



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
REGION IV  
1600 EAST LAMAR BLVD  
ARLINGTON, TEXAS 76011-4511

August 9, 2013

Mr. Eric W. Olson  
Site Vice President  
Entergy Operations, Inc.  
River Bend Station  
5485 U.S. Highway 61  
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION – NRC INTEGRATED INSPECTION REPORT  
05000458/2013003

Dear Mr. Olson:

On June 29, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your River Bend Station. The enclosed inspection report documents the inspection results which were discussed on July 10, 2013, with you and other members of your staff.

The inspections 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.

One NRC-identified finding and one self-revealing finding of very low safety significance (Green) were identified during this inspection.

One of these findings was determined to involve a violation of NRC requirements. Further, one licensee-identified violation which was determined to be of very low safety significance is listed in this report. The NRC is treating these violations as non-cited violations consistent with Section 2.3.2a of the Enforcement Policy.

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

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV; and the NRC Resident Inspector at River Bend Station.

E. Olson

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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 Agencywide Document Access and Management 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/

Jessie F. Quichocho, Acting Chief  
Projects Branch C  
Division of Reactor Projects

Docket Nos.: 50-458  
License Nos: NPF-47

Enclosure: Inspection Report 05000458/2013003  
w/ Attachment: Supplemental Information

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000458

License: NPF-47

Report: 05000458/2013003

Licensee: Entergy Operations, Inc.

Facility: River Bend Station

Location: 5485 U.S. Highway 61  
St. Francisville, LA 70775

Dates: March 31 through June 29, 2013

Inspectors: G. Larkin, Senior Resident Inspector  
A. Barrett, Resident Inspector  
P. Elkmann, Senior Emergency Preparedness Inspector  
J. Laughlin, Emergency Preparedness Inspector, NSIR

Approved By: J. Quichocho, Acting Branch Chief  
Project Branch C  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000458/2013003; 03/31/2013 – 06/29/2013; RIVER BEND STATION; Integrated Resident and Regional Report; Problem Identification and Resolution

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspection by a region-based inspector. One Green non-cited violation and one Green finding of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas." 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 4, dated December 2006.

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

Cornerstone: Initiating Events

- Green. The inspectors reviewed a self-revealing finding for the failure to establish an adequate preventive maintenance strategy for the reactor feedwater regulating valves that resulted in several unplanned power changes due to packing steam leaks. In response, the station polished the pitted and scored valve stems and created a four-year periodic preventive maintenance task to replace the valve stems. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2013-00076.

The performance deficiency is more than minor because it is associated with the equipment performance attribute of the initiating events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to implement an appropriate preventive maintenance strategy resulted in multiple unplanned reactor power changes. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At Power," Exhibit 1, Section B, this finding screened as very low safety significance (Green) because it was a transient initiator that did not result in both a reactor trip and loss of mitigating equipment. The most significant causal factor of the performance deficiency was over confidence with a lack of a questioning attitude concerning a flawed assumption that the engineering change had significantly increased the valves operating performance margin and solved the past operating issues with feedwater regulating valve packing leakage. No cross-cutting aspect was assigned because the station completed its decision making for the engineering change in June 2007, and these decisions are not indicative of current licensee performance (Section 40A2.4(1)).

## Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for the failure to identify and take prompt and adequate corrective actions to address a condition adverse to quality specifically related to the 125 Vdc fused disconnect switches located in the diesel generator building electrical distribution panels. The licensee addressed the underlying safety concern by cycling the disconnect switch to clean the corroded contact surfaces and performing voltage and current checks to verify circuitry operability. The licensee entered the finding into the corrective action program as Condition Report CR-RBS-2013-04247.

The inspectors determined that this finding is more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, during a seismic event the partially seated, corroded knife blades could cause a loss of safety related 125 Vdc power to the Division 1 and 2 emergency diesel generators, reactor water recirculation pumps A and B, or Division 1 and 2 remote shutdown panels. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2, this finding screened as very low safety significance (Green) because the degraded condition was not a design or qualification deficiency; did not represent an actual loss of function of a system; did not represent an actual loss of function of a single train or two separate trains for greater than its technical specification allowed outage time; did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. Because the most significant causal factor of the performance deficiency was the licensee's failure to use consistent key words in the corrective action program to characterize the disconnect switch failures, this finding has a cross-cutting aspect in the problem identification and resolution area associated with the corrective action program component because the licensee did not periodically trend and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems. [P.1(b)] (Section 4OA2.4(2).

**B. Licensee-Identified Violations**

A violation of very low safety significance that was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and associated corrective action tracking numbers are listed in Section 4OA7 of this report.

## PLANT STATUS

River Bend Station began the inspection period at 100 percent reactor power. It departed from full power as follows:

- On April 1, the licensee reduced reactor power to 95 percent to repair a severed air supply line to the air operator on the first point feedwater heater B high level dump valve HDH-LV26B. The station returned to 100 percent power on the same day.
- On April 19, the licensee reduced reactor power to 83 percent to repair a through wall valve leak on first point feedwater heater B high level dump valve HDH-LV26B. The licensee returned the plant to 100 percent power on the same day.
- On April 25, the licensee reduced reactor power to 95 percent to take both moisture separator reheaters and first point heaters out of service due to maintenance issues associated with the air operated actuators for the moisture separator reheat tank level control valves. The licensee returned the plant to 100 percent power on April 26.
- On May 16, the licensee reduced power to 55 percent to perform a rod sequence exchange. During the downpower, the station repaired steam leaks on a reheat tank drain line and repaired a moisture separator reheat tank steam supply valve packing leak. The licensee returned the plant to full power on May 17.
- On May 18, the licensee reduced power to 90 percent to perform a control rod sequence exchange and returned to 100 percent power on May 19.
- On June 16, the licensee took the plant offline to begin a planned outage to replace reactor recirculation pump A seal, repair various balance of plant steam leaks, and perform scheduled on-line workweek tasks. The plant started up in power on June 20. On June 25, after arranging two intermediate control rod patterns, the licensee established their final 100 percent control rod pattern.

The plant remained at 100 percent reactor power for the remainder of the inspection period.

## REPORT DETAILS

### 1. REACTOR SAFETY

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

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

##### Summer Readiness for Offsite and Alternate-AC Power Systems

##### a. Inspection Scope

The inspectors performed a review of preparations for summer weather for selected systems, including conditions that could lead to loss-of-offsite power and conditions that could result from high temperatures. The inspectors reviewed the procedures affecting these areas and the communications protocols between the transmission system operator and the plant to verify that the appropriate information was being exchanged when issues arose that could affect the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the transmission system operator and the plant's operations personnel during off-normal or emergency events
- The explanations for the events
- The estimates of when the offsite power system would be returned to a normal state
- The notifications from the transmission system operator to the plant when the offsite power system was returned to normal

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Safety Analysis Report and performance requirements for systems selected for inspection and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- 230kV electrical distribution
- 125 Vdc electrical distribution
- Main and station transformers

These activities constitute completion of one sample to evaluate the readiness of offsite and alternate-ac power for summer weather as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings were identified.

