UNITED STATES
**NUCLEAR REGULATORY COMMISSION**
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

May 8, 2009

Michael Perito
Vice President, Operations
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61N
St. Francisville, LA 70775

Subject: RIVER BEND STATION - NRC INTEGRATED INSPECTION REPORT 05000458/2009002

Dear Mr. Perito:

On March 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your River Bend Station. The enclosed integrated inspection report documents the inspection results, which were discussed on April 2, 2009, with Mr. E. Olson, General Manager, Plant Operations, 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.

This report documents one NRC-identified finding of very low safety significance (Green). This finding was determined to involve violations of NRC requirements. Additionally, four licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the River Bend Station facility. In addition, if you disagree with the characterization of any finding 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. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm.html (the Public Electronic Reading Room).

Sincerely,

***/RA D. Proulx for/***

Geoffrey B. Miller, Chief
Project Branch C
Division of Reactor Projects

Docket: 50-458
License: NPF-47

Enclosure:
NRC Inspection Report 05000458/2009002
w/Attachment: Supplemental Information

cc w/Enclosure:

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| SUNSI Rev Compl. | ☒Yes ☐ No | ADAMS | ☒Yes ☐ No | Reviewer Initials | DLP |
| Publicly Avail | ☒Yes ☐ No | Sensitive | ☐ Yes ☒ No | Sens. Type Initials | DLP |

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

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|---|---|
| Docket: | 05000458 |
| License: | NPF-47 |
| Report: | 05000458/2009002 |
| Licensee: | Entergy Operations, Inc. |
| Facility: | River Bend Station |
| Location: | 5485 U.S. Highway 61<br>St. Francisville, LA |
| Dates: | January 1 through March 31, 2009 |
| Inspectors: | G. Larkin, Senior Resident Inspector, Project Branch C<br>C. Norton, Resident Inspector, Project Branch C<br>G. Pick, Senior Reactor Inspector, Engineering Branch 2<br>P. Elkmann, Senior Emergency Preparedness Inspector |
| Approved By: | Geoffrey B. Miller, Chief, Project Branch C<br>Division of Reactor Projects |

## SUMMARY OF FINDINGS

IR 05000458/2009002; 01/01/2009 – 03/31/2009; River Bend Station, Integrated Resident and Regional Report; Maintenance Risk Assessments and Emergent Work Control; Event Follow-up

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by regional based inspectors. One Green noncited violation of significance was identified. The significance of most findings is indicated by their color (Green, White, Yellow, or 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 4, dated December 2006.

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

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4) involving the failure of operators to perform an adequate risk assessment while the Division 1 control building chilled water was unavailable. Specifically, the inspectors identified that licensee personnel non-conservatively evaluated the on-line risk as Green instead of Yellow. This resulted in an unrecognized increase in the level of risk as determined by Entergy's probabilistic safety analysis evaluation. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2009-0862.

  Using Inspection Manual Chapter 0612, Appendix E, Section 3, Item 7(e), the finding is more than minor because the licensee's risk assessment had errors and incorrect assumptions regarding the unavailability of mitigating systems that put the plant in a higher risk category. Using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," the finding is determined to have very low safety significance because the incremental core damage probability deficit for the affected time period is less than 1.0E-6. This finding has a crosscutting aspect in the area of human performance component for work practices because Entergy personnel did not effectively follow procedures [H.4(b)] (Section 1R13).

### B. Licensee-Identified Violations

Violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers (condition report numbers) are listed in Section 4OA7.

# REPORT DETAILS

## Summary of Plant Status

River Bend Station began the inspection period at 100 percent core thermal power. The plant remained at 100 percent power except for a brief period on January 30, 2009, when reactor power was reduced to 90 percent to perform an operability test for partially withdrawn control rods, on February 28, 2009, when reactor power was reduced to 65 percent power for a rod sequence exchange, on March 6, 2009, for a control rod pattern adjustment, and on March 16, 2009, to repair a leak on the reactor feedwater system first point heater manway cover and to provide alternate power to reactor feedwater Pump A lube oil pumps.

