



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

April 30, 2001

EA-01-078

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

**SUBJECT: EDWIN I. HATCH NUCLEAR PLANT - NRC INTEGRATED INSPECTION  
REPORT NOS. 50-321/00-06 AND 50-366/00-06**

Dear Mr. Sumner:

On March 31, 2001, the Nuclear Regulatory Commission (NRC) completed an inspection at your Hatch Nuclear Reactor facility. This integrated 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. The enclosed report documents the inspection findings which were discussed on March 30, 2001, with Mr. Pete Wells and other members of your staff.

Based upon the results of this inspection, the inspectors identified two findings of very low safety significance (Green). One of these findings was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this violation as a non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny this non-cited violation, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Hatch facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.htm> (the Public Electronic Reading Room).

Sincerely,

Stephen J. Cahill , Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

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

Enclosure: Inspection Report Nos. 50-321/00-06, 50-366/00-06

Attachments: (1) Supplementary Information  
(2) NRC's Revised Reactor Oversight Process

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 Nos: 50-321/00-06 and 50-366/00-06

Licensee: Southern Nuclear Operating Company, Inc. (SNC)

Facility: E. I. Hatch Nuclear Power Plant, Units 1 & 2

Location: P. O. Box 2010  
Baxley, Georgia 31515

Dates: December 31, 2000 - March 31, 2001

Inspectors: J. Munday, Senior Resident Inspector  
T. Fredette, Resident Inspector  
W. Sartor, Senior Emergency Preparedness Inspector  
(Section 1EP1)  
J. Kreh, Emergency Preparedness Inspector (Section 1EP1)  
D. Forbes, Radiation Specialist, RII (Sections 2OS2, 2PS2 and  
4OA1.1)

Approved by: Stephen J. Cahill, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000321-00-06, IR 05000366-00-06, on 12/31/2000 - 03/31/2001; Southern Nuclear Operating Company, Inc.; Edwin I. Hatch Nuclear Power Plant, Units 1 & 2; maintenance rule implementation, event follow-up.

This integrated report covers a 13-week period of inspection conducted by resident inspectors, a regional radiation specialist, and regional emergency preparedness inspectors. The inspection identified two Green findings, one of which was a non-cited violation. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://www.nrc.gov/NRR/OVERSIGHT/index.html>. Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

### A. Inspector Identified Findings

#### **Cornerstone: Initiating Events**

- (Green) A non-cited violation (NCV) was identified for the licensee's failure to place the main control room air conditioning system in Maintenance Rule (MR) (a)(1) status as required by licensee procedure 40AC-ENG-020-0S and 10 CFR 50.65. The licensee had identified one maintenance preventable functional failure (MPFF) in October 2000 and three MPFFs between December 22, 2000, and January 14, 2001. The performance criteria established for this system was  $\leq 1$  (MPFF) per 36 months. The licensee was aware of the repetitive MPFFs, but had not assessed the system for potential escalation to MR (a)(1) status until identified by the inspectors in March 2001. Following an assessment in March 2001, the licensee concluded that the system should have been placed in MR (a)(1) status on January 1, 2001. (Section 1R12)

#### **Other**

- (Green) A finding was identified for the loss of the 2C 600 Volt emergency bus due to personnel performance that resulted in an electrical short circuit during a relay calibration. After removing the relay for calibration, a technician inappropriately placed the relay connection paddle back inside the relay case and caused the short.

The 2C bus supplies power to multiple risk significant systems in the mitigation systems cornerstone including; safety injection, decay heat removal and long term heat removal systems. Balance-of-plant equipment associated with potential plant transient initiators were also affected. In this case, an automatic power reduction transient began and a loss of condenser vacuum was initiated. However, the event was mitigated by the quick and appropriate response by plant operators so the event was determined to be of very low significance (Green) by the Significance Determination Process. (Section 4OA3)

### B. Licensee Identified Findings

None

## Report Details

Unit 1 operated at or near 100% Rated Thermal Power (RTP) until power was reduced to 30% RTP on January 27 for scheduled maintenance. The unit was returned to 100% RTP on January 29. On March 28, the reactor tripped following a generator trip due to an electrical fault in the "A" unit auxiliary transformer. The unit was restarted on March 30 and was at approximately 20% RTP at the end of the inspection period.

