers (HXs). The inspectors observed the twenty-four month maintenance activities of the 2C EDG HXs to verify conditions inside of the HXs did not affect the capability of the HXs to perform their design functions.

Review of the lube oil system capability to remove heat included a review of the lube oil sampling test results, and station acceptance criteria documentation to verify these were consistent with the EDG vendor recommendations. Lube oil related condition reports were also reviewed to verify the lube oil system was capable of performing its design function.

The team also reviewed the EDG and switchgear room ventilation systems to verify their capability to remove heat at maximum ambient temperatures. This included review of the heat load calculation for the EDG and switchgear rooms, drawings, and fan sizing specifications. Surveillance records and condition reports for room fans (1X41-N004A/B/C, 1X41-N005A/B/C, 1X41-N006A,B,C) were also reviewed to verify room fan availability and to verify that degraded conditions were being identified and addressed.

b. Findings

No findings of significance were identified.

.2 System Condition and Capability

.21 Installed Configuration

a. Inspection Scope

The team performed a field review of accessible equipment related to the EDGs and their support systems, HPCI and RCIC pumps, and the CST to assess material condition, identify degraded equipment, and verify installed configurations were consistent with design drawings and calculation design inputs.

b. Findings

No findings of significance were identified.

.22 Essential Alternating Current Power

a. Inspection Scope

The team performed field inspections of selected components of the class 1E electrical distribution system, including 4160 volt Emergency Buses 1E, 1F and 1G; and 600 volt Emergency Buses 1C and 1D. The field inspections were performed in order to assess the adequacy of the equipment material condition and to verify the as-built plant configurations against approved design output drawings.

The team reviewed approved design output drawings of Unit 1 Class 1E 4160 volt Emergency Bus 1E and conducted discussions with licensee's engineering personnel, in order to verify that the 4160 volt emergency bus loss of voltage relay setpoint value of voltage magnitude and time delay were consistent with values incorporated in the TSs. The team also reviewed and evaluated the degraded voltage protection of 4160 volt Bus 1A and conducted discussions with licensee's engineering personnel in order to verify that the 4160 emergency bus degraded voltage relay setpoint value of voltage magnitude and time delay were consistent with values incorporated in the TSs. The analytical limits upon which the setpoint values were based and the instrument loop uncertainty calculations of record which demonstrated the adequacy of the setpoint values were discussed with the licensee's engineering staff.

b. Findings

No findings of significance were identified.

.23 Design and Testing

a. Inspection Scope

The team reviewed HPCI and RCIC vendor manuals, test design requirements, operating limits, and calculations to verify consistency with design documents such as the UFSAR, TSs, and the Design Basis Document. This included the review of system calculations' assumptions, surveillance test design requirements, and acceptance criteria for adequacy and consistency with design specifications. The review of HPCI and RCIC also included a review of the licensee's vibration monitoring program, periodic flow testing, and maintenance history for the HPCI and RCIC turbine-driven pumps.

The team reviewed test documentation and calibration records to verify that the testing and inspection of the EDGs was adequate to monitor and identify equipment degradation. This included a review of the test surveillance records on the EDGs to verify that parameter limits were consistent with design specifications, to identify any abnormal parameters, and to verify that the tests demonstrated that the system will perform its design functions under accident conditions per TSs.

The team examined the material condition of the level instruments on the CST. This review was performed to verify that the observable material condition was acceptable and that the instruments were adequately protected. In addition, during the walkdown, the team verified that the installed configuration of the instruments was consistent with design drawings and setpoint calculations.

The team evaluated the capability of EDG 1A to supply power to RHR Pump 1A and RHR Service Water Pump 1A during a loss of offsite power event. The criteria used for this evaluation included verification that the RHR and RHR service water pump motors were adequately sized, and that the pump motors when loaded onto 4160 volt Emergency Bus 1E, are provided adequate terminal voltage which will ensure that the motors accelerate to their rated speed under the most limiting terminal voltage conditions.

The team reviewed pump performance curves for the RHR and RHR service water pumps in order to determine the required motor brake horsepower based on mechanical load demand. Additionally, the team reviewed motor vendor information in order to verify that the 4160 volt pump motors were adequately sized with positive margin based on the mechanical load demand. The team also reviewed vendor information, in order to verify that the vendor's recommendation for minimum start capability in percentage of rated motor terminal voltage would be satisfied when the RHR and RHR service water pump motors are loaded onto 4160 volt Emergency Bus 1E.

b. Findings

No findings of significance were identified.