**1R05 Fire Protection (71111.05)**

Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- April 15: B tunnel east
- April 18: diesel generator building, 98-foot elevation
- April 25: reactor building, 141-foot elevation and E and F tunnels
- April 28: control building, 98-foot and 116-foot elevations

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four quarterly fire protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings were identified.

**1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)**

**.1 Quarterly Review of Licensed Operator Requalification Program**

**a. Inspection Scope**

On May 21, the inspectors observed a crew of licensed operators in the plant's simulator during requalification testing. The inspectors assessed the following areas:

- Licensed operator performance
- The ability of the licensee to administer the evaluations
- The modeling and performance of the control room simulator
- The quality of post-scenario critiques
- Follow-up actions taken by the licensee for identified discrepancies

These activities constitute completion of one quarterly licensed operator requalification program sample as defined in Inspection Procedure 71111.11.

**b. Findings**

No findings were identified.

**.2 Quarterly Observation of Licensed Operator Performance**

**a. Inspection Scope**

The inspectors observed the operators' performance during the following activities:

- April 1, feedwater heater level perturbation
- June 20, plant startup from planned outage 13-01

In addition, the inspectors assessed the operators' adherence to plant procedures, including EN-OP-115, "Conduct of Operations," Revision 14 and other operations department policies.

These activities constitute completion of two inspection samples as defined in Inspection Procedure 71111.11.

**b. Findings**

No findings were identified.

## 1R12 Maintenance Effectiveness (71111.12)

### a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant structures, systems, and components:

- Optical isolators
- Hydrogen mixing purge and recombiner
- Auxiliary building category 1 structure
- 125 Vdc

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Scheduled maintenance in Fancy Point switchyard during reactor core isolation cooling testing, April 16
- Scheduled maintenance on service water cooling system vulnerable to a single point failure leading to a plant shutdown, May 29

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings were identified.

**1R15 Operability Evaluations and Functionality Assessments (71111.15)**

a. Inspection Scope

The inspectors reviewed the following assessments:

- CR-RBS-2013-02968, Division 1 emergency diesel generator fuel oil strainer discharge pressure high, reviewed on April 11
- CR-RBS-2013-03327, Division 1 standby gas treatment system air operated damper, HVR-AOD-18B, leaking air and oil, reviewed on April 29
- CR-RBS-2013-03304, standby service water pump house fan, HVY-FN2D, breaker tripped, reviewed on May 3
- CR-RBS-2013-01826, diesel generator building, electrical distribution panel, ENB PNL03A , breaker dirty contacts – loss of dc power, reviewed on May 7
- CR-RBS-2013-04291, abnormal operation of residual heat removal pump, RHR 2A, in shutdown cooling, reviewed on June 20

The inspectors selected these operability and functionality assessments based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure technical specification operability was properly justified and to verify the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Updated Safety Analysis Report to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five operability evaluations and functionality assessments inspection samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings were identified.

**1R18 Plant Modifications (71111.18)**

Temporary Modifications

a. Inspection Scope

To verify that the safety functions of important safety systems were not degraded, the inspectors reviewed the temporary modification identified as EC-45212, "Gag Closed E12-RVF005 to Stop Leakage From E12-RVF005 Into the River Bend Station Suppression Pool," Revision 0.

The inspectors reviewed the temporary modification and the associated safety-evaluation screening against the system design bases documentation, including the

Updated Safety Analysis Report and the technical specifications, and verified that the modification did not adversely affect the system operability/availability. The inspectors also verified that the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the temporary modification was identified on control room drawings, appropriate tags were placed on the affected equipment, and licensee personnel evaluated the combined effects on mitigating systems and the integrity of radiological barriers.

These activities constitute completion of one sample for temporary plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings were identified.

**1R19 Post-Maintenance Testing (71111.19)**

a. Inspection Scope

The inspectors reviewed the following post-maintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- WO-00343543, "H13-P877-32A-G02 – Alarm Initiated During STP-309-0602," reviewed on May 2
- WO-52482391, "EHS-MCC2E 5C/E12-MOV064A Unitized Starter Current Injection," reviewed on June 13
- WO-00354446, "Inspect Material Position of Square D Disconnect Switches," reviewed on June 20
- WO-00332772, "Perform HVK-CHL1C Chiller Diagnostic Test," reviewed on June 24
- WO-00354400, "E12-RVF005 Tail Pipe Temperature is Elevated at 120 Degrees," reviewed on June 29

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following (as applicable):

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed

- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Updated Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of five post-maintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings were identified.

**1R20 Refueling and Other Outage Activities (71111.20)**

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for planned outage 13-01, conducted June 16 to June 21, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. The inspectors also confirmed that the licensee scheduled covered workers such that the minimum days off for individuals working on outage activities were in compliance with 10 CFR 26.205(d)(4) and (5). During the planned outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.

- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities.
- Monitoring of decay heat removal processes, systems, and components.
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.
- Controls over activities that could affect reactivity.
- Maintenance of primary containment as required by the technical specifications.
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing.
- Management of fatigue.
- Licensee identification and resolution of problems related to planned outage activities.

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings were identified.

**1R22 Surveillance Testing (71111.22)**

a. Inspection Scope

The inspectors reviewed the Updated Safety Analysis Report, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Evaluation of testing impact on the plant
- Acceptance criteria

- Test equipment
- Procedures
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- STP-309-6301, Revision 17, "Division 1 EDG Fuel Oil Transfer Pump and Valve Operability Test," performed on May 23 (inservice test)

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one surveillance testing inspection sample as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**

**1EP2 Alert Notification System Testing (71114.02)**

a. Inspection Scope

The inspector discussed with licensee staff the operability of offsite siren emergency warning systems and backup alerting methods to determine the adequacy of licensee methods for testing the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The licensee's alert and notification system testing program was compared with criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (FEMA-REP-1)," Revision 1; FEMA Report REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants"; and the licensee's current

FEMA-approved alert and notification system design report, "River Bend Station Prompt Notification System Design Report," Revision 1, dated December 2001. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one alert notification system testing sample as defined in Inspection Procedure 71114.02-05.

b. Findings

No findings were identified.