Unit 2 operated at or near 100% RTP except for March 8 and March 18. On March 8 power was reduced to approximately 70% RTP in response to the loss of the 2C 600 volt bus. On March 18, power was reduced to approximately 50% RTP to repair a feedwater heater valve. On both March 8 and March 18, the unit returned to 100% RTP later that day.

### **1. REACTOR SAFETY**

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

#### 1R04 Equipment Alignment

##### a. Inspection Scope

The inspectors walked down selected systems to verify that they were correctly aligned. The inspectors observed valve positions, controller settings and instrument readings, and compared the observations and readings with system procedures and drawing. The inspectors reviewed selected condition reports to determine if equipment alignment issues were being identified and adequately resolved. The systems walked down included the following:

- Emergency Diesel Generators (EDG) 2C and 1B
- 1B Residual Heat Removal (RHR)
- 1A Residual Heat Removal Service Water
- Unit 2 Reactor Core Isolation Cooling (RCIC)

For the Unit 2 RCIC, the inspectors reviewed plant procedures, drawings, the third quarter system health report, and the Updated Final Safety Analysis Report (UFSAR) and performed a system walkdown to determine if the system areas were free of debris, tools, or unnecessary equipment that could impede system operation. The inspectors observed ongoing work conducted during a system maintenance outage to verify that maintenance important to the operation of the system was completed. The inspectors also reviewed the corrective action program to ensure that issues identified during the system walkdown had been entered. Procedures and documents reviewed are listed in Attachment 1.

##### b. Findings

No findings of significance were identified.

## 1R05 Fire Protection

### a. Inspection Scope

The inspectors toured risk significant areas to assess the material condition of the fire protection and fire detection equipment to verify the equipment was not obstructed, and that transient combustibles were being adequately controlled. Plant drawings and procedures were used to verify the fire protection system was properly aligned and pressurized. The inspectors also reviewed the pre-fire plans for the associated risk significant areas to verify that the necessary fire fighting equipment, such as fire extinguishers, hose stations, ladders, and communications equipment was in place. In addition, the inspectors reviewed a condition involving the inability to maintain fire system pressure without the assistance of the motor driven fire pump to ensure the licensee was adequately pursuing resolution of the problem. Procedures and documents reviewed are listed in Attachment 1. The following fire areas were inspected:

- Unit 1 Reactor building: Fire Areas 1203I, 1203K, 1205I, 1205K, 1205R, 1205S, 1205T, 1210, and 1211
- Intake Structure: Fire Area 0501
- EDG building and switchgear rooms: Fire Areas 1401,1402, 1403,1404, 1405,1406, 1407, 1408, 1409, 1410, 1411, 1412, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, and 2409

### b. Findings

No findings of significance were identified.

## 1R11 Licensed Operator Requalification

### a. Inspection Scope

The inspectors observed operator performance during an NRC graded emergency exercise from the plant simulator to assess operator performance in the following areas: clarity and formality of communication; use of procedures; alarm response; control board manipulations; group dynamics; Technical Specification implementation; and supervisory oversight. The inspectors compared their observations to licensee procedure and regulatory requirements. The inspectors reviewed the scenario to determine if it exercised areas previously identified as weaknesses. The inspectors attended the licensee's post exercise critique to assess if the licensee identified issues were comparable to issues identified by the inspectors. Procedures and documents reviewed are listed in Attachment 1.

### b. Findings

No findings of significance were identified.