## 1. REACTOR SAFETY

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

### 1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

Since thunderstorms with potential tornados and high winds were forecast in the vicinity of the facility for March 25, 2009, through March 29, 2009, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. On March 25, 2009, the inspectors walked down the station blackout diesel generator, diesel driven instrument air compressor, control building roof drains, reactor building roof drains, fuel building roof drains, auxiliary building roof drains, standby service water cooling tower, and recirculation pump slow speed motor generator room because their safety-related functions could be affected or required as a result of high winds or tornado-generated missiles or the loss of offsite power. The inspectors evaluated the licensee staff's preparations against the site's procedures for adequacy. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. 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. The inspectors also reviewed a sample of corrective action program items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the corrective action program in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one readiness for impending adverse weather condition sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings of significance were identified.

## 1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- Emergency Diesel Generator Division 2
- High Pressure Core Spray

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

On February 24, 2009, the inspectors performed a complete system alignment inspection of the reactor core isolation cooling system to verify the functional capability of the system. The inspectors selected this system because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one complete system walkdown sample as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance 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:

- February 17, 2009, Protected Area, fire main ring header
- February 23, 2009, Auxiliary Building 70-foot level, zone AB-1/Z-3; 114-foot level, zone AB-13; 141-foot level, zone AB-13; Reactor Building 141-foot level, zone RC-4/Z-3
- February 26, 2009, Standby Service Water Cooling Tower, 70-foot, 118-foot, 137-foot, and 154-foot levels
- March 6, 2009, Control Building 98-foot level, zones C-10, C-15, C-13W; 116-foot level, zones C-9, C-29, and C-17; and Diesel Generator Building 98-foot level, zone DG-6/Z-1
- March 17, 2009, Control Building 116-foot level, zones C-9, C-10, C-17, C-19, C-22, and C-24

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 five quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

### 1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the Updated Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also walked down the area listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- January 12, 2009, Auxiliary Building, 141-foot elevation

These activities constitute completion of one flood protection measures inspection sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings of significance were identified.

### 1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the auxiliary building 141-foot level heat Exchanger HVR-UC-6. The inspectors verified that performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; the licensee utilized the periodic maintenance method outlined in EPRI Report NP 7552, "Heat Exchanger Performance Monitoring Guidelines"; the licensee properly utilized biofouling controls; the licensee's heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one heat sink inspection sample as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings of significance were identified.

### 1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On February 10, 2009, and March 10, 2009, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly licensed-operator requalification program samples as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

## 1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- Turbine Building Ventilation

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 one quarterly maintenance effectiveness sample as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance 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:

- Control Building Chill Water Chiller Division 1 emergent maintenance, February 14, 2009
- Fancy Point switchyard line scheduled maintenance, February 17, 2009
- Station blackout diesel emergent work, February 25-26, 2009
- Emergency Diesel Generator Division 3 emergent maintenance, March 25-27, 2009

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 on-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 four maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4) involving the failure of operators to perform an adequate risk assessment while the Division 1 control building chilled water was unavailable. Specifically, the inspectors identified that licensee personnel non-conservatively evaluated the on-line risk as Green instead of Yellow. This resulted in an unrecognized increase in the level of risk as determined by Entergy's probabilistic safety analysis evaluation.

Description. On February 14, 2009, the equipment out of service plant safety index was 9.8 and Green prior to Entergy removing the Division 1 control building chilled water (HVK) Chillers A and C from service for emergent work to fill and vent the HVK system. Entergy administrative Procedure ADM-0096, "Risk Management Program Implementation Risk Assessment," Revision 303, and operations Procedure EN-OP-115, "Conduct of Operations," Revision 6, requires that operators verify risk assessments of maintenance activities as they are actually performed including emergent equipment out of service and unscheduled maintenance conditions. Operators failed to make a log entry in the main control room narrative log indicating that the equipment out of service plant safety index had changed when the Division 1 HVK chillers were unavailable. With both Division 1 HVK chillers unavailable, the plant safety index changed to 9.5 and Yellow.

Analysis. The inspectors determined that the licensee's failure to perform an adequate risk assessment was a performance deficiency. Using Inspection Manual Chapter 0612, Appendix E, Section 3, Item 7(e), the finding is more than minor because the licensee's risk assessment had errors and incorrect assumptions regarding the unavailability of mitigating systems that put the plant in a higher risk category that required additional actions to manage the higher risk condition. Using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," the finding is determined to have very low safety significance (Green) because the incremental core damage probability deficit for the affected time period is less than 1.0E-6. This finding has a crosscutting aspect in the area of human performance component for work practices because Entergy personnel did not effectively follow procedures [H.4(b)].

