UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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November 12, 2004

Paul D. Hinnenkamp
Vice President - Operations
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61N
St. Francisville, Louisiana 70775

SUBJECT: RIVER BEND STATION - NRC INTEGRATED INSPECTION REPORT 05000458/2004004

Dear Mr. Hinnenkamp:

On September 30, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your River Bend Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on October 8, 2004, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one finding concerning the failure of the licensee to properly identify and correct inadequate maintenance on station switchyard beakers. The issue has a safety significance that is potentially greater than very low significance. No immediate safety concern exists because appropriate maintenance has been performed on all similar switchyard breakers and their operating condition has been periodically verified to be satisfactory.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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 Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

David N. Graves, Chief
Project Branch B
Division of Reactor Projects

Docket: 50-458
License: NPF-47

Enclosure:
NRC Inspection Report 05000458/2004004
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	50-458
License:	NPF-47
Report No:	05000458/2004004
Licensee:	Entergy Operations, Inc.
Facility:	River Bend Station
Location:	5485 U.S. Highway 61 St. Francisville, Louisiana
Dates:	July 1 through September 30, 2004
Inspectors:	P. J. Alter, Senior Resident Inspector, Project Branch B M. O. Miller, Resident Inspector, Project Branch B G. B. Miller, Resident Inspector, Project Branch A P. C. Gage, Senior Operations Engineer, Operations Branch T. O. McKernon, Senior Operations Engineer, Operations Branch M. E. Murphy, Senior Operations Engineer, Operations Branch
Approved By:	D. N. Graves, Chief Project Branch B Division of Reactor Projects

ATTACHMENT: Supplemental Information

Enclosure

CONTENTS

SUMMARY OF FINDINGS

IR 05000458/2004004; 07/01/2004 - 09/30/2004; River Bend Station; Problem Identification and Resolution

The report covered a 3-month period of routine baseline inspections by resident inspectors and an announced inspection by regional operations inspectors. One unresolved item, that has its risk significance yet to be determined, was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using inspection manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

TBD. The inspectors identified a self-revealing finding, the significance of which has yet to be determined. The inspectors determined that the licensee failed to: (1) identify a deficient condition due to preconditioned speed testing of station switchyard breakers and (2) properly evaluate three similar failures of station switchyard breakers. As a result, three switchyard breakers opened slowly on August 15, 2004, and a transmission line ground fault that should have been isolated from the station switchyard remained connected to the main transformer long enough to cause a main generator lockout and reactor scram. Additionally, because slow breaker opening deenergized the north 230 kV bus, isolation of a coincident transmission line fault resulted in a loss of power to half of the balance of plant loads and the Division II engineered safety features switchboard.

This self-revealing problem identification and resolution finding was more than minor because it was associated with the initiating event cornerstone objective to limit those events that upset plant stability and challenge a critical safety function during power operations. The inspectors evaluated the finding using inspection manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Because the finding contributed to the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, the finding required a Phase 2 analysis. The inspectors referred the results of the Phase 2 analysis to the regional senior reactor analyst for final determination of risk. Therefore, the finding is an unresolved item with its significance yet to be determined (Section 4OA2).

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status: The plant was operated at 100 percent power from July 1 until August 13, 2004, with the exception of regularly scheduled power reductions for control rod pattern adjustments and turbine testing. On August 13, 2004, power was reduced to 65 percent to perform a control rod pattern exchange and returned to 100 percent power on August 14, 2004. On August 15, 2004, the reactor automatically scrammed due to offsite electrical power distribution problems. The reactor plant was restarted on August 16, 2004, synchronized to the electrical grid on August 17, 2004, and returned to 100 percent power on August 20, 2004. The plant operated at 100 percent power until September 9, 2004, when power was reduced to 75 percent for a control rod pattern adjustment. The plant was returned to 100 percent power on September 10, 2004. On September 30, 2004, power was reduced to 80 percent for a control rod pattern adjustment and was returned to 100 percent power that evening.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

.1 Response to Hurricane Ivan

On September 14-16, 2004, the inspectors observed and evaluated implementation of hurricane preparation procedures and compensatory measures for Hurricane Ivan. Specifically, the inspectors verified that actions taken were in accordance with the station's adverse weather preparations procedures and maintained availability of essential systems and components during threatened high winds and rain. Additionally, the inspectors walked down outside portions of the plant to ensure that essential plant equipment would not be affected by high winds and flying debris. The inspectors reviewed the following procedures as part of this inspection:

- River Bend Nuclear Procedure RBNP-89, "Hurricane Readiness," Revision 04
- Abnormal Operating Procedure AOP-0029, "Severe Weather Operation," Revision 14B