## 1R12 Maintenance Rule (MR) Implementation

### a. Inspection Scope

The inspectors reviewed selected equipment problems associated with structures, systems, and components to assess the licensee's implementation of the MR (10 CFR 50.65). The inspectors reviewed operator logs, associated condition reports (CRs), and licensee procedure 40AC-ENG-020-0S, "Maintenance Rule (10 CFR 50.65) Implementation and Compliance," Revision (Rev) 3, to determine if equipment failures were being identified, appropriately assessed, and corrective actions established to return the equipment to an operable condition. The equipment problems reviewed included the following:

- 1A Plant Service Water (PSW) pump motor failure (CR 2000010872)
- 1D PSW pump failure (CR 2000011321)
- 1C EDG trip during test (CR 2001000023)
- 2B Station Service Air Compressor air receiver (CR 2000011160)
- 2A PSW discharge check valve stuck open (CR 2000010941)
- Main Control Room Air Conditioner 1Z41B003C trips (3) (CRs 2000011459, 2000011615, 2001000363, 2001001973)

### b. Findings

A non-cited violation (NCV) was identified for the licensee's failure to demonstrate that the performance or condition of the main control room air conditioning system was being effectively controlled by preventive maintenance. Three failures of the 2C main control room air conditioner occurred between December 22, 2000, and January 14, 2001, that were not prevented by appropriate preventive maintenance. The licensee was aware of the repetitive trips but had not assessed the trips for potential escalation of the system to MR (a)(1) status until identified by the inspectors in March 2001.

The performance criteria established for this system was  $\leq 1$  maintenance preventable functional failure (MPFF) per 36 months between the three chiller trains. The licensee had identified one MPFF in October 2000 when the A train tripped. Following their assessment in March 2001, the licensee concluded that the system should have gone into MR (a)(1) status on January 1, 2001.

The licensee compares system performance to maintenance rule performance criteria monthly to ensure systems remains capable of performing their intended function. Step 8.6.1 of licensee procedure 40AC-ENG-020-0S, "Maintenance Rule (10 CFR 50.65) Implementation And Compliance," Revision (Rev) 3, requires engineers to monitor each system and trend performance against the established performance criteria monthly. Step 8.6.3 requires that, following an event that impacts a system performance criteria, a cause determination be performed; the event be evaluated to determine the generic aspects; and additional monitoring, surveillance, or preventive maintenance tasks be implemented, as required. Step 8.6.4 requires that the system be designated as MR (a)(1) category of 10 CFR 50.65 if the performance criteria is not met.



This finding does have a credible impact on safety because the failure mode, debris in the cooling water supply caused the strainer to clog and the flow control valve to malfunction, is common to all three trains and caused the air conditioners to trip. The licensee's Individualized Plant Evaluation (IPE) indicates that a loss of these air conditioners could cause the main control room temperature to increase and affect the ability of critical instrumentation in the main control room to function properly. The potential exists for a reactor trip and spurious initiation of engineered safety features due to the increased temperature. However, operator intervention to restore sufficient cooling to prevent these actions from occurring is considered highly likely. The significance was also minimized because the licensee had increased the frequency of inspecting the cooling water pressures and flows in an effort to identify declining performance before the air conditioners tripped.

Because only the initiating event cornerstone was affected and assumptions made as part of this analysis indicate that the only safety impact was to slightly increase the likelihood of a reactor trip, this finding was considered to be of very low safety significance (Green).

10 CFR 50.65 (a)(1) requires, in part, that the holders of an operating license shall monitor the performance or condition of structures, systems or components (SSCs) within the scope of the rule as defined by 10 CFR 50.65 (b), against licensee-established goals, in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions.

10 CFR 50.65 (a)(2) requires, in part, that monitoring as specified in paragraph (a)(1) is not required where it has been demonstrated that the performance or condition of an SSC is being effectively controlled through the performance of appropriate preventive maintenance, such that the SSC remains capable of performing its intended function.

Contrary to the above, until March 13, 2001, the licensee failed to demonstrate that the performance or condition of the main control room air conditioning system was being effectively controlled through the performance of appropriate preventive maintenance in that repetitive failures of the main control room air conditioner occurred on December 22, and 31, 2000, and January 14, 2001, that were not prevented by appropriate preventive maintenance. Following the failures, the licensee failed to place the system under 10 CFR 50.65(a)(1) for establishing goals and monitoring against those goals.