Enforcement. 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," requires, in part, that prior to performing maintenance activities, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, the licensee failed to perform an adequate risk assessment before performing maintenance on the HVK system on February 14, 2009 and as a result, failed to implement risk management actions required by the licensee's program. Because the finding was of very low safety significance and has been entered into the licensee's corrective action program as Condition Report CR-RBS-2009-0862, this violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000458/2009002-01, "Inadequate Risk Assessment While the Control Building Chilled Water System was Removed from Service."

## 1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- CR-RBS-2009-00208, unidentified reactor coolant system leakage increase, reviewed on January 15, 2009
- CR-RBS-2009-00352, Division 2 emergency diesel generator cracked exhaust pipe near #8 cylinder head port, reviewed on January 21, 2009
- CR-RBS-2009-00462, plant exhaust radiation Monitor RMS-RE-126, reviewed on January 27, 2009
- CR-RBS-2009-00807, Electrohydraulic Control bypass valve fast acting power solenoid power trouble alarm, reviewed on March 24, 2009

The inspectors selected these potential operability issues based on the risk-significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and 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. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also 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 four operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04

b. Findings

No findings of significance were identified.

**1R18 Plant Modifications (71111.18)**

a. Inspection Scope

The inspectors reviewed the following permanent modification to verify that the safety functions of important safety systems were not degraded:

- ER-RBS-1996-0504, "Control Room Panels Near Storage Lockers, Book Shelves, Portable Tables, Carts, and Other Permanent and Transient Items Not Evaluated in the Original Plant Design," Revision 0

The inspectors reviewed key affected parameters associated with energy needs, materials/replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for the modification listed above. The inspectors verified that modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, systems, structures and components' performance characteristics still meet the design basis, the appropriateness of modification design assumptions, and the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings of significance were identified.

## 1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

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

- WO 51797635 Task 1, “Replacement of #8 Cylinder Exhaust Manifold Broken Bolts,” reviewed on January 23, 2009

- WO 00175531 Task 1, “C11-AOVF010 Failed Closing Stroke Time Per STP,” reviewed on February 18, 2009

- WO 188360-6, “Repair of the Division 3 Diesel Generator Air Start System,” reviewed on March 28, 2009

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 postmaintenance 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 three postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance 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 five 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:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

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

- STP-511-4501, “Main Steam Line Radiation High High Channel Functional Test (D17-K610A),” Revision 11, performed on December 12, 2008
- STP-052-6301, “Control Rod Drive Quarterly Valve Operability Test,” Revision 302, performed on January 20, 2009

- STP-309-0202, "Division 2 Diesel Generator Operability Test," Revision 306, performed on January 23, 2009

- STP-209-0201, "RCIC Discharge Piping Fill and Valve Lineup Verification," Revision 10, performed on February 9, 2009

- STP-204-6302, "DIV 2 LPCI (RHR) Quarterly Pump and Valve (IST) Operability Test," Revision 21, performed on February 17, 2009

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

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

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The inspector discussed the operability of offsite fixed emergency warning sirens and mobile public address systems with licensee staff to determine the adequacy of licensee methods for testing the alert and notification system in accordance with the requirements of 10 CFR 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," Revision 1, Federal Emergency Management Agency (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. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspector discussed the operability of primary and backup systems for augmenting the on-shift emergency response staff with licensee staff to determine the adequacy of licensee methods for staffing emergency response facilities. The inspector evaluated 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 sample as defined in Inspection Procedure 71114.03-05.

b. Findings

No findings of significance were identified.

**1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)**

a. Inspection Scope

The inspector reviewed the licensee's corrective action program requirements in licensee procedures EN-LI-102, "Corrective Action Process," Revision 13, and EN-LI-119, "Apparent Cause Evaluation Process," Revision 8. The inspector reviewed summaries of one hundred seventy-one condition reports (corrective action program entries) initiated between June 2007 and January 2009, and assigned to the emergency preparedness department or associated with emergency response organization performance, and selected eighteen for detailed review against program requirements. The inspector evaluated the licensee's analysis and closure of condition reports to determine the licensee's ability to identify, evaluate, and correct problems in accordance with the licensee program requirements, 10 CFR 50.47(b)(14), and 10 CFR 50, Appendix E. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings of significance were identified.