**1EP3 Emergency Response Organization Staffing and Augmentation Testing (71114.03)**

a. Inspection Scope

The inspector discussed with licensee staff the operability of primary and backup systems for augmenting the on-shift emergency response staff to determine the adequacy of licensee methods for staffing emergency response facilities in accordance with their emergency plan. The inspectors reviewed the documents and references listed in the attachment to this report to evaluate the licensee's ability to staff the emergency response facilities in accordance with the licensee's emergency plan and the requirements of 10 CFR Part 50, Appendix E. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one emergency response organization staffing and augmentation testing sample as defined in Inspection Procedure 71114.03-05.

b. Findings

No findings were identified.

**1EP4 Emergency Action Level and Emergency Plan Changes (IP 71114.04)**

a. Inspection Scope

The NSIR headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) and the Emergency Plan located under ADAMS accession number ML130230023 as listed in the Attachment.

The licensee determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Emergency Plan, and that the revised Emergency Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.04-02.

b. Findings

No findings were identified.

**1EP5 Maintenance of Emergency Preparedness (71114.05)**

a. Inspection Scope

The inspector reviewed:

- The licensee's corrective action program requirements as documented in Procedures EN-LI-102, "Corrective Action Process," Revision 20, and EN-LI-102-2, "CR Closure Quality," Revision 6;
- The licensee's program requirements for determining the impact of changes to the emergency preparedness program as documented in Procedure EN-EP-305, "Emergency Planning 10CFR50.54(Q) Review Program," Revision 3;
- The licensee's program requirements for maintaining equipment necessary for implementation of the emergency response program as documented in procedures EN-EP-202, "Equipment Important to Emergency Preparedness," Revision 1, and EPP-2-503, "River Bend Station Equipment Important to Emergency Preparedness," Revision 0;
- Seven Quality Assurance Audits and Surveillances of the emergency preparedness program;
- Three licensee and peer assessments of the emergency preparedness program; and,
- Seventeen drill and exercise evaluation reports.

The inspector reviewed summaries of 146 condition reports (corrective action program documents) assigned to the emergency preparedness department and emergency response organization between April 2011 and March 2013. The inspector selected 13 condition reports for detailed review to determine the licensee's ability to identify, evaluate, and correct problems in accordance with licensee program requirements, planning standard 10 CFR 50.47(b)(14), and 10 CFR Part 50, Appendix E.

The inspector reviewed summaries of 19 regulatory analyses of the impact of changes to the licensee's emergency response program [50.54(q) reviews] initiated between April 2011 and March 2013. The inspector selected ten analyses for detailed review against program requirements and the requirements of 10 CFR 50.54(q), (1)-(4), to determine

the licensee's ability to identify activities with a potential to reduce the effectiveness of the emergency plan.

The inspector reviewed nine work orders for detailed review against program requirements, the requirements of 10 CFR 50.47(b), and the requirements of Appendix E to Part 50, Part IV.E.

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one maintenance of emergency preparedness sample as defined in Inspection Procedure 71114.05-05.

b. Findings

No findings were identified.

**1EP6 Drill Evaluation (71114.06)**

Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on May 21, 2013, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the attachment.

These activities constitute completion of one training observation sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings were identified.

#### 4. OTHER ACTIVITIES

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection**

##### 4OA1 Performance Indicator Verification (71151)

###### .1 Data Submission Issue

###### a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the first quarter 2013 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

###### b. Findings

No findings were identified.

###### .2 Drill/Exercise Performance (EP01)

###### a. Inspection Scope

The inspector sampled licensee submittals for the drill/exercise performance performance indicator for the period April 2012 through March 2013. The definitions and guidance in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used to determine the accuracy of the reported performance indicator data. The inspector reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspector reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator, assessments of performance indicator opportunities during predesignated control room simulator training sessions, performance during the 2012 biennial exercise, and performance during other drills. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the drill/exercise performance sample as defined in Inspection Procedure 71151-05.

###### b. Findings

No findings were identified.

.3 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspector sampled licensee submittals for the emergency response organization drill participation performance indicator for the period April 2012 through March 2013. The definitions and guidance in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used to determine the accuracy of the reported performance indicator data. The inspector reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspector reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator, rosters of personnel assigned to key emergency response organization positions, and exercise participation records. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the emergency response organization drill participation sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.4 Alert and Notification System (EP03)

a. Inspection Scope

The inspector sampled licensee submittals for the alert and notification system performance indicator for the period April 2012 through March 2013. The definitions and guidance in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used to determine the accuracy of the reported performance indicator data. The inspector reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspector reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator and results of periodic alert notification system operability tests. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the alert and notification system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

## **40A2 Problem Identification and Resolution (71152)**

### **.1 Routine Review of Problem Identification and Resolution**

#### **a. Inspection Scope**

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

#### **b. Findings**

No findings were identified.

### **.2 Daily Corrective Action Program Reviews**

#### **a. Inspection Scope**

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

#### **b. Findings**

No findings were identified.

### .3 Semi-Annual Trend Review

#### a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify adverse trends. The inspectors focused their review on maintenance effectiveness, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 7-month period of December 2012 through June 2013 although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the station's trending reports were reviewed for adequacy.

These activities constitute completion of one single semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

#### b. Findings and Observations

River Bend Station Integrated Inspection Reports 05000458/2012003 and 05000458/2012005 documented the inspectors' observations of equipment reliability regarding multiple safety-related and high-risk equipment failures.

During this inspection period, the station experienced the following twenty-two failures that caused either plant power transients and/or unplanned limiting conditions of operation entries:

- Division1 emergency diesel generator air start relay failure, CR-RBS-2012-07422
- Division 1 emergency diesel generator, voltage regulator, motor operated potentiometer failure, CR-RBS-2012-07430
- Reactor recirculation pump optical isolator failure, CR-RBS-2012-07746
- Service water pump D packing failure, CR-RBS-2013-00436
- Containment purge radiation monitor failure, CR-RBS-2013-00469
- Control building chiller temperature control valve failure, CR-RBS-2013-00507