This NRC identified issue is being treated as a NCV consistent with Section VI.A.1 of NRC Enforcement Policy and is identified as NCV 50-321, 366/00-006-01, Multiple Failures of the Main Control Room Air Conditioners. This condition was entered into the licensee's corrective action program as CR 2001001973.

## 1R13 Maintenance Risk Assessments and Emergent Work Evaluation

### a. Inspection Scope

The inspectors reviewed Maintenance Work Orders (MWOs), the license's procedure and risk assessments performed for selected equipment removed from service to assess the licensee's compliance with 10 CFR 50.65(a)(4). In addition, the inspectors reviewed the risk assessments performed for a week of planned maintenance to assess the adequacy of the licensee's risk assessment. Procedures and documents reviewed are listed in Attachment 1.

- 1C EDG failure to start (MWO 10100050)
- 1B EDG surveillance in conjunction with switchyard (reactor yard) maintenance on power circuit breaker 179750
- Unit 2 RCIC unplanned automatic isolation during maintenance (CR 2001001691)
- Unit 2C 600 volt bus trip during relay calibration (CR 2001001801)
- Unit 2 Reactor Recirculation Motor Generator set brush replacement (CR 2001000243)
- Work Week Schedule February 24 - March 2, 2001

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions

a. Inspection Scope

The inspectors reviewed operating logs, control room recorders and procedure 34AB-R23-001-2S, "Loss of 600 Volt Emergency Bus," Rev. 0, Edition (Ed) 3, to verify the plant and operating crew responded appropriately following an unexpected loss of the 2C 600 volt emergency bus which occurred on March 8.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the licensee's procedure and selected operability evaluations associated with risk significant mitigating systems to ensure that system operability was adequately assessed and the system or component remained available to perform its intended safety function. Procedures and documents reviewed are listed in Attachment 1. The system operability evaluations reviewed included the following:

- 1C EDG failure to start; common cause failure evaluation and impact assessment (LR-REG-001-0101)
- Unit 1 EDG discharge line plant service water rupture disk installed backwards (LR-REG-011-0101)
- 2A EDG exhaust silencer erosion, 2R43-S001S (CR 2001001506)
- Unit 2 High Pressure Coolant Injection (HPCI) turbine exhaust stop check valve, 1E41-F021 (LR-REG-010-1200)
- Unit 2 PSW corroded pipe support, 2P41-ISW-R26 (CR CO0008170)

b. Findings

No findings of significance were identified.

#### 1R16 Operator Workarounds

##### a. Inspection Scope

The inspectors reviewed an operator workaround associated with the Unit 1 turbine building chillers as well as the cumulative effects of all the existing workarounds. The inspectors considered if the workarounds affected system functional capability or the operators' ability to implement abnormal or emergency operating procedures. The inspectors compared their observations with licensee procedure requirements. Procedures and documents reviewed are listed in Attachment 1.

##### b. Findings

No findings of significance were identified.

#### 1R19 Post Maintenance Testing

##### a. Inspection Scope

The inspectors reviewed MWOs, the post maintenance test procedure, and either witnessed the testing or reviewed test records to determine if the scope of testing adequately verified that the work performed was correctly completed and demonstrated that the affected equipment was operable. The inspectors reviewed the calibration records and ranges of test equipment to assess their adequacy and appropriateness for the maintenance activities. The inspectors also verified that the system was restored to the appropriate lineup position to perform its safety function. Procedures and documents reviewed are listed in Attachment 1. The post maintenance test activities reviewed included the following:

- 1C EDG start failure (MWO 1010050)
- 2A EDG governor adjustment (MWO 20100269)
- EDG "Barring" procedure and requirements
- 1B Standby Gas Treatment motor megger and lubrication (MWO 10004297)
- Unit 2 RCIC trip & throttle valve lubrication, inspection, and adjustment (MWO 20100024)
- Unit 2 RCIC pump preventive maintenance (MWO 20003548)

##### b. Findings

No findings of significance were identified.