**1EP6 Drill Evaluation (71114.06)**

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on March 3, 2009, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

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

b. Findings

No findings of significance were identified.

## 4. OTHER ACTIVITIES

### 4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the fourth quarter 2008 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 of significance were identified.

.2 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours performance indicator for the period from the first quarter of 2008 through the fourth quarter of 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 5, was used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of January 2008 through December 2008 to validate the accuracy of the submittals. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one unplanned scrams per 7000 critical hours sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Unplanned Scrams with Complications (IE02)

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications performance indicator for the period from the first quarter of 2008 through the fourth quarter of 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, and NRC integrated inspection reports for the period of January 2008 through December 2008 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one unplanned scrams with complications sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.4 Unplanned Power Changes per 7000 Critical Hours (IE03)

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Power Changes per 7000 Critical Hours performance indicator for the period from the first quarter of 2008 through the fourth quarter of 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, maintenance rule records, event reports, and NRC integrated inspection reports for the period of January 2008 through December 2008 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one unplanned power changes per 7000 critical hours sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.5 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspector sampled licensee submittals for the Drill and Exercise Performance performance indicator for the period April through December 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. 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 NEI 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 pre-designated control room simulator training sessions, performance during the 2008 biennial exercise, and performance during other drills. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings of significance were identified.

.6 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 through December 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. 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 NEI guidance. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings of significance were identified.

.7 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 through December 2008. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. 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 NEI guidance. Specifically, the inspector reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator and the results of periodic silent and limited-cycle alert notification system operability tests. The inspector also observed a silent siren test conducted Wednesday, February 11, 2009. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings of significance were identified.

## 4OA2 Identification and Resolution of Problems (71152)

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

.1 Routine Review of Identification and Resolution of Problems

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 and Observations

The inspector identified that corrective actions taken for an NRC-identified violation of very low safety significance documented on August 7, 2007, were ineffective because the violation reoccurred in 2008. Specifically, the licensee identified in Condition Report

CR-RBS-2008-02661 that six radiation protection technicians and one chemistry technician did not receive required periodic emergency response organization retraining prior to December 31, 2007, and stood eleven watches as the required on-shift radiation protection technician(s) and on-shift dose assessor between January and April 2008. This licensee-identified violation was similar to one discussed in Inspection Report 05000458/2007-003 (Condition Reports CR-RBS-2005-01602, 2006-03264, and 2007-02023) in which a chemistry technician whose emergency response organization qualifications had expired stood eleven emergency response organization watches between January 15 and August 5, 2006.

The licensee determined the cause for the above 2006 event was inadequate monitoring of employee qualifications by the technician and licensee supervisory personnel. Corrective actions for Condition Report CR-RBS-2007-02023 included reinforcing expectations with department heads, line supervisors, and department technicians, and revising the qualification review process. The licensee determined the causes of the above 2008 event were that processes for verifying personnel qualifications did not require qualifications for collateral duties be reviewed, and that qualifications were reviewed at an insufficient frequency. The inspector determined that corrective actions taken for Condition Report CR-RBS-2008-02661 were similar to those taken for Condition Report CR-RBS-2007-02023, including reinforcing expectations with department heads, line supervisors, and technicians, and revising the qualification review process to identify requirements for on-shift collateral duties.

To ensure that the qualification lapses identified in Condition Report CR-RBS-2008-02661 do not reoccur, the licensee also instituted departmental training coordinator positions to track individual qualifications, and created monthly work tracking system tasks in 2009 requiring each supervisor to review the qualifications of their employees.

.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 and Observations

No findings of significance were identified.