- Reactor core isolation cooling minimum flow to suppression pool cycling due to trip unit failure, CR-RBS-2013-00710
- Reactor recirculation pump B tripped due to cable termination failure, CR-RBS-2013-00946
- Control room air conditioning heater failure, CR-RBS-2013-01056
- RHR A suppression pool suction valve torque limit switch failure, CR-RBS-2013-01151
- Incline fuel transfer system pressure switch failed while transferring irradiated fuel, CR-RBS-2013-01631
- Division 1 emergency diesel generator jacket water heater relay failure, CR-RBS-2013-01745
- Division 1 emergency diesel generator 125 Vdc disconnect switch failure, CR-RBS-2013-01826
- Auxiliary building unit cooler breaker relay failure, CR-RBS-2013-01825
- Service water building cooling fan relay failure during remote shutdown testing, CR-RBS-2013-01827
- Reactor core isolation cooling steam exhaust line check valve failure, CR-RBS-2013-01968
- Containment unit cooler relay failure, CR-RBS-2013-02068
- Reactor core isolation cooling test return valve breaker closing coil failure, CR-RBS-2013-02420
- Reactor core isolation cooling steam drain pipe failure, CR-RBS-2013-02494
- Main steam positive leakage control Agastat timing relay failure, CR-RBS-2013-03212
- Control room chiller B service water pump failure, CR-RBS-2013-03470
- Packing steam leaks on feedwater regulating valves, CR-RBS-2013-00076

Two of these failures are associated with more-than-minor performance deficiencies that are documented in sections 4OA2.1 and 4OA2.2 of this inspection report. Others represent issues addressed by NRC inspectors who completed the biennial Problem

Identification and Resolution inspection documented in inspection report 05000458/2013008.

The site performance indicator for maintenance is currently “white” (one level above desired) due to several rework items and a large number of preventive maintenance tasks that have not been completed in a timely manner. Many of those tasks represent corrective actions associated with molded-case circuit breakers that the licensee initiated in response to NCV 05000458/2012010-03.

The station is currently undergoing a preventive maintenance optimization review that will provide recommendations to system engineering to prioritize and modify the existing high and low critical preventive maintenance tasks based on EPRI preventive maintenance templates and industry operating experience. Based on these reviews and corrective actions from internal operating experience, the station has a high number of first-time high critical component preventative maintenance tasks that are not yet completed.

In January, the station implemented a revised fleet procedure, EN-DC-336, “Plant Health Committee,” Revision 6, which reorganized the committee to include members at higher management levels. For example, the committee was previously chaired by the Operations Manager but is now chaired by the General Manager, Plant Operations. The plant health committee will provide oversight to groups which focus on plant reliability, including the preventive maintenance oversight group, reactivity management oversight group, station rework review board, and the engineering change review board.

From these observations, the inspectors concluded that:

- the licensee continues the previously identified trend in relatively high numbers of failures of high-critical components; and
- the licensee continues ongoing implementation of corrective actions in response to NCV 05000458/2012010-03.

#### .4 Selected Issue Follow-up Inspections

##### a. Inspection Scope

During a review of items entered in the licensee’s corrective action program, the inspectors identified corrective action items documenting:

##### (1) Failure to Perform Continuous Fire Watch Duties

Condition Report CR-RBS-2013-00407 documented that operations had established a continuous fire watch in B Tunnel because the B Tunnel sprinkler system was out of service. On January 23, 2013, personnel could not locate the continuous fire watch posted to the B Tunnel east though the continuous fire watch was still required per Technical Requirements Manual Section 3.7.9.2, “Spray and/or Sprinkler Systems.”

Subsequently, the individuals were located in the protected area but not at their post. Operations established a continuous fire watch in the B Tunnel while security escorted the individuals from the protected area.

On January 23, 2013, immediately after reading of the failed fire watch, the inspectors reviewed the event contained in the human performance error review report and interviewed maintenance supervision and contractor support personnel who also performed fire watches, to understand the failure to maintain a continuous fire watch. See Section 4OA7 for the enforcement aspects.

(2) 125 Vdc Fused Disconnect Switches

The inspectors reviewed several condition reports that documented operating issues with the 125 Vdc system disconnect switches. After interviewing engineers and electrical maintenance, the inspectors were concerned that the lack of periodic predictive and preventive maintenance tasks could result in degraded switches. However, the station did not identify that a potential condition adverse to quality existed and there were no immediate corrective actions to establish full operability of the disconnect switches.

(3) Steam Leak from Packing on Reactor Feedwater Regulating Valve

During a review of items entered in the licensee's corrective action program, the inspectors recognized a condition report documenting that on January 5, 2013, an approximately 10-foot long steam plume emanated from the packing of reactor feedwater regulating valve C33-LVF001B (FRV B). According to radiation protection and maintenance, packing adjustments to reduce or eliminate the steam leak were not possible due to the size of the leak. Operations reduced plant power to take the reactor feedwater pump B and reactor feedwater regulating valve B out of service for replacement of the valve packing.

These activities constitute completion of three in-depth problem identification and resolution samples as defined in Inspection Procedure 71152-05.

b. Findings

- (1) Introduction. The inspectors reviewed a self-revealing Green finding for the failure to establish an adequate preventive maintenance strategy for the reactor feedwater regulating valves that resulted in several unplanned power changes due to packing steam leaks. In response, the station polished the pitted and scored valve stems and created a four-year periodic preventive maintenance task to replace the valve stems.

Description. The reactor feedwater regulating valves at River Bend Station are defined as "a high-critical component." These valves have a long maintenance history associated with valve packing leaks coincident with recurring valve stem damage. Over any operating cycle, the stems continuously modulate to maintain proper reactor vessel water level, and this modulation causes the surface finish of the valve stems to degrade and damage the valve's packing material.

In February 2008 (refuel outage 14), the station implemented EC-54, "Upgrade Reactor Feedwater Regulating Valves and Startup Feedwater Previously Approved by URT Under ER-RB-2006-00011-000," Revision 0. This engineering change recommended replacing the valve actuators, valve internal wear parts, and valve stems with a more damage-resistant material with hard chrome plating. At the time, the station did not establish any preventive maintenance tasks for the periodic inspection or refurbishment of the valve actuator or valve internal wear parts. Procedure EN-DC-335, "PM Basis Template," Revision 1, requires preventive maintenance evaluations for all high critical components. Paragraph 5.2 describes the development of the preventive maintenance basis template. This process, in part, researches the component's failure history to identify the component's failure mechanisms to develop an adequate preventive maintenance strategy to prevent component failure. Given the station's long maintenance history associated with valve packing leaks coincident with recurring valve stem damage, the station could reasonably have expected component wear would affect packing integrity. The failure to establish periodic maintenance to inspect and replace the valve internal parts is contrary to the purpose of EN-DC-335 to establish an adequate preventive maintenance strategy.

In February 2011 (refuel outage 16), maintenance replaced the packing in each of the three feedwater regulating valves. During the subsequent operating cycle, operators reduced reactor power to approximately 75 percent (on September 24, 2011, December 16, 2011, January 21, 2012, and January 6, 2013) for emergent maintenance to replace valve packing. During refuel outage 17, the station performed visual inspections of the valve's stuffing boxes. The primary result of these inspections was the discovery of wear on two of the three valve stems. One valve stem had longitudinal scoring that traverses the packing region, and the other valve stem's surface was characterized as pitted. One valve stem reportedly showed no damage. Based on the damage observed during refuel outage 17, the station considered stem wear damage as the probable cause for packing extrusion. The valve stems were left in service after the licensee polished the stems to eliminate stem scoring to the extent possible. The station also created a four-year periodic preventive maintenance task to replace the valve stem. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2013-00076.