#### 1R22 Surveillance Testing

##### a. Inspection Scope

The inspectors reviewed the test procedure and either witnessed the testing or reviewed test records to determine if the scope of testing adequately demonstrated that the affected equipment was operable. The inspectors also reviewed the activities to assess

any preconditioning of equipment, the adequacy of test equipment, procedure adherence, and valve alignment upon completion of the surveillance. Procedures and documents reviewed are listed in Attachment 1.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the licensee's procedure and temporary modifications (TMM) to verify the TMM did not affect the safety functions of important safety systems. The inspectors also verified that the modifications were installed in accordance with the TMM documents and licensee procedure. Procedures and documents reviewed are listed in Attachment 1. The TMMs reviewed included the following:

- TMM 1-01-001: 1A Recirc MG Set Cooler 1T41-B006A
- TMM 2-01-002: Unit 2 Loose Parts Monitor

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP1 Exercise Evaluation

a. Inspection Scope

The inspectors reviewed the objectives and scenario to determine if they were designed to test major elements of the licensee's emergency plan. The inspectors observed and evaluated the licensee's performance during the exercise conducted on March 14 from 8:00 a.m. to 12:00 p.m., as well as selected activities related to the licensee's conduct of the exercise. Licensee activities observed during the exercise included those occurring in the Control Room Simulator, Technical Support Center, Operational Support Center, Emergency Operations Facility, and the Emergency News Center. The inspectors evaluation focused on the risk-significant activities of event classification, notification of governmental authorities, onsite protective actions, offsite protective action recommendations, and accident mitigation. The inspectors also evaluated command and control, the transfer of emergency responsibilities between facilities, communications, adherence to procedures, and the overall implementation of the emergency plan. Licensee performance was evaluated against licensee procedures and regulatory requirements. The inspectors attended the post-exercise critique and the presentation of critique results to plant management to evaluate the licensee's self-assessment process. Documents and procedures reviewed are listed in Attachment 1.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors reviewed licensee procedures and evaluated an emergency drill on February 14 and an emergency exercise conducted on March 14, to assess the licensee's ability to properly classify the simulated event, make required notifications and determine protective action recommendations. In addition, the inspectors attended the post-exercise critiques to assess the licensee's effectiveness in identifying areas for improvement. Procedures and documents reviewed are listed in Attachment 1.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety [OS]**

2OS2 As Low as Reasonably Achievable (ALARA) Planning and Controls

a. Inspection Scope

The inspectors reviewed licensee procedure 60AC-HPX-009-0S, ALARA Program, radiation work permits, the plant collective exposure, and current exposure dose trends to verify the licensee was implementing ALARA practices as required by 10 CFR 20.1101(b), and licensee procedure. During plant tours, the inspectors observed and reviewed ALARA practices being implemented during a movement of a spent resin liner involving elevated dose rates. The inspectors also attended the ALARA briefing for the liner movement. The reviews and observations were compared to the above 10 CFR and licensee procedure requirements

b. Findings

No Findings of significance were identified.

**Cornerstone: Public Radiation Safety**

2PS2 Radiation Material Processing and Transportation

a. Inspection Scope

The inspectors reviewed licensee procedure 62RP-RAD-011-08, Shipment of Radioactive Material, Rev. 11, the licensee's transportation of radioactive materials programs for implementing NRC regulations and Department of Transportation regulations. The inspectors also reviewed training qualifications for personnel performing shipments of radioactive material and reviewed the licensee's 10 CFR 61, Licensee Waste Stream Scaling Factor Analysis, dated January 3, 2001. The above reviews were compared to licensee procedures and regulatory requirements to ensure

the specified requirements were met.