.24 Operations

a. Inspection Scope

The team reviewed the plant procedure used to manually load RHR Pump 1A and RHR Service Water Pump 1A during an LOSP in order to verify that the procedure contained precautionary statements concerning loading limitations for EDG 1A (Plant Procedure 34 AB-R22-002-1, Loss of 4160 Volt Emergency Bus).

The team walked down portions of EDGs 1A, 1B, and 1C to verify that the alignment of EDG support systems was consistent with TSs and the AOPs used to mitigate an LOSP event. During this walkdown, the team compared valve alignments for the PSW system supply to the EDGs with those specified in the PSW system operating procedure lineup, and observed the material condition to determine if it would be adequate to support operator actions to mitigate an LOSP event. This also included reviewing completed surveillance test procedures to verify that PSW system valves 1P41-310A, 310B, 310C, 310D and 2P41-316A, 316B, 316C, and 316D could close on an LOSP signal to isolate PSW to the turbine building.

b. Findings

No findings of significance were identified.

.3 Selected Components

.31 Component Degradation

a. Inspection Scope

The team reviewed completed preventive maintenance procedures, maintenance work orders, condition reports/commitments, and system health reports for selected components to assess the licensee's actions to verify and maintain the safety function, reliability, and availability of selected components. Selected components included the standby diesel PSW pump, jacket water system thermostatic control valves, diesel room fans, and fuel oil system. The team reviewed corrective maintenance and condition reports for the EDGs to verify the availability and capability of the EDGs and to determine if any failures can be attributed to design deficiencies.

The team reviewed the licensee's Preventive Maintenance (PM) Program for 4160 volt circuit breakers in order to assess the material condition of the circuit breakers and to determine how effectively circuit breakers components are being maintained. The team held discussions with the licensee's engineering personnel in order to verify if vendor recommendations for circuit breaker PM activities are being incorporated into the PM program. Additionally, the team reviewed PM Procedure 52PM-R22-001-0, Westinghouse 4160 VAC Switchgear and Components PM, Revision 22.2, in order to evaluate the effectiveness of the PM activities. The procedure was also reviewed and evaluated in connection with the scope of the PM activities performed for instrumentation, relays, and switches. The team reviewed and evaluated the PM activities performed for Westinghouse 50-DHP-VR-250U vacuum breakers delineated in

PM Procedure 52PM- R22-004-0, Westinghouse 50DHP-VR-250U Breakers, Revision 1.2, in order to evaluate the effectiveness of PM program for vacuum breakers. The team also reviewed and evaluated if the licensee was incorporating industry operating experience involving both types of circuit breakers into the PM program.

b. Findings

No findings of significance were identified.

.32 Plant Modifications

a. Inspection Scope

The team reviewed plant modification Design Change Package Transmittal (DCPT) 03-001-003, 4 KV Breaker Replacements, which was prepared and implemented by the licensee in order to resolve difficulties associated with obtaining spare parts for the existing air circuit breakers, Westinghouse Model 50DHP250, installed in 4 kilovolt Switchgear Buses 1E, 1F, and 1G. The team determined that the scope of the plant modification included modifying the anchorage of the 4 kilovolt switchgears to ensure adequate margin because of seismic concerns, in addition to replacing the existing circuit breakers with new Westinghouse Model 50DHP-VR250U vacuum circuit breakers. The team reviewed the 10 CFR 50.59 evaluation prepared for the plant modification in order to verify if an equivalency evaluation had been performed for the replacement circuit breakers, and to evaluate the technical adequacy of the design changes.

b. Findings

No findings of significance were identified.

.33 Equipment Qualification

a. Inspection Scope

The team reviewed vendor manuals, drawings, and the installed configuration to confirm that the environmental qualification on the HPCI and RCIC pump turbines was not compromised by either the main steam line in the area of the turbines or the potential failure of the turbine steam supply lines.

b. Findings

No findings of significance were identified.