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

.1 The inspectors performed three partial system walkdowns during this inspection period. On July 27, 2004, the inspectors walked down the high pressure core spray system and the Division III emergency diesel generator while the reactor core isolation system was out of service for scheduled maintenance. On September 1, 2004, the inspectors walked down the Division II emergency diesel generator while the Division I emergency diesel generator was out of service for surveillance testing. In each case, the inspectors verified the correct valve and power alignments by comparing positions of valves, switches, and electrical power breakers with the procedures listed below:

- SOP-0030, "High Pressure Core Spray," Revision 20A
- SOP-0052, "HPCS Diesel Generator," Revision 24
- SOP-0053, "Standby Diesel Generator and Auxiliaries," Revision 37

.2 During the week of July 26, 2004, the inspectors conducted a complete system walkdown of the accessible portions of the diesel generator building ventilation system. The inspectors verified: (1) proper breaker and control switch alignments, (2) damper alignment, (3) power supply lineup, (4) hangers and support installation, (5) component labeling, and (6) alarms and indications in the main control room. The inspectors also verified that environmental qualification of safety-related components of the emergency diesel generators was maintained. The inspectors reviewed the documents listed in the attachment to this report as part of this inspection.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors walked down accessible portions of six areas described below to assess: (1) the licensee's control of transient combustible material and ignition sources; (2) fire detection and suppression capabilities; (3) manual firefighting equipment and capability; (4) the condition of passive fire protection features, such as, electrical raceway fire barrier systems, fire doors, and fire barrier penetrations; and (5) any related compensatory measures. The areas inspected were:

- Control building, 116-foot elevation, 125 Vdc switchgear room, Fire Area C-24, on July 27, 2004

- Auxiliary building, 78-foot elevation, low pressure core spray pump room, Fire Area AB-6/Z-1, on July 28, 2004

- Auxiliary building, 95-foot elevation, residual heat removal Pump B room, Fire Area AB-3, on September 2, 2004
- Containment building, 186-foot elevation, refuel floor, Fire Zone RC-3/Z-6, on September 10, 2004
- Auxiliary building, 70-foot elevation, Tunnel D Division I cable penetration room, Fire Area AB-7, on September 30, 2004
- Auxiliary building, 70-foot elevation, Tunnel D Division II cable penetration room, Fire Area AB-18, on September 30, 2004

The inspectors reviewed the following documents during the fire protection inspections:

- Pre-Fire Strategy Book
- Updated Safety Analysis Report (USAR) Section 9A.2, "Fire Hazards Analysis"
- River Bend Station postfire safe shutdown analysis

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors conducted a periodic flooding assessment to verify that the licensee's flooding mitigation plans and equipment were consistent with design requirements and risk analysis assumptions. The inspectors conducted a walkdown of the emergency core cooling system Tunnel D piping during the week of September 6, 2004. Specifically, the inspectors examined: (1) sealing of equipment below design flood level, (2) sealing of penetrations in floors and walls, (3) interconnections with common drain systems, and (4) sources of potential internal flooding from plant systems. The inspectors reviewed the following documents during the inspection as the bases for acceptability of the plant configuration:

- River Bend Station individual plant examination of external events
- USAR Section 3.4.1, "Flood Protection"
- G13.18.12.3*15, "Internal Flooding Screening Analysis"
- G13.2.3 PN-317, "Maximum Flood Elevations for Moderate Energy Line Cracks in Cat I Structures," dated February 13, 1985
- G13.2.3 PN-317, Addenda OB, "DP-1378, Moderate Energy Line Crack Flooding Rates, December 26, 1984," dated July 17, 2001

- 12210 PN-314, “Moderate Energy Line Crack Flow Rates,” dated June 6, 1984

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

.1 Biennial Inspection

The inspectors: (1) evaluated examination security measures and procedures for compliance with 10 CFR 55.49; (2) evaluated the licensee’s sample plan of the written examinations for compliance with 10 CFR 55.59 and NUREG-1021, as referenced in the facility requalification program procedures; and (3) evaluated maintenance of license conditions for compliance with 10 CFR 55.53 by review of facility medical and administrative records, procedures, and tracking systems for licensed operator training, qualification, and watchstanding. In addition, the inspectors reviewed remedial training for examination failures for compliance with facility procedures and responsiveness to address failed areas.

Furthermore, the inspectors: (1) interviewed 15 personnel, including operators, instructors/evaluators, and training supervisors, regarding the policies and practices for administering requalification examinations; (2) observed the administration of three dynamic simulator scenarios to one requalification crew; and (3) observed three evaluators administer five job performance measures, including two in the control room simulator in a dynamic mode and three in the plant under simulated conditions.