The inspectors observed a shipment of radioactive material and reviewed records of four other shipments of radioactive material performed since the last inspection of this area. Shipping papers were reviewed to verify that they contained the information required by 10 CFR 71, 49 CFR 173-185, and licensee procedures. Radioactive material shipping records reviewed included the following:

- Transportation Shipping Packages 00-1022, 00-1028, 00-1029, and 00-3049

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator (PI) Verification

.1 **Occupational Radiation Safety Cornerstone  
Public Radiation Safety Cornerstone**

a. Inspection Scope

The inspectors reviewed NEI 99-02, Rev. 0, Regulatory Assessment Performance Indicator Guideline, interviewed cognizant personnel, and reviewed condition reports to verify the validity of PIs in the cornerstone areas of Occupational and Public Radiation Safety for the period between January 01, 2000 and January 01, 2001. The condition reports CRs reviewed included the following:

- CRs 2000002044, 2000011565, 2001000080, 2000007100, 2000006093, and 2000000273

b. Findings

No findings of significance were identified.

.2 **Initiating Event Cornerstone  
Mitigation Systems Cornerstone**

a. Inspection Scope

The inspectors reviewed the licensee's procedures and methods for compiling and reporting performance indicators (PIs) for initiating events and safety system functional failures. For the initiating events cornerstone the inspectors reviewed the following PIs: Unplanned Scrams; Scrams with Loss of Normal Heat Removal; and; Unplanned Power Changes. For the Mitigating Systems cornerstone the inspectors reviewed the Safety System Functional Failures PI. The inspectors reviewed raw PI data collected since January, 2000 for each of the indicators and compared the most recent PI report to the raw data. The inspectors reviewed a sampling of operations logs, monthly operating reports, and licensee event reports to verify the PI data was appropriately captured for inclusion into the PI report, and the individual PIs were calculated correctly. Procedures and documents reviewed are listed in Attachment 1.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up

a. Inspection Scope

The inspectors reviewed plant response, records, operating logs, operating and maintenance procedures, and held discussions with Operations and Maintenance personnel to assess the plant and licensee overall response to three events. Personnel performance and system and plant response data gathered during the review and discussions were compared to system operating procedures, plant administrative procedures and regulatory requirements to ensure the requirements were met. The first event occurred on March 5, 2001 when the Unit 2 Reactor Core Isolation Cooling system automatically isolated during calibration of a steam line differential pressure transmitter. The second event occurred on March 8, 2001 when the Unit 2 600 volt emergency bus 2C tripped during the performance of a relay calibration. The third event occurred on March 9, 2001 when the 1F Station Service Battery Charger failed.

b. Findings

(Green) A finding was identified due to improper personnel performance that resulted in the loss of the 2C 600 volt emergency bus during a relay calibration on March 8. However, due to the quick re-energization of the bus and restoration of the affected components by plant operators, the significance of the event was mitigated.

The loss of the 2C 600 Volt emergency bus occurred when the electrician performing the calibration placed the relay connection paddle inside the relay case after the relay was removed. The connection paddle came in contact with several electrical connections inside the relay case and caused a short circuit to occur which tripped the bus. The bus was deenergized for approximately three minutes.

The 2C bus supplies power to multiple risk significant and safety related equipment, including; safety injection, decay heat removal and long term heat removal systems in the mitigation systems cornerstone. Also, balance-of-plant equipment related to transient initiator contributors were affected. In this case, an automatic power reduction transient began and a loss of condenser vacuum was initiated. However, the event was mitigated by the quick and appropriate response by plant operators.

This issue was entered into Phase 1 of the NRC's Significance Determination Process (SDP) based on the safety impact of the loss of 600 Volt Bus 2C. Because the event involved both mitigating equipment and the possibility of increasing the event frequency of a special initiator, a Senior Reactor Analyst performed a Phase 3 analysis of the risk from the event. Calculations were performed to determine the effect on core damage frequency (CDF) from an increase in the initiating event frequency of this event and the equipment out of service time. The analyst estimated the number of relay changeouts and events to determine the annual challenges due to calibration of Bus 2C relays. The combination of the two were determined to be of more than minor but of very low safety significance. The licensee entered this event into their corrective action program in CR 2001001801. The inspectors determined that, although the event was initiated by a poor work practice, no regulatory requirements were violated.

The inspectors review of the other two events described above determined they were of minor safety significance.