Analysis. The inspectors determined that the failure to properly establish an appropriate preventive maintenance strategy for the reactor feedwater regulating valves is a performance deficiency. Contrary to Paragraph 5.2 of EN-DC-335, the station did not establish a preventive maintenance strategy for periodic maintenance to inspect or replace the valves' stem or other internal wear parts to prevent failure. The performance deficiency is more than minor because it is associated with the equipment performance attribute of the initiating events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure to implement an appropriate preventive maintenance strategy resulted in multiple unplanned reactor power changes. The inspectors used NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At Power," Exhibit 1, Section B, to screen this finding. This finding screened as

very low safety significance (Green) because it was a transient initiator that did not result in both a reactor trip and loss of mitigating equipment. The most significant causal factor of the performance deficiency was over confidence with a lack of a questioning attitude concerning a flawed assumption that the engineering change had significantly increased the valves operating performance margin and solved the past operating issues with feedwater regulating valve packing leakage. No cross-cutting aspect was assigned because the station completed its decision making for the engineering change in June 2007, and these decisions are not indicative of current licensee performance.

Enforcement. This finding does not involve enforcement action because no violation of a regulatory requirement was identified. Because this finding does not involve a violation and is of very low safety or security significance, it is identified as a finding (FIN 05000458/2013003-01, "Failure to Establish Effective Preventive Maintenance for Components Used in High Critical Applications").

- (2) Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for the failure to identify and take prompt and adequate corrective actions to address a condition adverse to quality specifically related to the 125 Vdc fused disconnect switches located in the diesel generator building electrical distribution panels.

Description. During a review of unexpected alarms in the main control room during the past two refuel outages, the inspectors identified a degrading trend with the 125 Vdc fused disconnect switches. The licensee documented the inspectors' concerns in Condition Report CR-RBS-2013-04247. Out of the eight condition reports reviewed, six condition reports documented that a disconnect switch indicated mechanically closed but no electrical power was available at the output of the switch. Seven of the eight condition reports document a degraded condition issue with the operating mechanism, contacts, or knife blades. In each instance, the problem was corrected and output power restored after the maintenance technicians cycled the disconnect switch to clean the corroded contact surfaces to better ensure full contact between the knife blades and its contactor. The licensee resolved each individual issue, but did not review the failures for extents of condition or cause. The inspectors reviewed the trend codes and key words used in the corrective action program to identify the disconnect switch failures, and noted that the key words varied from annunciator, diesel generator, switch, panel, relay, circuit, preventive maintenance, and disconnect switch. The inspectors concluded that the station could not reasonably have used the key words to identify the adverse trend with disconnect switch failures. In large part, the condition reports documented problems with disconnect switches located in the diesel generator building electrical distribution panels, ENB-PNL03A and ENB-PNL03B.

In June 2013, the licensee inspected all 19 in-service disconnect switches in ENB-PNL03A and ENB-PNL03B electrical panels. The licensee stated that all the fused disconnect switches were degraded due to visible hardened grease and light to heavy surface corrosion. These conditions existed because the station's preventive maintenance program failed to periodically clean or lubricate the operating mechanism, knife blades, and contactor surfaces. Station maintenance corrected the conditions by cleaning the switch blade/contacts. Station personnel also performed voltage and

current drop tests across the disconnect switches to verify that the switches performed properly following maintenance.

In addition to the 19 switches found in a corroded condition, maintenance also found four of the disconnect switches not fully engaged. Station personnel successfully seated three of the switches; however, one switch failed to fully seat resulting in a loss of control power to the emergency diesel generator B generator protection circuit. The disconnect switch was later cycled five times and verified to be in the full connect position, thus correcting the loss of continuity. The licensee stated that once personnel cleaned the switch blade and verified the switch blade fully engaged with the switch contact, corrosion cannot cause a loss of power because the switch blade would not move into an area with existing corrosion and cause a loss of continuity. To ensure future operability, the licensee has instituted a compensatory measure that after closing the disconnect switches, personnel will perform a visual inspection to verify the entire knife blade is fully engaged with its contact surface and perform continuity (voltage) checks. During the next refueling outage in the spring of 2015, the station has scheduled preventive maintenance tasks to clean and inspect each disconnect switch.

The inspectors determined that the reported diesel generator building disconnect switch deficiencies and malfunctions represented a condition adverse to quality that was reasonably within the licensee's ability to foresee and correct. Of specific interest, during a seismic event the partially seated, corroded knife blades could cause a loss of safety related 125 Vdc power to the Division 1 and 2 emergency diesel generators, reactor water recirculation pumps A and B, or Division 1 and 2 remote shutdown panels.

Analysis. The failure to identify and take prompt and adequate corrective actions to address a condition adverse to quality related to the 125 Vdc fused disconnect switches is a performance deficiency. The inspectors determined that this finding is more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, during a seismic event the partially seated, corroded knife blades could cause a loss of safety related 125 Vdc power to the Division 1 and 2 emergency diesel generators, reactor water recirculation pumps A and B, or Division 1 and 2 remote shutdown panels. In accordance with NRC Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2, this finding screened as very low safety significance (Green) because the degraded condition was not a design or qualification deficiency; did not represent an actual loss of function of a system; did not represent an actual loss of function of a single train or two separate trains for greater than its technical specification allowed outage time; did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant; and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. Because the most significant causal factor of the performance deficiency was the licensee's failure to use consistent key words in the corrective action program to characterize the disconnect switch failures, this finding has a cross-cutting aspect in the problem identification and resolution area associated with the corrective

action program component because the licensee did not periodically trend and assesses information from the CAP and other assessments in the aggregate to identify programmatic and common cause problems. [P.1(b)]

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, requires, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to the above, measures established by the licensee prior to June 2013, did not identify that the degraded material condition of the 125 Vdc fused disconnect switches was a condition adverse to quality, and did not correct that condition. This violation is being treated as a non-cited violation (NCV), consistent with Section 2.3.2.a of the Enforcement Policy. The violation was entered into the licensee's corrective action program as Condition Report CR-RBS-2013-04247 (NCV 05000458/2013003-02, "Failure to Adequately Evaluate and Correct Degraded 125 Vdc Fused Disconnect Switches").