.34 Operating Experience

a. Inspection Scope

The team reviewed the licensee’s applicability evaluations and corrective actions for

industry experience issues listed in the Attachment. The team also reviewed the licensee's self-assessment program to verify that applicable insights from those reports had been applied to the appropriate components. The documents reviewed by the team are listed in the Attachment.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The team reviewed Condition Reports (CRs) that the licensee prepared in connection with problems involving 4 kilovolt circuit breakers. Condition Report 2004102844 documented a problem involving damage to a shutter while removing the circuit breaker from its cubicle; and CR 2004102864 documented a problem involving difficulties removing a breaker from its cubicle after replacement of the shutter in the breaker cubicle. In addition, the team discussed the licensee's proposed corrective actions to address operating experience problems involving the replacement vacuum breakers which are similar to those problems described in Operating Experience Report numbers OE16219, OE14963, and OE18526.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA6 Meetings, Including Exit

The lead inspector presented the inspection results to Mr. G. Frederick, General Manager, Hatch Project, and other members of the licensee staff, at an exit meeting on December 2, 2004. The licensee acknowledged the findings presented. Proprietary information is not included in this inspection report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
J. Lontine, SNC Licensing
D. Brock, Engineering Supervisor
R. Varnadore, Engineering Support Manager
B. Smith, Operations Instructor
R. Musgrove, Operations Support Supervisor
D. Truong, Performance Analysis Engineer

NRC (attended exit meeting)
C. Ogle, Branch Chief, DRS

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None.

LIST OF DOCUMENTS REVIEWED

1R21.1 Safety System Design and Performance Capability

Procedures

AOP 34AB-C71-001-1, Scram Procedure, Unit 1, Version 10.12
AOP 34AB-C71-001-2, Scram Procedure, Unit 2, Version 9.15
AOP 34AB-P41-001-2, Loss of Plant Service Water, Unit 2, Version 9.2
AOP 34AB-R22-002-1, Loss of 4160V Emergency Bus, Unit 1 Version 1.2
AOP 34AB-R22-002-2, Loss of 4160V Emergency Bus, Unit 2 Version 1.4
AOP 34AB-R23-001-1, Loss of 600 Volt Emergency Bus, Unit 1, Version 1.1
AOP 34AB-R23-001-2, Loss of 600 Volt Emergency Bus, Unit 2, Version 1.2
ARP 34AR-652-901-1, ARPs for Control Panel 1H11-P652, Alarm Panel 1, Unit 1, Version 11.7
ARP 34AR-652-901-2, ARPs for Control Panel 2H11-P652, Alarm Panel 1, Unit 2, Version 11.4
34SO-P41-005-2, Standby Diesel Service Water System, Attachment 4, Unit 1, Version 8.5
34SO-R43-0001-1, Diesel Generator Standby AC System, Unit 1, Version 22.7

Section 1R21.11 Process Medium

Calculations

33-E41-2, E41-LS-N002 Condensate Storage Tank Level, Rev. 0
33-E41-15, E41-LS-N003 Condensate Storage Tank Level Low, Rev. 1
566, Vol. 3, Binder 44, Emergency Diesel Generator Fuel Oil Storage Capacity, Rev. 0
SMNH 89-046, Verification of Diesel Generator Fuel Oil Storage Tank Capacity, Rev. 0
SNH 70-012, Diesel Generator Building Heating and Ventilating, Rev. 0

Drawings

D-11001, Unit 1 Service Water Piping at Intake Structure, Sh. 1, Rev. 79
D-11015, Tank - Condensate Storage, Rev. A
H-11037, Unit 1 Fuel Oil Diesel Oil System, Rev. 28
H-11600, Unit 1 Service Water at Diesel Generator, Sh. 2, Rev. 32
H-11631, Unit 1 Diesel Generator 1A and 1C, Sh. 1, Rev. 23
H-11631, Unit 1 Diesel Generator 1A and 1C, Sh. 2, Rev. 7
H-11638, Unit 1 Diesel Generator 1B, Sh. 1, Rev. 21
H-11638, Unit 1 Diesel Generator 1B, Sh. 2, Rev. 5
H-12618, Unit 1 & 2 Diesel Generator Building Heating and Ventilating Plans and Details, Rev. 4
H-12619, Unit 1 & 2 Diesel Generator Building Heating and Ventilating General Arrangement and Parts Number, Rev. 10
H-21033, Unit 2 Turbine Building Service Water System, Sh. 1, Rev. 53
H-21074, Unit 2 Diesel Engine and Fuel Oil System, Rev. 43
S14136, Condensate Storage Tank, Rev. C
SX11833, 40,000 Gal. Storage Tank, Rev. A
H-17761, Residual Heat Removal System E11, Elementary Diagram Sheet # 2, Rev. 23