.3 Selected Issue Follow-up Inspection

a. Inspection Scope

The inspectors reviewed the quality requirements for the emergency diesel generator's engine mounted piping and components contained in the Updated Safety Analyses Report (USAR) Table 3.2.1, Safety Evaluation Report (SER) Section 9.5.8 and Supplement 2. Different quality documents were referenced to apply to the engine mounted piping. Specifically, the USAR listed American Society of Mechanical Engineers (ASME) “Boiler and Pressure Vessel Code,” Section 3, Class 3 and SER Section 9.5.8, listed American National Standards Institute (ANSI) B31.1, “Power Piping.” Supplement 2 of the SER stated that the licensee stated that the emergency diesel generators engine mounted piping and components were designed and installed in accordance with the standards of the Diesel Engine Manufacturers Association (DEMA). The licensee referenced a publication titled, “Standard Practices for Low and Medium Speed Stationary Diesel and Gas Engines,” as the basis for maintaining the engine mounted piping. This publication is a reference of generally accepted standards for installation, operation, and maintenance of diesel engines and lacks the specificity of ANSI B31.1 or ASME Code Section 3, Class 3 for design, fabrication, and inspection attributes for safety related piping.

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

b. Findings and Observations

No findings of significance were identified.

**4OA3 Event Follow-up (71153)**

.1 (Closed) Licensee Event Report 05000458/2006-001-00: Unanalyzed Condition Regarding Reactor Core Isolation Cooling Availability in Post-Fire Safe Shutdown Scenario

The inspector performed this evaluation through in-office evaluation of documentation and through telephonic interviews of licensee personnel.

On January 5, 2006, the licensee identified that the reactor core isolation cooling system may not be available under all scenarios during a main control room fire, as required by their operating license. Specifically, a main control room fire could prevent the operation of Valve E51-MOVF063, inboard steam supply to reactor core isolation cooling turbine, since the licensee failed to provide Division 1 control power to this valve. Because Division 2 provided the control power for this valve, operators could not control the valve from the alternate shutdown panel if it closed spuriously, concurrent with a loss of offsite power and damage to the Division 2 emergency diesel generator.

This issue had existed since original construction. The licensee documented this deficiency in Condition Reports 2006-00046 and 2004-00455. As a compensatory measure, the licensee revised Procedure AOP-0031, "Shutdown From Outside Main Control Room," Revision 20A, to require that operators verify the valve is open and power removed prior to evacuating the main control room. The licensee will maintain the compensatory actions in effect until they modify the valve to receive Division 1 control power. The licensee scheduled the modification for Refueling Outage 15 (Calendar Year 2009).

This finding was more than minor because it was associated with the protection against external factors (fire) attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events in order to prevent undesirable consequences. The inspector evaluated this deficiency using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," because it affected fire protection defense-in-depth strategies involving post-fire safe shutdown systems. The failure involved a control room fire; hence, a senior reactor analyst performed the risk evaluation.

Because the River Bend control room included the plant instrumentation and relay cabinets, the senior reactor analyst added a generic fire ignition frequency for a relay room to the control room fire ignition frequency listed in the Individual Plant Examination for External Events. The analyst multiplied an appropriate severity factor (SF) by the sum of the control room fire initiation frequency (CRFIF) and the instrument room fire initiation frequency (IRFIF). In addition, the analyst multiplied by a nonsuppression probability (NPCRE) to account for the likelihood that operators failed to extinguish the fire within 20 minutes, assuming that it would take operators 2 minutes to detect the fire. The resulting fire would require a control room evacuation with a control room evacuation frequency determined as follows:

Control Room Evacuation Frequency = (CRFIF + IRFIF) * SF * NPCRE =
(9.50E-03/year + 1.42E-03/year) * 0.2 * 1.30E-02 = 2.84E-05/year

The control room had 109 panels with the affected control circuit wires terminating in only two. The probability that a control room fire would affect the panels of interest is the fraction of 2/109 or 1.83E-02. The resulting Fire Mitigation Frequency is the Control Room Evacuation Frequency multiplied by the partial fraction represented by the affected cabinets for a value of 5.21E-07/year.

The analyst determined the change in conditional core damage probability by subtracting the base case conditional core damage probability given abandonment of the control room (0.1) from the assumed conditional core damage probability given the performance deficiency (1.0) for a value of (0.9). The bounding change in conditional core damage frequency for a 1-year exposure is the Fire Mitigation Frequency (5.21E-07/year) multiplied by the change in conditional core damage probability (0.9) for a value of 4.69E-07.