#### **40A6 Meetings, Including Exit**

##### Exit Meeting Summary

On April 19, 2013, the inspector presented results of the onsite emergency preparedness inspection results to Mr. Eric Olson, Site Vice President, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On July 10, 2013, the inspectors presented the integrated inspection results to Mr. Eric Olson, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

#### **40A7 Licensee-Identified Violations**

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a non-cited violation.

Technical Specification 5.4.1(a) requires that written procedures be implemented as recommended by Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Specifically, Regulatory Guide 1.33, Section 1.1, "Plant Fire Protection Program," requires administrative procedures for plant fire protection. Procedure SEP-FPP-RBS-005, "Duties of a Fire Watch," is an administrative procedure for plant fire protection. SEP-FPP-005, paragraph 5.2, requires a continuous firewater in the B Tunnel when the area water sprinkler is out of service. Contrary to this, on January 23, 2013, the continuous fire watch left his post without notifying his supervisor or waiting until a suitable relief fire watch had arrived. If a fire had occurred near that post, then that fire would not have been promptly identified, and therefore would have propagated further without mitigation. The performance deficiency is more-than-minor because it is associated with the protection against external factors attribute of the initiating events

cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors used NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," to evaluate the significance of this performance deficiency. A senior reactor analyst reviewed and concurred with the following evaluation. The exposure period was approximately 32 hours. This represented the summation of multiple short periods where the fire watch was not in the required position. The fire area included both Division 1 and Division 2 cables in a portion of the tunnel. Fire detection was available. Considering the short duration and the availability of fire detectors, the senior resident inspector determined that the performance deficiency represented a low level of degradation. As defined in Appendix F, a low level of degradation reflects a fire protection program element whose performance and reliability will be minimally impacted by the inspection finding. Therefore, the finding was of very low safety significance (Green). The issue has been entered into the licensee's corrective action program as Condition Report CR-RBS-2013-00407.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

A. Fredieu, Manager, Outage  
C. Coleman, Manager, Engineering Programs & Components  
D. Burnett, Manager, Emergency Preparedness  
E. Neal, Acting Manager, Radiation Protection  
E. Olson, Site Vice President  
F. Corley, Manager, Design Engineering  
G. Bush, Manager, Material, Procurement, and Contracts  
G. Krause, Assistant Operations Manager – Training  
J. Boulanger, Manager, Maintenance  
J. Clark, Manager, Licensing  
J. Maher, Manager, System Engineering  
J. Roberts, Director, Nuclear Safety Assurance  
J. Vukovics, Supervisor, Reactor Engineering  
J. Wieging, Manager, Planning and Scheduling, Outages  
K. Hallaran, Manager, Chemistry  
K. Huffstatler, Senior Licensing Specialist  
L. Woods, Manager, Quality Assurance  
M. Chase, Manager, Training  
M. Feltner, Manager, Production  
P. Lucky, Manager, Corrective Actions and Assessments  
R. Creel, Superintendent, Plant Security  
R. Gadbois, General Manager, Plant Operations  
T. Evans, Manager, Operations  
T. Gates, Assistant Operations Manager – Shift  
T. Santy, Manager, Security  
T. Shenk, Assistant Operations Manager – Support  
W. Mashburn, Director, Engineering  
W. Renz, Director, Emergency Planning

#### **NRC Personnel**

R. Kumana, Project Engineer

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened and Closed

05000458/2013003-01	FIN	Failure to Establish Effective Preventive Maintenance for Components Used in High Critical Applications (Section 4OA2.4(1))
05000458/2013003-02	NCV	Failure to Adequately Evaluate and Correct Degraded 125 Vdc Fused Disconnect Switches (Section 4OA2.4(2))

## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather Protection**

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-DC-158	Entergy Nuclear South Unit Seasonal Capability Updating Process	0
EN-DC-199	Off Site Power Supply Design Requirements Nuclear Plant Interface Requirements	8
EN-DC-201	ENS Transmission Grid Monitoring	6

### **Section 1R05: Fire Protection**

#### CALCULATION

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
G13.18.12.2-022	River Bend Station – Combustible Loading	4

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CB-070-111	HVAC 1B Room Fire Area C-4	3
CB-098-118	Standby Switchgear 1A Room Fire Area C-15	2
FPP-0020	Guidelines for Preparation of Pre-Fire Strategies and Pre-Fire Plans	10
FPP-0101	Fire Suppression System Inspection	14

**Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance**

SIMULATOR SCENARIO

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
RSMS-OPS-0593	Feedpump Fire and Steam Leak in the Drywell	1

**Section 1R12: Maintenance Effectiveness**

CONDITION REPORTS

CR-RBS-2011-02003	CR-RBS-2011-06682	CR-RBS-2012-02782	CR-RBS-2013-00076
CR-RBS-2013-00157	CR-RBS-2013-01135	CR-RBS-2013-01536	CR-RBS-2013-02090
CR-RBS-2013-03101	CR-RBS-2013-03821		

ENGINEERING CHANGE

EC-41670

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M/C-96-002	Maintenance Rule Walkdown for Evaluation of Structures	0
RBS-CS-05-00001	2005 Maintenance Rule Structures Periodic Assessment	0

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EDP-CS-15	River Bend Station Maintenance Rule Structural Monitoring Procedure	3
EN-DC-205	Maintenance Rule Monitoring	4
STP-254-1603	Division 1 and 2 Hydrogen Igniter Current, Voltage and Temperature Check	8

WORK ORDERS

WO 00332462	WO 50349458	WO 52252776	WO 52409906
WO 52409907	WO 52410809	WO 52415799	WO 52415800
WO 52415801			

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OSP-0048	Switchyard, Transformer Yard and Sensitive Equipment Controls	18
SOP-0055	Main and Station Transformers (SYS #311)	28

**Section 1R15: Operability Determinations and Functionality Assessments**

CONDITION REPORTS

CR-RBS-2006-00839	CR-RBS-2007-01463	CR-RBS-2007-05549	CR-RBS-2010-06059
CR-RBS-2011-01114	CR-RBS-2011-01141	CR-RBS-2011-01171	CR-RBS-2011-01500
CR-RBS-2012-02782	CR-RBS-2012-06990	CR-RBS-2013-00008	CR-RBS-2013-00076
CR-RBS-2013-00157	CR-RBS-2013-01024	CR-RBS-2013-01048	CR-RBS-2013-01536
CR-RBS-2013-01632	CR-RBS-2013-01751	CR-RBS-2013-01826	CR-RBS-2013-02090
CR-RBS-2013-02810	CR-RBS-2013-02968	CR-RBS-2013-03236	CR-RBS-2013-03327