The inspectors also reviewed the remediation process and the results of the biennial written examination. The results of the examinations were assessed to determine the licensee’s appraisal of operator performance and the feedback of performance analysis to the requalification training program. The inspectors interviewed members of the training department and operating crews to assess the responsiveness of the licensed operator requalification program. The inspectors also observed the examination of security maintenance for the operating tests during the examination week.

Additionally, the inspectors assessed the River Bend Station plant-referenced simulator for compliance with 10 CFR 55.46 using baseline inspection Procedure 71111.11, Section 03.11. This assessment included the adequacy of the licensee’s simulation facility for use in operator licensing examinations and for satisfying experience requirements as prescribed by 10 CFR 55.46. The inspectors reviewed a sample of simulator performance test records (transient tests, surveillance tests, malfunction tests, and scenario-based tests), simulator discrepancy report records, and processes for

ensuring simulator fidelity commensurate with 10 CFR 55.46. The inspectors also interviewed members of the licensee's simulator configuration control group as part of this review.

.2 Quarterly Inspection

On July 1, 2004, the inspectors observed simulator training of an operations department staff crew, as part of the operator requalification training program, to assess licensed operator performance and the training evaluator's critique. Emphasis was placed on observing an annual evaluation exercise of high risk, licensed operator actions, operator activities associated with the emergency plan, and lessons learned from industry and plant experiences. In addition, the inspectors compared simulator control panel configurations with the actual control room panels for consistency. The inspectors observed simulator training Scenario RSMS-OPS-801, "Open SRV/EHC Regulator Failure/ATWS," Revision 2.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed two system performance problems to assess the effectiveness of the licensee's maintenance efforts for structures, systems, and components (SSC) within the scope of the maintenance rule program. The inspectors verified licensee's maintenance effectiveness by: (1) verifying the licensee's handling of SSC performance or condition problems, (2) verifying the licensee's handling of degraded SSC functional performance or condition, and (3) evaluating the licensee's handling of the SSC issues being reviewed under the requirements of the maintenance rule (10 CFR 50.65), 10 CFR Part 50, Appendix B, and the Technical Specifications. The maintenance problems reviewed were documented in the following condition reports (CRs):

- CR-RBS-2004-2076, During weekly run of IAS-C4 [diesel-driven air compressor], a coolant hose broke

- CR-RBS-2004-2782, Maintenance rule problem with integrity of the drywell airlock inflatable seal air system

The following documents were reviewed as part of this inspection:

- NUMARC 93-01, Nuclear Energy Institute Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Revision 2

- Maintenance rule function list
- Maintenance rule performance criteria list

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed three maintenance activities to verify the performance of assessments of plant risk related to planned and emergent maintenance work activities. The inspectors verified: (1) the adequacy of the risk assessments and the accuracy and completeness of the information considered, (2) management of the resultant risk and implementation of work controls and risk management actions, and (3) effective control of emergent work, including prompt reassessment of resultant plant risk. The inspectors verified performance of risk assessments, in accordance with Administrative Procedure ADM-096, "Risk Management Program Implementation and On-Line Maintenance Risk Assessment," Revision 04, for planned maintenance activities and emergent work involving SSC within the scope of the maintenance rule. Specific work activities evaluated included planned and emergent work for the weeks of:

- July 5, 2004, Division I engineered system outage with unanticipated severe thunderstorm warnings
- August 16 and 23, 2004, Divisions II and III system work with switchyard breaker work and transmission line outages
- September 20, 2004, Reserve Station Transformer 1 and Main Transformer high voltage insulators experiencing arcing due to surface contamination

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions and Events (71111.14)

a. Inspection Scope

.1 Severe Thunderstorm Warnings and Lightning Strike

The inspectors reviewed personnel performance during a July 7, 2004, severe thunderstorm warning for West Feliciana Parish and a lightning strike that disabled some equipment at River Bend Station by direct observation of control room team response and by interviewing the control room team. In addition, the inspectors

reviewed operator logs and plant computer data to determine what occurred and that operators responded in accordance with plant procedures and training. The inspectors reviewed the following procedures used by the operators during the event:

- AOP-0029, "Severe Weather Operations," Revision 14B
- EIP 2-001, "Classification of Emergencies," Revision 12
- Equipment Out of Service computer program, dated July 7, 2004

.2 Loss of Main Circulating Water Pump B

The inspectors observed operations control room personnel performance in response to a trip of main circulating water Pump B on September 29, 2004. The inspectors observed the response of the operators to the pump trip, and the effect on main condenser vacuum, in accordance with AOP-0005, "Loss of Condenser Vacuum, Trip of Circulating Water Pump," Revision 16.