H-17762, Residual Heat Removal System E11, Elementary Diagram Sheet # 3, Rev. 30
H-17763, Residual Heat Removal System E11, Elementary Diagram Sheet # 4, Rev. 33
H-17764, Residual Heat Removal System E11, Elementary Diagram Sheet # 5, Rev. 18
H-17765, Residual Heat Removal System E11, Elementary Diagram Sheet # 6, Rev. 15
H-17766, Residual Heat Removal System E11, Elementary Diagram Sheet # 7, Rev. 31
H-17767, Residual Heat Removal System E11, Elementary Diagram Sheet # 8, Rev.17
H-17768, Residual Heat Removal System E11, Elementary Diagram Sheet # 9, Rev.15
H-17776, Residual Heat Removal System E11, Elementary Diagram Sheet # 17, Rev. 21
H-17781, Residual Heat Removal System E11, Elementary Diagram Sheet #22, Rev. 13
H-17782, Residual Heat Removal System E11, Elementary Diagrams, Sheet 23, Rev. 23.

1R21.12 Energy Sources

SINH 93-007, 1R43-PS-N759A, B, and C Diesel low fuel oil Pressure Setpoints, Rev. 0
SINH 92-015, Setpoint Configuration for Diesel Generator Expansion Tank Level switches (R43-N028 A, B, C & R43-029A, B, C), Rev. 0

Completed Surveillance Procedures, Corrective Maintenance and Test Records

57CP-CAL-080-1S, United Electric Temperature Switch Calibration,10/11/00, 11/12/02.
57CP-CAL-038-1S, Temperature Switches, 4/6/96, 10/10/00, 3/09/99.
57CP-CAL-047-1S, Dryer Differential Pressure System, 10/10/00, 11/12/02..
57CP-CAL-067-1S, Square DS & Grinnel Pressure Switches, 03/24/96, 05/10/02.
57CP-CAL-075-1S, Allen Bradley and Detroit Switch Incorporated Pressure Switches, 3/9/99.
57CP-CAL-176-1, McDonnell Miller Model 80 and E-8 Level Switch Calibration, 11/20/02, 12/05/02

Drawings

H-11631, Unit 1 Diesel Generator 1A and 1C, Sh. 1, Rev. 23
H-11631, Unit 1 Diesel Generator 1A and 1C, Sh. 2, Rev. 7
H-11638, Unit 1 Diesel Generator 1B, Sh. 1, Rev. 21
H-11638, Unit 1 Diesel Generator 1B, Sh. 2, Rev. 5
H-21074, Unit 2 Diesel Engine and Fuel Oil System, Rev. 43

Calculations

SENH 04-001, Degraded Grid (DGG) Alarm Relay Setpoint Study, Rev. 1

Completed Surveillance Procedures, Corrective Maintenance and Test Records

57SV-S32-002-1, Emergency Buses 1E, 1F, and 1G Undervoltage Relay Instrument FT & C, completed 02/22/96,4/25/97,7/22/98, 4/25/00, 7/20/01, 7/29/02, 8/28/03, 7/13/04.

Miscellaneous Documents

Safety Evaluation for Degraded Grid Voltage Relay Setpoints Edwin I. Hatch Nuclear Plant, Units 1 and 2, 02/27/95
REA HT-01671, E.I. Hatch Nuclear Plant - Units 1 & 2 CV-7 Undervoltage Relay Study, 08/23/01

Condition Reports (CRs)