In accordance with Inspection Manual Chapter 0609, Appendix A, Attachment 1, Step 2.2.6, "Screen for the Potential Risk Contribution Due To Large Early Release Frequency (LERF)," the analyst determined that the finding needed to be screened for its potential risk contribution to large early release frequency using Inspection Manual Chapter 0609, Appendix H, "Containment Integrity Significance Determination Process," because the estimated change in core damage frequency result provided a risk significance estimation of greater than 1E-07.

According to Appendix H, Section 4.1, the subject performance deficiency represented a Type A finding because the finding influenced the likelihood of accidents leading to core damage. As documented in Appendix H, Table 5.1, accident sequences that would lead to large early release frequency for a boiling water reactor Mark III containment included high pressure transient events. The analyst determined that most of the sequences involving control room abandonment with a failure of the reactor core isolation cooling system resulted in the reactor coolant system being at high pressure at time of vessel breach. Using Table 5.2, "Phase 2 Assessment Factors – Type A Findings at Full Power," the analyst selected a large early release frequency factor of 0.2 for these sequences. The sum of the large early release frequency score as stated in Step 3.2, "ΔLERF Significance Evaluation," was then quantified. The change in large early release frequency was estimated to be 9.4E-08. This value corroborates the result of the change in core damage frequency evaluation that the finding was of very low safety significance (Green).

This licensee-identified deficiency involved a violation of License Condition 2.C(10). The inspector documented the enforcement aspects in Section 4OA7. This licensee event report is closed.

.2 (Closed) Licensee Event Report 05000458/2007-003-00: Unanalyzed Condition of Emergency Diesel Generator in Post-Fire Safe Shutdown Scenario

The inspector performed this evaluation through in-office evaluation of documentation and through telephonic interviews of licensee personnel.

On May 21, 2007, during review of industry operating experience at another facility, the fire protection engineer determined that a system required to be protected during a main control room fire could be disabled because of fire damage. Specifically, the non-emergency trips for the Division 1 emergency diesel generator were disabled such that, during a control room fire that results in loss of offsite power and loss of service water, the emergency diesel generator would continue to run and potentially fail prior to operators restoring service water at the alternate shutdown panel.

This condition had existed since original construction. The licensee documented this deficiency in Condition Report 2007-02102. The licensee revised the affected procedure to require that operators manually transfer control for operating the emergency diesel generator to the alternate shutdown panel and perform a normal start so that the required trips remain in effect. The licensee will maintain the compensatory actions in effect until they modify the nonemergency control circuits in 2009.

This finding was more than minor because it was associated with the protection against external factors (fire) attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events in order to prevent undesirable consequences. The inspector evaluated this deficiency using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," because it affected fire protection defense-in-depth strategies involving post-fire safe shutdown systems. The failure involved a control room fire; hence, a senior reactor analyst performed the risk evaluation.

Because the River Bend control room included the plant instrumentation and relay cabinets, the senior reactor analyst added a generic fire ignition frequency for a relay room to the control room fire ignition frequency listed in the Individual Plant Examination for External Events. The analyst multiplied an appropriate severity factor (SF) by the sum of the control room fire initiation frequency (CRFIF) and the instrument room fire initiation frequency (IRFIF). In addition, the analyst multiplied by a nonsuppression probability (NPCRE) to account for the likelihood that operators failed to extinguish the fire within 20 minutes, assuming that it would take operators 2 minutes to detect the fire. The resulting fire would require a control room evacuation with a control room evacuation frequency determined as follows:

Control Room Evacuation Frequency = (CRFIF + IRFIF) * SF * NPCRE =
(9.50E-03/year + 1.42E-03/year) * 0.2 * 1.30E-02 = 2.84E-05/year

As described in the Individual Plant Examination for External Events, the control room had 109 panels. Because multiple failure combinations could result in a start of the Division 1 diesel generator without service water supplied, the senior reactor analyst determined the combined partial fraction for all possible scenarios. The analyst determined partial fraction for each loss of electrical scenario by dividing the number of affected cabinets by the total number of cabinets:

| Scenario | Number | Fraction (number/109) |
|---|---|---|
| Cabinets with Diesel Generator 1 | 4 | FDG1 = 3.67E-02 |
| Cabinets with Division 1 power | 1 | FDiv1 = 9.17E-03 |
| Cabinets with power from both divisions | 1 | FBDIV = 9.17E-03 |
| Cabinets with service water | 3 | FSW = 2.75E-02 |