.3 Unanticipated Reactor Scram and Partial Loss of Offsite Power

On August 15, 2004, the reactor received an automatic scram signal and shut down. An offsite transmission line tower failed, resulting in a phase-to-ground fault on the 230 kV Port Hudson feed to the station switchyard and a momentary ground fault on the 230 kV ENJAY feed. Three switchyard breakers were slow to open, which actuated backup breaker protection causing a loss of all 230 kV feeders to the station switchyard. Offsite electrical power was maintained to a portion of the 230 kV switchyard from the 500 kV portion of the switchyard and the Division I offsite power supply. However, there was a loss of power to the Division II offsite power supply to plant loads. The Division II emergency diesel generator started and powered the Division II engineered safety features (ESF) busses, but power was lost to half of the balance of plant loads, one recirculation pump, and two of three feed pumps. The slow response of the breakers was also long enough for the initial ground fault to actuate a main transformer ground fault protection relay. This initiated a main generator, a generator load reject, and reactor scram on control valve fast closure. The inspectors responded to the plant, observed plant operations personnel placing the reactor plant in a safe shutdown condition, and reviewed the nuclear steam supply system responses to the scram. The inspectors reviewed the following procedures used by the operators:

- AOP-1, "Reactor Scram," Revision 20
- AOP-4, "Loss of Offsite Power," Revision 26
- GOP-003, "Scram Recovery," Post Trip Review, dated August 15, 2004

The inspectors reviewed unexpected system responses, including the slow opening of three switchyard breakers, the failure of a mechanical vacuum pump to start, resulting in a loss of condenser vacuum, and a scram signal on the Division I reactor protection system after the original scram signal had been reset. The inspectors also reviewed operator actions with regard to 10 CFR 50.72 and 10 CFR 50.73 reporting requirements.

Operations personnel actions were documented in CR-RBS-2004-2333 and -2334. Switchyard breaker operation during the event was documented in CR-RBS-2004-2332 (Section 4OA2).

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed four operability determinations selected on the basis of risk insights. The selected samples are addressed in the CRs listed below. The inspectors assessed: (1) the accuracy of the evaluations; (2) the use and control of compensatory measures, if needed; and (3) compliance with Technical Specifications, the Technical Requirements Manual, the USAR, and other associated design-basis documents. The inspectors' review included a verification that the operability determinations were made as specified by Procedure RBNP-078, "Operability Determinations," Revision 7. The operability evaluations reviewed were associated with:

- CR-RBS-2004-2418, Suppression pool water chemistry and clarity have degraded since the August 15 reactor scram, reviewed on August 24, 2004
- CR-RBS-2004-2473, During RCIC surveillance testing received DIV I LPCS INIT DRYWELL PRESSURE HIGH alarm, reviewed on August 27, 2004
- CR-RBS-2004-2361, RCS Level 8 half scram received while mode switch was in shutdown, reviewed on August 31, 2004
- CR-RBS-2004-2728, Secondary containment functional with auxiliary building watertight door found failed open, reviewed on September 23, 2004

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed three work orders (WOs) to ensure that testing activities were adequate to verify system operability and functional capability. The inspectors: (1) identified the safety function(s) for each system by reviewing applicable licensing basis and/or design-basis documents; (2) reviewed each maintenance activity to identify which maintenance function(s) may have been affected; (3) reviewed each test procedure to verify that the procedure did adequately test the safety function(s) that may

have been affected by the maintenance activity; (4) ensured that the acceptance criteria in the procedure were consistent with information in the applicable licensing basis and/or design-basis documents; and (5) identified that the procedure was properly reviewed and approved. The WOs inspected are listed below:

- WO 43419, Diesel Driven Fire Water Pump FPW-P1A started first following jockey pump failure, conducted on July 21, 2004
- WO 46909, Division II Diesel Generator engine lube oil header supply check Valve EGO-V7B leaks by, conducted on June 23, 2004
- WO 49614, Standby Cooling Tower Fan SWP-FN1U failed to start during surveillance testing, conducted on August 10, 2004

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors verified, by reviewing test data, that two risk-significant system and component surveillance tests met Technical Specification, inservice test (IST) program, and procedure requirements. The inspectors' review ensured that the surveillance tests demonstrated the systems were capable of performing their intended safety functions and provided operational readiness. The inspectors reviewed the performance results against the IST program requirements and reviewed the IST program trending data to ensure the systems were being monitored in accordance with program requirements. Specifically the inspectors reviewed the following surveillance tests:

- STP-209-6310, "RCIC Quarterly Pump and Valve Operability Test," Revision 24, performed on August 26, 2004
- STP-203-6305, "HPCS Quarterly Pump and Valve Operability Test," Revision 13, performed on September 8, 2004