92-007010991, Single Phase Voltage Relays-Instr-Type 27N High Accuracy Undervoltage Relay & Type 59N High Accuracy Over voltage Relay, Vendor Asea Brown
2004108918, Need to replace the relay face covers, due to damaged gaskets, for the following undervoltage relays. (1S32-K206-3, 1S32-K206-5, 1S32-K206-6), 9/10/2004
2004107189, 1S32-K206-4 (4160 Bus 1E Undervoltage Relay) was found out of procedure acceptance criteria., 7/12/2004
1998002843, Undervoltage Relay 1S32-K206-3 found out of TS limits., 7/22/98
2004000554, Delete Statement Regarding Setpoint Calculations for Nominal trip Setpoints, 12/01/2004
2004111168, Twelve Month Calibration Interval
2004111190, Surveillance on the relays is Performed Procedure
2004111592, No condition report to address Corrective Action,12/02/2004

1R21.13 Instrumentation and Controls

33-E51-2, Q E51-LS-N061 Condensate Storage Tank Level, Rev. 1
33-E51-1, Q E51-LS-N060 Condensate Storage Tank Level, Rev. 1
33-E51-3, Q E51-LS-N062 A, B, Rev. 0
SINH 01-020, Technical Specification 3.3.5.1-1(1.c,2.c) Setpoint Determination for 24 month cycles 1B21, 1E11, 1E21, Rev. 0
SINH 01-022, Technical Specification 3.3.5.1-1 (1.a, 2.a,4.a, 5.a) Setpoint Determinations for 24 month cycles 1B21, Rev. 0
SINH 01-028, Technical Specification 3.3.5.1-1(3.e) Setpoint Determination for 24 month cycles 1E41, Rev. 0
SINH 01-026, Technical Specification 3.3.5.1-1(3.a) & 3.3.5.2-1(1) Setpoint Determination for 24 month cycles 1B21, Rev. 0

Completed Surveillance Procedures, Corrective Maintenance and Test Records

57CP-CAL-019-1S, GE Type 555&556 Pressure Transmitter, 5/1/1, 5/12/03, 5/15/01.
57SV-SUV-013-1, ATTS Panel 1H-11P927 Channel FT&C,12/12/03, 05/05/02, 05/26/04.
57SV-SUV-014-1, ATTS Panel 1H-11P928 Channel FT&C,08/24/04, 03/22/04.
57SV-SUV-015-1, HPCI/RCIC Pump Suction Source Instrument, 09/21/03, 08/26/04, 06/30/03, 06/02/04, 12/16/03, 03/25/04.

Condition Reports (CRs)

2004103791, Suction pressure indicator 1E41-R606 appears to be reading lower than normal, 03/21/2004
2004101745,During performance of step 7.1.79 of 42SV-E41-002-1, HPCI LSFT, continuity was not achieved across links SS-37 and SS-38 (panel 1H11-P620), 02/16/2004
2004101785, During the performance of 42SV-E41-002-1, a time delay relay was found to be out fo Spec., 2/16/2004
2004107903, The HPCI Torus HI Level indicator passed its comparison check with its companion indicator which was reading one inch less., 8/7/2004
2004105529, The channel check for the “HPCI Steam Line Low Press” was un sat due to 1E41-N658D reading 840 psi which is approximate 210 psi lower than actual HPCI steam supply line pressure., 05/13/2004
2004101466, As found data for 1E41-K015 was found out of procedure tolerance., 2/11/2004

Drawings

A-44858, Protective Relay Setpoint Data Sheet, Sheet 26, Rev. 2
A-44858, Protective Relay Setpoint Data Sheet, Sheet 29, Rev. 1

Jacket Temperature HI/LO

- 1R43-TS-N773A
- 1R43-TS-N764A
- 1R43-TS-N770A
- 1R43-TS-N761A

Air Starting Pressure Switch

- 1R43-PS-N753(752)A

Jacket Coolant Level

- 1R43-LS-N028A
- 1R43-LS-N029A
- 1R43-PS-N758A

Fuel Oil Pressure Low

- 1R43-PS-N759A

Jacket Coolant Pressure Low

- 1R43-PS-N760A

Lube Oil Pressure Low

- 1R43-PS-754A

1R21.2 System Condition and Capability

Drawings

A-16257-18, Instrument Level setting Diagram, Rev. 1
A-16257-02, Instrument Level Setting Diagrams, Rev.8
B-18100, Isometric Piping for Instruments E41-LS-N003, E51-LS-N061, Rev.0
E51-113, Isometric Piping for Instruments E41-LS-N002, E51-LS-N060, Rev.0

Condition Reports (CRs)