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
IOM-5617-2	Quality Air Design Service Manual for Air Operated Opposed Blade Dampers	3
ASCO Form No. V5971	ASCO/QAD Solenoid valve Installation and Maintenance Instructions	1

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
STP-309-6301	Div I EDG Fuel Oil Transfer Pump and Valve Operability Test	17
STP-309-6302	Div II EDG Fuel Oil Transfer Pump and Valve Operability Test	21
STP-309-6315	Div III HPCS EDG Fuel Oil Transfer Pump and Valve Operability Test	13

WORK ORDERS

WO 00260963	WO 00262997	WO 00343462
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## Section 1R18: Plant Modifications

### CONDITION REPORTS

CR-RBS-2013-04092   CR-RBS-2013-04168   CR-RBS-2013-04295   CR-RBS-2013-04300  
CR-RBS-2013-04401

### WORK ORDERS

WO 00354400

## Section 1R19: Post-Maintenance Testing

### CONDITION REPORTS

CR-RBS-2008-06532   CR-RBS-2008-06548   CR-RBS-2009-03175   CR-RBS-2011-00557  
CR-RBS-2012-06308   CR-RBS-2013-00157   CR-RBS-2013-01536   CR-RBS-2013-01855  
CR-RBS-2013-02090   CR-RBS-2013-02257   CR-RBS-2013-02804   CR-RBS-2013-02968  
CR-RBS-2013-04291

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
AOP-0007	Loss of Feedwater Heating	28
SOP-0009	Reactor Feedwater System (SYS #107)	58
SOP-0010	MSR and FW Heaters Extraction Steam and Drains	46

### WORK ORDERS

WO 00169283   WO 00201677   WO 00328593   WO 00332772  
WO 00343543   WO 00343651

## Section 1R20: Refueling and Other Outage Activities

### CONDITION REPORTS

CR-RBS-2010-06059   CR-RBS-2011-01024   CR-RBS-2011-01114   CR-RBS-2011-01500  
CR-RBS-2011-01536   CR-RBS-2013-01751   CR-RBS-2013-01826   CR-RBS-2013-02136  
CR-RBS-2013-03790   CR-RBS-2013-04247   CR-RBS-2013-04360   CR-RBS-2013-04368

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-DC-310	Predictive Maintenance Program	4

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
GOP-0002	Power Decrease/Plant Shutdown	64
GOP-0003	Scram Recovery	22
OSP-0033	Operations with a Potential to Drain the Reactor Vessel/Cavity	9
OSP-0037	Shutdown Operations Protection Plan (SOPP)	30
SOP-0049	125 VDC System (SYS #305)	29
SOP-0053	Standby Diesel Generator and Auxiliaries	325

**Section 1R22: Surveillance Testing**

CONDITION REPORTS

CR-RBS-2013-00560 CR-RBS-2013-02914 CR-RBS-2013-02968

**Section 1EP2: Alert Notification System Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPP-2-401	Inadvertent Siren Sounding	7
EPP-2-701	Prompt Notification System Maintenance and Testing	25

**Section 1EP3: Emergency Response Organization Staffing and Augmentation Testing**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EIP-2-006	Notifications	40
EIP-2-016	Operations Support Center	27
EN-EP-310	Emergency Response Organization Notification System	1
EPP-2-502	Emergency Communications Equipment Testing	25

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
EP-M-11-014	Evaluation Report for the Drill Conducted July 14, 2011	August 22, 2011
R-CBT-EP-NOTIF	Computer Based Training Content, emergency Preparedness, Notifications	---
	Evaluation Report for the Pager Test Conducted March 23, 2011	March 24, 2011
	Evaluation Report for the Pager Test Conducted June 14, 2011	June 15, 2011
	Evaluation Report for the Pager Test Conducted September 20, 2011	September 22, 2011
	Evaluation Report for the Pager Test Conducted December 6, 2011	December 7, 2011
	Evaluation Report for the Pager Test Conducted March 5, 2012	March 6, 2012
	Evaluation Report for the Pager Test Conducted May 15, 2012	May 17, 2012
	Evaluation Report for the Pager Test Conducted August 23, 2012	August 28, 2012
	Evaluation Report for the Pager Test Conducted November 28, 2012	November 29, 2012
	Evaluation Report for the Pager Test Conducted 2013	2013

**Section 1EP4: Emergency Action Level and Emergency Plan Changes**

Evacuation Time Estimate Study Update

**Section 1EP5: Maintenance of Emergency Preparedness**

CONDITION REPORTS (CORRECTIVE ACTION DOCUMENT, CR-RBS)

2011-2606	2011-5328	2011-5484	2011-5838	2011-6406
2011-6978	2011-8528	2012-1580	2012-1934	2012-3244
2012-4061	2012-4168	2012-4172	2013-0004	HQN-2013-0400
2013-3131	2013-3154	2013-3174		

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
QS-2011-RBS-017	Followup to 2011 Emergency Plan Program Audit	September 1, 2011
QS-2012-RBS-013	Review of Compliance with the forthcoming requirements of NSIR/DRP-ISG-01	April 27, 2012
QS-2012-RBS-014	Review of changes in personnel, procedures, equipment, or facilities in the River Bend Station Emergency Preparedness Program	
	NOS Functional Area Performance Assessment Report, May 14-17, 2012	
	NOS Functional Area Performance Assessment Report, May 17 through August 30, 2012	
	NOS Functional Area Performance Assessment Report, February 11-15, 2013	
	Nuclear Oversight Fleet Trimester Report, November 2012 through February 2013	March 26, 2013
	Corporate Functional Area Manager's Performance Indicator Report	
RLO-2011-31	2012 Emergency Planning Program, Pre-NRC Focused Assessment	March 16, 2012
RLO-2011-123	2013 Emergency Planning Program, Pre-NRC Snapshot Assessment	
LO-HQNLO-2011-00190	Self Assessment; EP Communications – EverBridge Implementation	October 15, 2012
EP-M-11-006	Evaluation Report for the Drill conducted March 1, 2011	April 21, 2011
EP-M-11-007	Evaluation Report for the Drill conducted March 30, 2011	April 26, 2011
EP-M-11-015	Evaluation Report for the Drill conducted May 26, 2011	August 31, 2011
EP-M-11-012	Evaluation Report for the Drill conducted June 7, 2011	July 21, 2011
EP-M-11-013	Evaluation Report for the Drill conducted June 28, 2011	July 26, 2011
EP-M-11-016	Evaluation Report for the Drill conducted August 2, 2011	September 20, 2011