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

During the week of September 20, 2004, the inspectors reviewed temporary plant Alteration 2004-0031-00, dated August 5, 2004, to bypass inclined fuel transfer system

bottom valve position indication to allow for system operation. Specifically, the inspectors: (1) reviewed the temporary modification and its associated 10 CFR 50.59 screening against the system's design basis documentation, including the USAR and Technical Specifications; (2) verified that the installation of the temporary modification was consistent with the modification documents; (3) verified that plant drawings and procedures were updated; and (4) reviewed the postinstallation test results to confirm that the actual impact of the temporary modification on the affected system had been adequately verified.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency preparedness requalification training program evaluated during a simulator exercise conducted on May 18, 2004, to identify any weaknesses and deficiencies in classification and notification activities. The inspectors also evaluated the licensee assessment of classification and notification requirements during the evaluated exercise in accordance with plant procedures and NRC guidelines. The following procedures and documents were reviewed during the assessment:

- EIP-2-001, "Classification of Emergencies," Revision 12
- EIP-2-006, "Notifications," Revision 31
- RSMS-OPS-800, "Loss of all Feedwater/DBA LOCA," Revision 00

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope

The inspectors sampled licensee submittals for the three PIs listed below for the period from July 1, 2003, through September 30, 2004. PI definitions and guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, were used to verify the basis in reporting of each data element.

.1 Mitigating Systems Cornerstone

- Safety System Functional Failures

The inspectors reviewed the licensee's PI technique sheets to determine whether the licensee accurately identified the required data for submittal to the NRC. The inspectors reviewed the information contained in licensee event reports (LERs) submitted during the period and sampled the maintenance rule database, operator logs, and limiting conditions for operation log to verify the accuracy of the data reported. The inspectors also interviewed licensee personnel associated with PI data collection, evaluation, and distribution.

.2 Barrier Integrity Cornerstone

- Reactor coolant system (RCS) specific activity
- RCS leakage

The inspectors reviewed the licensee's PI technique sheets to determine whether the licensee accurately identified the required data for submittal to the NRC. This information was compared to the information reported for the PI during the inspection period for accuracy. The inspectors also reviewed operator logs, daily surveillance test records, and chemistry report data to verify the accuracy of the data reported for the previous four quarters on a sampling basis. The inspectors also interviewed licensee personnel associated with the PI data collection, evaluation, and distribution. (Also, see Section 4OA5.)

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

a. Inspection Scope

Reactor Scram and Partial Loss of Offsite Power

As part of the evaluation of the events leading up to the complicated reactor scram on August 15, 2004, the inspectors reviewed CR-RBS-2004-2332 and root cause analysis report, "Fancy Point Slow Breaker Operations Resulting in River Bend Station Plant Scram." The evaluation included verification of: (1) accurate identification of the problem, (2) consideration of generic issues and common cause evaluations, (3) identification of root and contributing causes, and (4) focus of identified corrective actions on resolution of problems identified. The inspectors evaluated the CR and root cause analysis report against the requirements of the licensee's corrective action program as described in nuclear management manual Procedure LI-102, "Corrective Action Process," Revision 1 and 10 CFR Part 50, Appendix B, Criterion XVI. Additional documents reviewed included:

- CR-RBS-1989-1245 and LER 50-458/89-042, “Reactor Scram Due To a Fault On an Offsite Transmission Line”
- CR-RBS-2002-2094, “Lightning Strike Caused a Loss of South 230 KV Bus”
- CR-RBS-2004-1567, “Loss of Port Hudson Lines and North 230 KV Bus”
- CR-RBS-2004-1893, “Switchyard Breaker Failed to Trip in Required Time Resulting in Loss of North 230 KV Bus”

b. Findings

Introduction. The inspectors identified a self-revealing finding concerning the failure of the licensee to properly identify and correct inadequate maintenance performed on station switchyard beakers. On three occasions the licensee failed to properly evaluate slow switchyard breaker opening and failed to identify the potential for similar failures. These problem identification and resolution failures contributed to two offsite transmission line failures becoming a main generator trip and reactor scram with a loss of the Division II offsite power supply.

Description. On August 15, 2004, a transmission line tower failure on Port Hudson Line 353 into the River Bend Station Fancy Point Switchyard failed to properly isolate due to slow opening of switchyard Breaker 20650. This caused backup breaker protection relays to deenergize the north 230 kV bus. Two subsequent slow breaker failures caused the line fault to be sensed by the station’s main transformer ground fault protection relay, resulting in a main generator lockout, generator load reject reactor scram, and main turbine trip. The original transmission line tower failure also caused a momentary ground fault on ENJAY Line 352 into the station switchyard. The isolation of this second ground fault opened two more switchyard breakers, causing a loss of power from the south 230 kV bus to the offsite power supply for half of the balance of plant electrical loads and the Division II ESF 4.16 kV switchboard. The Division II emergency diesel generator started and powered the Division II ESF switchboard.