2004107903, The HPCI Torus HI Level indicator passed its comparison check with its companion indicator which was reading one inch less., 8/7/2004

Calculations

33-E51-2, Q E51-LS-N061 Condensate Storage Tank Level, Rev. 1
33-E51-1, Q E51-LS-N060 Condensate Storage Tank Level, Rev. 1
33-E51-3, Q E51-LS-N062 A, B, Rev. 0
SINH 01-020, Technical Specification 3.3.5.1-1(1.c,2.c) Setpoint Determination for 24 month cycles 1B21, 1E11, 1E21, Rev. 0
SINH 01-022, Technical Specification 3.3.5.1-1 (1.a, 2.a,4.a, 5.a) Setpoint Determinations for 24 month cycles 1B21, Rev. 0

Miscellaneous Documents

Diesel Engine and Generator Bearing Lube Oil Sampling Test Results, 2003-2004
SS-6911-4, Southern Services Inquiry, Field Erected Steel Tanks, Rev. 1
SX21491A, GE Design Specification, High Pressure Coolant Injection System, Rev. 2
ABN 02-0523, RHR Service Water Pump Performance Curves, Rev. 0
Log 10000399, Johnston Pump Potential Part 21 Evaluation, 10/19/00
System Health Report, Fuel Oil, 2000-2001
Letter from Fairbanks Morse to Farley Nuclear Plant, Diesel Generator Operation Without Service Water, dated 02/21/73

Completed Surveillance Procedures

42SV-R43-021-1S, Diesel Generator 1A LOCA/LOSP LSFT, Unit 1, Completed 3/6/04
42SV-R43-027-1S, Diesel Generator 1C LOCA/LOSP LSFT, Unit 1, Completed 3/8/04
42SV-R43-008-2S, Diesel Generator 2S LOCA/LOSP LSFT, Unit 2, Completed 3-19-03

Lesson Plans/Job Performance Measures (JPM)

SI-LP-03301-02, Plant Service Water (PSW) & Standby Diesel Service Water System
LR-LP-02702-07, 4160 VAC Electrical System

Miscellaneous Documents

Technical Specifications Sections 3.7.2, 3.7.3, 5.4.1

Section 1R21.21 - Installed Configuration

34SV-R43-013-2S, Diesel Generator 2C 18 Month Operability Test, Rev. 2.5
34SV-R43-012-22, Diesel Generator 1B 18 Month Operability Test, Rev. 2.7
34SV-E51-002-1, RCIC Pump Operability, Rev. 19.11
42IT-TET-012-2S, PSW AND RHRSW Piping Inspection Procedure, Rev. 3 ED 1
42IT-TET-013-0S, Flow Rate Data Collection, Rev. 1ED 1
52SV-R43-001-0, Diesel, Alternator, and Accessories Inspection, Rev. 17
34SV-R43_006-2, Diesel Generator 2C Semi-Annual Test, 9/20/04
42SV-R43-021-1S, Diesel Generator 1A LOCA/LOSP LFST, 3/8/04
DCR 03-026T, PSW Supply To The 1B EDG, 7/9/02
Plant Service Water System Health Reports, 1st Quarter 2003 to 2nd Quarter 2004
HPCI System Health Reports, 4th Quarter 2002 to 3rd Quarter 2004
22A1362, HPCI Design Spec, Rev. 4
22A1354, RCIC Design Spec, Rev. 4
6511-01 10-502, RCIC Pumps Performance Curves, 2/16/71
WO 1000427101, HPCI Main & Booster pump, 3/1/04
WO 1030179301, HPCI Main & Booster pump, 4/8/04
WO 1030108601, HPCI Main & Booster pump, 2/28/04
WO 1030047601, RCIC PUMP Perform 52PME510040S, 2/17/04
SMNH 02-12, Calculation: Generate Unit 1 PSW Proto-Flo database, 11/11/2004
212(V5,B14), calculation: Plant Service Water Heat Exchanger Performance, 3/16/02

Technical Specifications

TS Section 3.3.8.1, Loss of Power (LOP) Instrumentation
TS Table 3-3.8.1-1, Loss of Power (LOP) Instrumentation