4OA5 Other

Institute of Nuclear Power Operations (INPO) Assessment Report Review

a. Inspection Scope

The inspectors reviewed the final annual INPO assessment report of site activities conducted in December 2000. The inspectors reviewed the report to ensure that issues identified were consistent with the NRC perspectives of licensee performance and if any significant safety issues were identified that required further NRC followup.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. Pete Wells, General Manager - Nuclear Plant and other members of licensee management at the conclusion of the inspection on March 30, 2001. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.



## Supplementary Information

### PARTIAL LIST OF PERSONS CONTACTED

#### Licensee

Betsill, J., Assistant General Manager - Plant Support  
Burkett, E., Operations Support Superintendent  
Curtis, S., Unit Superintendent  
Davis, D., Plant Administration Manager  
Dedrickson, R., Operations Manager  
Gooze, M., Performance Team Manager  
Hammonds, J., Engineering Support Manager  
Johnson, G., Safety Audit and Engineering Review Supervisor  
Kirkley, W., Health Physics and Chemistry Manager  
Lewis, J., Training and Emergency Preparedness Manager  
Madison, D., Assistant General Manager - Plant Operations  
Reddick, R., Site Emergency Preparedness Coordinator  
Roberts, P., Outage and Planning Manager  
Thompson, J., Nuclear Security Manager  
Tipps, S., Nuclear Safety and Compliance Manager  
Varnadore, R., Unit Superintendent  
Wells, P., General Manager - Nuclear Plant

Other licensee employees contacted included office, operations, engineering, maintenance, chemistry/radiation, and corporate personnel.

### ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

50-321, 366/00-006-01	NCV	Multiple Failures of the Main Control Room Air Conditioners
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#### Closed

50-321, 366/00-006-01	NCV	Multiple Failures of the Main Control Room Air Conditioners
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### INSPECTION DOCUMENTS REVIEWED

#### Section 1R04

34SO-E51-001-1S, "Reactor Core Isolation Cooling (RCIC) System," Rev. 24  
34SO-E51-001-2S, "Reactor Core Isolation Cooling (RCIC) System," Rev. 21, Ed. 1  
Unit 2 RCIC Health Report 3<sup>rd</sup> Quarter/2000  
34SO-E11-010-1S, "Residual Heat Removal System," Rev. 29

Section 1R05

34SO-X43-005-0S, "Diesel Generator Building Carbon Dioxide System," Rev. 0, Ed. 3  
 42SV-FPX-021-0S, "Surveillance of Swinging Fire Doors," Rev. 1, Ed. 3  
 42SV-FPX-024-0S, "Fire Hose Station Appendix B Areas," Rev. 3  
 51GM-MNT-017-0S, "Control Of Lubricants," Rev. 2, Ed. 5

Section 1R11

73-EP-EIP-001-0S, "Emergency Classification and Initial Actions," Rev. 14, Ed. 1  
 10AC-MGR-019-0S, "Procedure Use and Adherence," Rev. 3  
 Probabilistic Safety Assessment, High Risk Operator Actions/Recovery Actions  
 DI-OPS-59-0896N, "Operations Management Expectations," Rev. 10

Section 1R13

90AC-OAM-002-0S, "Scheduling Maintenance," Rev. 0  
 DI-MNT-49-0796N, "Maintenance Work Order Processing," Rev.3

Section 1R15

10AC-MGR-010-0S, "Preparation an Approval of 10 CFR Evaluations," Rev. 4  
 90AC-OAM-002-0S, "Scheduling Maintenance," Rev. 0