The inspectors determined that, had the affected switchyard breakers operated properly to isolate the two simultaneous transmission line ground faults: the first ground fault would have been isolated from the station’s main transformer, the reactor scram would not have occurred, and power would not have been lost to the Division II ESF switchboard.

The licensee’s root cause analysis identified three different occasions when slow opening of switchyard breakers resulted in deenergizing the north and south 23 kV bus at Fancy Point and one reactor scram. Two of the three previous problems were a result of slow opening of the same switchyard breakers that operated slowly on August 15. All of the switchyard breakers which operated slowly were McGraw-Edison 230 kV oil circuit breakers.

LER 50-458/89-042 and CR-RBS-1989-1245 documented a ground fault on a 230 kV transmission line feeding the station switchyard. Because switchyard Breaker 20745 opened slowly, the ground fault was sensed by the station's main transformer fault protection relays, which resulted in a main generator lockout, a generator load reject reactor scram, and a main turbine trip on December 1, 1989. The breaker was inspected and speed time tested after the event. Nothing was found to indicate why the breaker operated slowly and no corrective actions were taken. There was no indication that inspection or testing was done on the other seven similar switchyard breakers.

CR-RBS-2002-2094 documented a December 31, 2002, lightning strike on one transmission line feeding the station switchyard. Because switchyard Breaker 20660 opened slowly, backup breaker protection relays deenergized the south 230 kV bus. System engineering, electrical maintenance, and the transmission maintenance group inspected the breaker. Hardened grease was found on the breaker operating mechanism. The grease was replaced and the breaker tested as satisfactory and was returned to service. No other inspection or testing was done on the other seven similar switchyard breakers. System engineering personnel requested that the transmission maintenance group increase breaker maintenance frequency for all McGraw-Edison breakers in the station switchyard.

CR-RBS-2004-1567 documented a static line failure that resulted in a ground fault on one transmission line feeding the station switchyard on June 1, 2004. Because switchyard Breaker 20695 opened slowly, backup breaker protection relays deenergized the north 230 kV bus. System engineering and electrical maintenance worked with the transmission maintenance group to test the remaining McGraw-Edison switchyard breakers for operating times. System Engineering and the transmission maintenance group agreed to pursue the root cause of the slow breaker opening. Further inspection of the slowly opening breakers was scheduled for the refueling outage in October 2004 based on satisfactory testing of six of the McGraw-Edison switchyard breakers. CR-RBS-2004-1893 was written to include testing of the last two breakers in the work planning schedule.

The speed testing performed on the switchyard breakers required that they be isolated from their transmission lines. In order to open a switchyard breaker's disconnect switches to isolate the breaker and attach the test equipment, the actual breaker must first be opened. Opening the breaker before speed testing effectively preconditioned the breaker operating mechanism, causing the speed test to be a false indication of actual breaker condition.

The inspectors determined that the licensee had ample opportunity to identify and evaluate the potential for common cause failure of the eight McGraw-Edison breakers in the station's switchyard. Two of the breakers that failed on August 15, Breakers 20745 and 20695, had previously failed, and diagnostic speed testing of the remaining breaker that failed on August 15, was ineffective because of preconditioning. Subsequent breaker maintenance since August 15, determined that in each case hardened grease

and improper lubrication were responsible for slow breaker opening. A different method of speed testing the breakers while they are first opened (and not preconditioned) has been put in place for further switchyard breaker diagnostic testing.

Analysis. The inspectors determined that the licensee failed to: (1) identify a deficient condition due to preconditioned speed testing of the McGraw-Edison breakers and (2) properly evaluate three similar failures of the McGraw-Edison switchyard breakers. As a result, three switchyard breakers opened slowly on August 15, 2004. As a result, a transmission line ground fault that should have been isolated from the switchyard remained connected to the main transformer long enough to cause a main generator lockout and reactor scram. Additionally because of the slow breaker opening that deenergized the north 230 kV bus, a coincident transmission line fault resulted in a loss of power to half of the balance of plant loads and the Division II ESF switchboard.

This self-revealing problem identification and resolution finding was more than minor because it was associated with the initiating event cornerstone objective to limit those events that upset plant stability (resulted in a reactor scram) and challenged a critical safety function during power operations (loss of offsite power to Division II ESF switchboard and half of the balance of plant loads). There are no examples of minor violations in inspection manual Chapter 0612, Appendix E, similar to this finding. The inspectors evaluated the finding using manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Because the finding contributed to the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, the finding required a Phase 2 analysis. As a result of the Phase 2 analysis, the inspectors referred the final significance determination of the finding to the regional senior reactor analyst. Therefore, the finding is an unresolved item (URI) with its significance yet to be determined (URI 05000458/2004004-01).