Drawings
H-13376, Elementary Diagram Turbine Auxiliary Equipment, Sheet 1 of 2, Revision 28.
H-13382, Elementary Diagram-4160 V Station Service Supply A. C. B's, Revision 22
H-13384, Elementary Diagram 600 V and 208 V Station Service, Revision 26.
H-13412, Elementary Diagram Diesel Generator 1A, Revision 43.
H-13586, Elementary Diagram Plant Service Water Pumps, Revision 27.
H-13587, Contact-Tabulation Sheet 1 of 3, Diesel Generator Controls, Revision 28
H-13589, Elementary Diagram Emergency Station Service Miscellaneous, Sheet 1 of 2, Revision 21.
H-13589, Elementary Diagrams, Emergency Station Service Miscellaneous , Sheet 2 of 2, Revision 9.
H-17088, Reactor Building Closed Cooling water System P42, Elementary Diagram, Sheet 1 of 2, Revision 18.
H-17089, Reactor Building Closed Cooling water System P42, Elementary Diagram, Sheet 2 of 2, Revision 17.
H-17108, Core Spray System E21, Elementary Diagrams, Sheet #1, Revision 28
H-17109, Core Spray System E21, Elementary Diagrams, Sheet #2, Revision 34,
H-17112, Core Spray System E21, Elementary Diagrams, Sheet #5, Revision 17 .

H-17114, Control Rod drive HYD. Instr. System-C11, Elementary Diagram- Sheet 2, Revision 19.
H-17760, Residual Heat Removal System E11, Elementary Diagram Sheet # 1, Revision 46

Procedures

3AB-S11-001-0, Operation with degraded System Voltage, Version No. 1.6.
34AB-R22-002-1, Loss of 4160 V Emergency Bus, Revision
52PM-R22-004-0, Preventive Maintenance Procedure, Westinghouse 50DHP-VR-250U Breakers, Revision No. 1.2
52PM-R22-001-0, Preventive Maintenance Procedure, Westinghouse 4160 V Switchgear and Components P. M. Revision No. 22.2
0-ECM-0101-02, Installation or Removal of Jumper Cables over Individual Cells of Main Station, Emergency Diesel Generator and AAC Emergency Diesel Generator Stationary Batteries, Rev. 011
0-ECM-0101-01, Main Station, Emergency Diesel Generator and Fire Pump Diesel Battery Repairs, Rev. 014

Condition Reports (CRs)

2001004250, Diesel Generator Inboard and Outboard Oil Reservoirs Contaminated, 05/31/01
2001007671, Procedure 34SV-R43-014-0S Changes, 09/17/01
2003110857, IST Data for Standby Plant Service Water Pump Trending Upward, 10/02/03
2003111789, Louver 1X41-C005C Linkage Arm Bent, 11/02/03
2003111790, 1X41-C003B Fan Would Not Turn Off When Performing Surveillance, 11/02/03
2003112541, Standby Plant Service Water Pump Packing Leak, 11/24/03
2003113321, Standby Plant Service Water Pump Vibration in the Alert Range, 12/22/03
2004100155, 1F Switchgear Room Ventilation Louver 1X41-C007B North Half Would Not Close Fully, 01/07/04 2004101575, Standby Plant Service Water Pump Packing Seal Leak, 02/12/04
2004106309, Standby Plant Service Water Pump Bearing Vibration in the Alert Range, 06/08/04

Completed Surveillance Procedures, Corrective Maintenance and Test Records

34SV-P41-003-2, Standby Diesel Water System Operability, completed 06/08/04, 07/22/04, 09/01/04, 10/14/04
34SV-R43-014-0S, DG Air Start Check Valve 18 Month Surveillance, Att. 1, 2, 3, 4, 5, completed 09/17/01, 09/26/01, 09/27/01, 03/28/02, 03/25/03, 05/16/03, 03/29/04, 04/19/04, 05/10/04
45QC-INS-009-0S, Ultrasonic Digital Thickness Examination Report, Att. 1, completed 12/17/03
52CM-R43-004-0, AMOT Valve Maintenance, completed 04/22/02, 01/16/04
57IT-X41-001-1, Diesel Generator Building Heating and Ventilation, MPL Numbers 1X41-N004A, 1X41-N004B, 1X41-N004C, 1X41-N005A, 1X41-N005B, 1X41-N005C, 1X41-N006A, 1X41-N006B, and 1X41-N006C, completed 11/02/03, 01/05/04, 01/06/04, 01/07/04, 01/08/04
HPX-0437, Diesel Fuel Oil: Quarterly, completed 05/19/04, 08/18/04
HPX-0593, Diesel Fuel Oil: Semi-Annual, completed 03/09/04, 03/26/04, 08/18/04