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
EP-M-11-022	Evaluation Report for the Drill conducted November 16, 2011	December 5, 2011
EP-M-12-003	Evaluation Report for the Drill conducted November 29, 2011	February 2, 2012
EP-M-12-004	Evaluation Report for the Drill conducted December 6, 2011	February 2, 2012
EP-M-12-0007	Evaluation Report for the Drill conducted February 28, 2012	May 7, 2012
EP-M-12-013	Evaluation Report for the Drill conducted May 1, 2012	August 7, 2012
EP-M-12-012	Evaluation Report for the Exercise conducted June 13, 2012	August 6, 2012
EP-M-13-005	Evaluation Report for the Drill conducted July 26, 2012	January 21, 2013
EP-M-13-003	Evaluation Report for the Drill conducted August 14, 2012	January 21, 2013
EP-M-13-004	Evaluation Report for the Drill conducted October 2, 2012	January 21, 2013
EP-M-13-006	Evaluation Report for the Drill conducted November 13, 2012	January 22, 2013
EP-M-12-024	Evaluation Report for the Drill conducted December 10, 2012	December 10, 2012
	50.54(q) Analysis for EPP-2-503, Equipment Important to EP, Revision 0	July 18, 2011
	50.54(q) Analysis for EIP-2-007, PAR Guidelines	October 4, 2011
	50.54(q) Analysis for EN-EP-305, Emergency Planning 10CFR50.54Q Review Program, Revision 3	February 8, 2012
	50.54(q) Analysis for EPP-2-501, Emergency Facilities and Equipment Readiness	February 20, 2012
	50.54(q) Analysis for EN-EP-308, Emergency Planning Critiques, Revision 2	May 10, 2012
	50.54(q) Analysis for Emergency Plan Revision 38	October 29, 2012
	50.54(q) Analysis for EIP-2-020, Emergency	November 12, 2012

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Operations Facility, Revision 36	
	50.54(q) Analysis for EIP-2-012, Radiation Exposure Controls, Revision 21	November 13, 2012
	50.54(q) Analysis for Emergency Plan Revision 39	December 12, 2012
	50.54(q) Analysis for EN-EP-306, Drills and Exercises, Revision 4	January 16, 2013
	RBS Repetitive Task, Radio-Siren-1, Annual Maintenance	
	RBS Repetitive Task, Radio-Siren-2, Annual Maintenance	
	RBS Repetitive Task, MCR-Siren, Annual Maintenance	
	RBS Repetitive Task, EFEOC-Siren, Annual Maintenance	
	RBS Repetitive Task, EBREOC-Siren, Annual Maintenance	
	RBS Repetitive Task, PCEOC-Siren, Annual Maintenance	
	RBS Repetitive Task, WBREOC-Siren, Annual Maintenance	
	RBS Repetitive Task, WFEOC-Siren, Annual Maintenance	

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EIP-2-020	Attachment 1, Emergency Director	36
EIP-2-020	Attachment 4, Radiological Assessment Coordinator	36
EIP-2-020	Attachment 6, Dose Assessor	36
EIP-2-022	Alternate EOF, Activation and Transfer of Functions	28
EIP-2-100	Procedure Review, Revision, and Approval	15
EIP-2-101	Periodic Review of the Emergency Plan	22
EIP-2-201	Training, Drills, and Exercises	25

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-EP-306	Drills and Exercises	4
EN-EP-308	Emergency Planning Critiques	2
EN-EP-401	Public Use of Emergency Preparedness Owner Controlled Area	0
EN-EP-601	Corporate Emergency Center Operations	6
EN-EP-801	Emergency Response Organization	7
EPP-2-201	River Bend Station Emergency Preparedness Organization and Responsibilities	21
EPP-2-202	Emergency Response Organization	14
EPP-2-501	Emergency Facilities and Equipment Readiness	15
EPP-2-502	Emergency Communications Equipment Testing	25
EN-QV-105	Nuclear Oversight Performance Reporting	8
EN-QV-109	Audit Process	22

WORK REQUESTS/WORK ORDERS

00204068	00244845	00266521	00269314	00277096
00279362	00288173	00289136	00297234	

**Section 1EP6: Drill Evaluation**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EIP-2-001	Classification of Emergencies	24
EIP-2-002	Classification Actions	30
EIP-2-006	Notifications	40
EIP-2-102	Training, Drills, and Exercises	25

**Section 4OA1: Performance Indicator Verification**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EIP-2-001	Classification of Emergencies	24

## Section 40A1: Performance Indicator Verification

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EIP-2-002	Classification Actions	30
EIP-2-006	Notifications	40
EIP-2-007	Protective Action Recommendation Guidelines	27
EN-LI-114	Performance Indicator Process	5, 6
EPP-2-701	Prompt Notification System Maintenance and Testing	25

### MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
-	RBS Emergency Planning Position Paper: Meaningful Drill/Exercise Participation for ERO Members	June 4, 2012
	River Bend Station Emergency Plan	22

## Section 40A2: Problem Identification and Resolution

### CALCULATION

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
G13.18.3.1	Sustained and Degraded Voltage Relay Setpoints for ENS-SWG01A and ENS-SWG01B	3

### CONDITION REPORTS

CR-RBS-2009-04175	CR-RBS-2010-06059	CR-RBS-2011-01500	CR-RBS-2012-02782
CR-RBS-2012-07422	CR-RBS-2012-07430	CR-RBS-2012-07746	CR-RBS-2013-00076
CR-RBS-2013-00157	CR-RBS-2013-00436	CR-RBS-2013-00469	CR-RBS-2013-00507
CR-RBS-2013-00710	CR-RBS-2013-00946	CR-RBS-2013-01056	CR-RBS-2013-01151
CR-RBS-2013-01536	CR-RBS-2013-01631	CR-RBS-2013-01745	CR-RBS-2013-01751
CR-RBS-2013-01825	CR-RBS-2013-01826	CR-RBS-2013-01827	CR-RBS-2013-01968
CR-RBS-2013-02068	CR-RBS-2013-02090	CR-RBS-2013-02420	CR-RBS-2013-02494
CR-RBS-2013-03212	CR-RBS-2013-03470		

### ENGINEERING CHANGE

EC-41670

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EN-DC-115	Engineering Change Process	14
EN-DC-153	Preventive Maintenance Component Classification	1
EN-DC-205	Maintenance Rule Monitoring	4
EN-DC-335	PM Basis Template	1
EN-DC-346	Cable Reliability Program	5
EN-DC-348	Non-EQ Insulated Cables and Connections Inspection	0
STP-302-1601	ENS-SWG1B Loss of Voltage Channel Calibration and Logic System Functional Test	21

WORK ORDERS

WO 00260963          WO 00262997          WO 00343462

**40A7 Licensee-Identified Violations**

CONDITION REPORTS

CR-RBS-2009-00407    CR-RBS-2010-00819