Enforcement. No violation of NRC requirements was identified because the slow acting breakers did not directly supply the Technical Specification required offsite power supplies; therefore, they are not covered by 10 CFR Part 50, Appendix B.

4OA5 Other Activities

.1 Temporary Instruction (TI) 2515/154, "Spent Fuel Material Control and Accounting at Nuclear Power Plants"

The inspectors collected the data specified in Phases I and II of the TI. The data was forwarded to the individuals identified in the TI for consolidation and assessment.

.2 (Closed) URI 05000458/2003005-02, "RCS Leakage PI data collection may be less than adequate"

In September 2003, the inspectors questioned the licensee's practice of collecting data for and reporting of the RCS leakage PI. The licensee was only using average total RCS leakage data recorded twice a day as part of daily Technical Specification

surveillance logs. The inspectors questioned this practice, since the average total RCS leakage was calculated every hour by the plant leakage computer system. The inspectors suggested that all RCS leakage data computed with the same calculational methodology requirements of the Technical Specifications surveillance requirements should have been counted in the indicator, i.e., all 24 hourly readings rather than just the two recorded in the daily surveillance logs. The licensee submitted a frequently asked question to the Office of Nuclear Reactor Regulation responsible for the PI program. On September 16, 2004, Frequently Asked Question 370 was answered by the Office of Nuclear Reactor Regulation. The answer states, "Since the River Bend Station leakage calculation is an average of the previous 24 hourly leakage rates which are calculated in accordance with the Technical Specification methodology, it is acceptable for River Bend Station to include only those calculations that are preformed to meet the Technical Specification surveillance requirement when determining the highest monthly values for reporting." As a result, this URI is closed and the licensee can continue with its current practice of collecting data for and reporting of the RCS leakage PI.

4OA6 Management Meetings

Exit Meetings

On August 10, 2004, the inspectors presented the licensed operator requalification biennial inspection results to Mr. T. Trepanier, General Manager, Plant Operations, and other members of licensee management.

On October 8, 2004, the inspectors presented the integrated inspection results to you and other members of licensee management. The licensee acknowledged the findings presented.

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

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

T. Aley, Manager, Planning and Scheduling/Outage
L. Ballard, Manager, Quality Programs
S. Belcher, Manager, Operations
M. Boyle, Manager, Radiation Protection
D. Burnett, Superintendent, Chemistry
J. Clark, Assistant Operations Manager, Shift
C. Forpahl, Manager, Corrective Actions
T. Gates, Manager, System Engineering
R. Godwin, Manager, Training and Development
H. Goodman, Manager, Design Engineering
P. Hinnenkamp, Vice President - Operations
A. James, Superintendent, Plant Security
R. King, Director, Nuclear Safety Assurance
J. Leavines, Manager, Emergency Planning
D. Lorfing, Acting Manager, Licensing
J. Malara, Director, Engineering
W. Mashburn, Manager, Programs and Components
J. McGhee, Manager, Plant Maintenance
R. Northrop, Superintendent, Reactor Engineering
T. Trepanier, General Manager, Plant Operations

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000458/2004004-01	URI	Failure to identify and properly evaluate deficient conditions related to switchyard breakers (4OA2)

Closed

05000458/2003005-02	URI	RCS Leakage PI Data Collection may be less than adequate (4OA5)

LIST OF DOCUMENTS REVIEWED

The following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings:

Section 1R04: Diesel Generator Building Ventilation System Walkdown

SOP-0061, “Diesel Generator Building Ventilation,” Revision 13

PID-22-07A, “HVAC - Diesel Generators,” Revision 18

ESK-06HVP11, “Control CKT DG Room “C” Standby Vent Exhaust Fan,” Revision 9

ESK-06HVP01, “Diesel Room Standby Exhaust Fan,” Revision 16

LSK-22-7A thru H, “Diesel Generator Building Ventilation,” Revision 12

Alarm Number 0702, H13-P601/16A/C01, “DIV III D/G ROOM EMERG EXH FN3 THERMAL OVERLOAD,” Revision 15

Alarm Number 1122, H13-P863/74A/B09, “DG CONT RM “A” AIR SPLY FLT DIFF HIGH PRESS/TEMP,” Revision 16