Section 1R16

DI-OPS-61-1196N, "Control and Tracking of Operator Work-Arounds," Rev. 1

Section 1R19

90AC-OAM-002-0S, "Scheduling Maintenance," Rev. 0

Section 1R22

34SV-E11-001-1S, Unit 1 Residual Heat Removal Pump Operability, Rev. 22  
 34SV-R43-001-2S, Diesel Generator 2A Monthly Surveillance, Rev. 25, Ed. 6  
 34SV-R43-006-2S, Diesel Generator 2C Semi-annual Surveillance, Rev.15, Ed. 3  
 34SV-E51-002-1S, Unit 1 RCIC Pump Operability, Rev. 19, Ed. 2  
 34SV-E11-001-2S, Unit 2 Residual Heat Removal Pump Operability, Rev. 16  
 57SV-CAL-003-2S, Unit 2 ATTS Transmitter Channel Calibration, Rev. 16  
 34SV-T46-003-1S, "Standby Gas Treatment Ventilation And Operability," Rev. 8, Ed.  
 34SV-R43-004-2S, "Diesel Generator 2A Semi-Annual Test," Rev.15, Ed. 4  
 34SV-R43 006-1S, "Diesel Generator 1C Semi-Annual Test," Rev. 12, Ed. 2

Section 1R23

40AC-ENG-018-0S, "Temporary Modification Control," Rev. 3, Ed. 1

Section 1EP1 and 1EP6

73EP-EIP-001-0S, "Emergency Classification & Initial Actions," Rev. 14, Ed. 1  
 73EP-EIP-001-1S, "Emergency Classification and Initial Actions," Rev. 14, Ed. 1  
 10AC-MGR-006-0S, "Hatch Emergency Plan," Rev. 7, Ed. 1  
 75TR-TRN-001-0S, "Emergency Preparedness Training," Rev. 10  
 10AC-MGR-007-0S, "Personnel Qualification Requirements," Rev. 10

Section 4OA1

00AC-REG-005-0S, "Preparation and Reporting of NRC PI Data," Rev. 1  
 Monthly Operating Reports for year 2000

Section 4OA3

34AR-601-902-1S, "ARP's For Control Panel 1H11-P601, Alarm Panel 1  
 Rev. 13, Ed. 2  
 34AR-602-903-1S, "ARP's For Control Panel 1H11-P602, Alarm Panel 3  
 Rev. 16  
 34AR-603-901-1S, "ARP's For Control Panel 1H11-P603, Alarm Panel 1  
 Rev. 25, Ed. 2  
 42SV-TET-001-1S, "Primary Containment Periodic Type B and C Leakage Tests,"  
 Rev. 19  
 52PM-B31-003-1S, "Reactor Recirculation System Maintenance," Rev. 8  
 52PM-B31-003-2S, "Reactor Recirculation System Maintenance," Rev. 8  
 52PM-E51-001-0S, "RCIC System Maintenance," Rev. 12  
 52PM-MNT-005-0S, "Limitorque Valve Operator Inspection," Rev. 27, Ed. 6  
 52PM-R43-001-0S, "Diesel Engine Major Inspection," Rev. 5, Ed. 1  
 52PM-T46-001-0S, "Standby Gas Treatment System Maintenance," Rev. 5, Ed. 2  
 57CP-CAL-108-2S, "Westinghouse CO Overcurrent Relay," Rev. 12, Ed. 8

**MISCELLANEOUS DOCUMENTS REVIEWED****DRAWINGS**

H-11322, Rev. 11  
 A-43965, Sheets 65B, Rev. 1 and 67B, Rev. 3  
 A-43966, Sheets 27B, Rev. 1 and 5B, Rev. 3  
 H-16329, Rev. 60  
 H-16330, Rev. 49  
 H-16334, Rev. 38  
 H-16335, Rev. 25

## NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

### Reactor Safety

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

### Radiation Safety

- Occupational
- Public

### Safeguards

- Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent little effect on safety. WHITE findings indicate issues with some increased importance to safety, which may require additional NRC inspections. YELLOW findings are more serious issues with an even higher potential to effect safety and would require the NRC to take additional actions. RED findings represent an unacceptable loss of safety margin and would result in the NRC taking significant actions that could include ordering the plant shut down.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. The color for an indicator corresponds to levels of performance that may result in increased NRC oversight (WHITE), performance that results in definitive, required action by the NRC (YELLOW), and performance that is unacceptable but still provides adequate protection to public health and safety (RED). GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, as described in the matrix.

The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.