Miscellaneous Documents

Plant Modification DCPT 03-0 01-003,, 4 KV Breaker Replacements, Revision No. 1
W. O No. 1030136201, 600 V Station Service Switchgear 1D, 10/5/03
W. O No. 1039000108, 4160 V Bus 1G, 11/5/03

W. O No. 1039000106, 4160 V Station Service Switchgear Bus 1F, 11/5/03
CR No. 2004102844, Shutter Damaged While removing breaker AH4002 from frame 11 of 1R22-S006, 3/3/2004
CR No. 2004102864, Breaker cannot be withdrawn from cubicle,, 3/4/2004
Byron Jackson test results-RHR Pumps Performance Curves, PO; PEH-2,
Johnston pump Company, RHR service water Pump Test Curves. Johnston Pump Model 18 DC- 7 Stage

IR.21. 34 Operating Experience

Industry Operating Events:

OE 18057, Water Intrusion into Relay Panel
OE 18233, Emergency Diesel Generator Experiences Start Failure During Semi-Annual Test
OE 16256, Degraded Generator Field Brush Holders on EDG
OE 15032, Diesel Generator Injection Pump Capscrew Failure
OE 16792, Control of Switchyard Fieldwork Associated with Modifications and Post Modification Testing

Self-Assessments:

SA03-NSC-03, Plant Hatch Operability Determination
SA03-NSC-02, Focused Self Assessment, Corrective Action Program: Timeliness of Corrective Actions for Significant Events
SA03-NSC-01, Plant Hatch Licensing Documents, Commitments and Plant Review Board Self-Assessment
SA04-ENG-03, Obsolescence and Long Range Plan Self Assessment
SA03-ENG-03, Plant Hatch Battery Program
August 23-September 24, 2004, Plant Hatch Operating Experience Program Self Assessment
January 27-31, 2003, Plant Hatch Self-Assessment Program Self-Assessment

Plant Hatch to 10 CFR 21 Reports:

NS&C File 2003-012, Loose Wire on 50DHP-VR 350 Position Indicator Switch
NS&C File 2004-04, Potential Safety Hazard Associated with use of Fairbanks Morse Engine Turbo charger
NS&C File 2004-05, Potential Slippage of Aluminum Roots Blowers on Opposed Piston Emergency Diesel Engine Generators
NS&C File 2004-016, Potential Safety Hazard with Woodard Digital Reference Unit on Fairbanks Morse Engine
NS&C File 2004-17, Potential 10 CFR 21 when IP41F208D Failed after Maintenance
NSAL-03-2, ABB 4 KV Breaker Failure to Close and Latch
NS&C File 2003-03, GE Mirco Versa Trip Product Safety Alert
NS&C File 2003-07, Replacement Solutions for Obsolete AB-Deion Circuit Breakers and UL Testing Issues
10CFR21-0088, Woodard Digital Reference Unit Controls (reported by Engine Systems, Inc.)

Condition Reports Initiated During the Inspection

CR No.	Description
CR2004000551	EDG Three Minute Operation Without Service Water
CR2004000553	To Heighten Operator Awareness of Operation
CR2004000554	Delete Statement Regarding Setpoint Calculations for Nominal Trip Setpoints
CR2004000556	Review Setpoint Elevation Value
CR2004110726	Review of Procedure 34GO-OPS-042-1/2 for Silt Buildup
CR2004110754	Mislabeled Orifice 2P41-RO-D329
CR2004111168	Twelve Month Calibration Interval
CR2004111190	Surveillance on the Relays is Performed Procedure
CR2004111546	Review of Procedure 42IT-TET-012-1/2 for Associated Heat Exchangers
CR2004111575	Buildup of Silt Material on the PSW Inlet Piping
CR2004111580	To Revise Procedure 34SV-R43-014-0
CR2004111582	Review Procedures Pertaining to DG Loading During a LOSP Without a LOCA
CR2004111592	No Condition Report to Address Corrective Action