Alarm Number 1119, H13-P863/74A/A09, “DIV 1 DG VENT SYS INOP,” Revision 16

Alarm Number 1121, H13-P863/74A/A11, “DIV 3 DG VENT SYS INOP,” Revision 16

Alarm Number 4765, EGS-PNL3A/A-9, “EMERGENCY EXHAUST FAN TROUBLE,” Revision 15

Alarm Number 4766, EGS-PNL3B/A-9, “EMERGENCY EXHAUST FAN TROUBLE,” Revision 14

Alarm Number 4767, EGFS-PNL101/B3, “EMERGENCY EXH FAN D/G ROOM C TROUBLE,” Revision 5A

Alarm Number 1123, H13-P863/74A/B10, “DG CONT RM “B” AIR SPLY FLT DIFF HIGH PRESS/TEMP,” Revision 16

Alarm Number 1124, H13-P863/74A/B11, “DG CONT RM “C” AIR SPLY FLT DIFF HIGH PRESS/TEMP,” Revision 16

Technical Requirements Manual, Table 3.7.10-1, “Area Temperature Monitoring,” Revision 5

USAR Section 9.4.5.2.2, “System Description, Diesel Generator Building Ventilation System”

USAR Section 9.4.5.5.2, “Instrumentation Requirements, Diesel Generator Building Ventilation System”

USAR Table 9.4-1, “Environmental And System Design Parameters For HVAC”
USAR Table 9.4-8, “Design Data for the Engineered Safety Features Ventilation Systems”

Section 1R11: Licensed Operator Requalification Program

Procedures

ENS-TQ-201	Systematic Approach to Training Process, Revision 3
TPP-7-011	Licensed Operator Requalification Training Program, Revision 14

ENS-TQ-202	Simulator Configuration Control, Revision 1
GOP-0002	Power Decrease/Plant Shutdown, Revision 29
EIP-2-001	Classification of Emergencies, Revision 12
R-DAD-TQ-011	Simulator Training, Revision 3
ENS-NS-112	Medical Program & Physicals, Revision 2

Operations Training Policies

98-01-01	Simulator Evaluation Process, April 30, 1998
98-02-02	Examination Security, August 23, 1999

Operations Training Review Group Meeting Minutes

03-01, January 27, 2003
03-03, May 21, 2003
03-04, June 11, 2003
03-05, July 9, 2003
03-06, August 13, 2003
03-07, September 17, 2003
03-08, November 12, 2003

License Event Reports

2002-001	2003-002	2003-005	2003-007
2003-001	2003-004	2003-006	2003-008

Scenarios

RSMS-OPS-821, Revision 0
RSMS-OPS-820, Revision 0
RSMS-OPS-819, Revision 0
RSMS-OPS-818, Revision 0
RSMS-OPS-817, Revision 0
RSMS-OPS-816, Revision 0
RSMS-OPS-815, Revision 0
RSMS-OPS-814, Revision 0
RSMS-OPS-813, Revision 0
RSMS-OPS-811, Revision 0
RSMS-OPS-810, Revision 0
RSMS-OPS-809, Revision 0
RSMS-OPS-800, Revision 0

Job Performance Measures Reviewed

RJPM-OPS-800-30, Revision 2
RJPM-OPS-800-28A, Revision 4
RJPM-OPS-800-27, Revision 4
RJPM-OPS-800-25, Revision 1
RJPM-OPS-800-23, Revision 4
RJPM-OPS-800-21, Revision 2
RJPM-OPS-800-19, Revision 4
RJPM-OPS-800-13, Revision 1
RJPM-OPS-800-11, Revision 1
RJPM-OPS-800-08, Revision 5
RJPM-OPS-800-07, Revision 8
RJPM-OPS-800-02, Revision 5
RJPM-OPS-800-11A, Revision 2
RJPM-OPS-700-11, Revision 2
RJPM-OPS-700-01, Revision 1
RJPM-OPS-309-04, Revision 2
RJPM-OPS-309-02, Revision 3
RJPM-OPS-204-01A, Revision 0
RJPM-OPS-200-04, Revision 7
RJPM-OPS-200-03, Revision 6
RJPM-OPS-110-03A, Revision 1
RJPM-OPS-053-06, Revision 2
RJPM-OPS-052-05, Revision 4

Simulator Discrepancy Reports (6/18/03 - 6/03/04)

56 Open Discrepancy Reports
169 Closed Discrepancy Reports

Testing Checklists (7/22/02 - 5/14/04)

139 scenario-based testing checklists

LIST OF ACRONYMS

CFR	*Code of Federal Regulations*
CR	condition report
CR-RBS	River Bend Station Condition Report
ESF	engineered safety feature(s)
IST	inservice test program
LER	licensee event report
NRC	U.S. Nuclear Regulatory Commission
PI	Performance Indicators
RCS	reactor coolant system
SSC	structures, systems, or components
STP	surveillance test procedure
TI	temporary instruction
URI	unresolved item
USAR	Updated Safety Analysis Report
WO	work order