A fire could result in the inadvertent start of a diesel generator either directly, by affecting the diesel control circuits, or indirectly, by affecting the power to the associated vital bus. Therefore, the probability that a fire could result in the start of the Division 1 emergency diesel generator ($P_{DGStart}$) was calculated as follows:

$$P_{DGStart} = FDG1 + FDiv1 + FBDiv = 3.67E\text{-}02 + 9.17E\text{-}03 + 9.17E\text{-}03 = 5.50E\text{-}02$$

To determine the probability that a main control room fire would fail the service water system at the same time as starting the Division 1 emergency diesel generator ($P_{Failure}$), the analyst performed the following calculation:

$$(P_{Failure}), \quad = P_{DGStart} * F_{SW} = 5.50E\text{-}02 * 2.75E\text{-}02 = 1.52E\text{-}03$$

The resulting Fire Mitigation Frequency is the Control Room Evacuation Frequency (2.84E-05/year) multiplied by the combined failure probabilities (1.52E-03) for a value of 4.30E-08/year.

The analyst determined the change in conditional core damage probability by subtracting the base case conditional core damage probability given abandonment of the control room (0.1) from the assumed conditional core damage probability given the performance deficiency (1.0) for a value of (0.9). The bounding change in conditional core damage frequency for a 1-year exposure is the Fire Mitigation Frequency (4.30E-08/year) multiplied by the change in conditional core damage probability (0.9) for a value of 3.87E-08/year. This value indicates the finding has very low safety significance (Green).

This licensee-identified deficiency involved a violation of License Condition 2.C(10). The inspector documented the enforcement aspects in Section 4OA7. This licensee event report is closed.

.3 (Closed) Licensee Event Report 05000458/2009-001-00: Standby Liquid Control System Inoperable Greater than Allowable Outage time

The licensee implemented the alternative source term amendment to the operating license in 2003. One of the assumptions made in the application involved the use of the standby liquid control system for pH control of the suppression pool in the post-loss of coolant accident environment. On October 28, 2008, Entergy discovered that the standby liquid control system test tank, a non-seismically qualified tank, was supposed to be drained but was not. After a postulated test tank failure during a seismic event, in conjunction with a postulated loss of coolant accident, could have rendered the standby liquid control system unable to provide suppression pool pH control. Without pH control, aerosol particulate iodine deposited in the suppression pool could become airborne as elemental iodine and could contribute to increased occupational and public radiological dose. Upon discovery of the filled test tank the licensee promptly drained the test tank.

This licensee-identified deficiency involved a violation of Technical Specification 3.1.7. The inspector documented the enforcement aspects in Section 4OA7. This licensee event report is closed.

**4OA5 Other Activities**

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with River Bend Station security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

**4OA6 Meetings**

Exit Meeting Summary

On January 21, 2009, the inspector presented the in-office evaluations of licensee event reports inspection results to Mr. J. Roberts, Director, Nuclear Safety Assurance, and other members of the licensee staff. The licensee acknowledged the issues presented. No proprietary information was reviewed.

On Friday, February 13, 2009, the inspector presented the results of the onsite emergency preparedness program inspection to you, and other members of your staff, who acknowledged the findings. The inspector confirmed that proprietary, sensitive, or personal information examined during the inspection had been returned to the identified custodian.

On Thursday, April 2, 2009, the inspectors presented the integrated baseline inspection results to Mr. E. Olson, General Manager, Plant Operations, and other members of the licensee 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.

## 4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as noncited violations.

- License Condition 2.C(10) specifies that the licensee shall comply with the requirements of the fire protection program as specified in Attachment 4 to the license. The Final Safety Analysis Report, Section 9B.4.7, specifies, in part, "Fire protection features shall be capable of limiting fire damage so that one train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station(s) is free of fire damage." Contrary to the above, on January 6, 2006, the licensee determined that they failed to ensure that Valve E51-MOVF063, which was required to achieve hot shutdown, remained free of fire damage under all conditions. The licensee promptly implemented appropriate compensatory measures and initiated plans to correct the deficiency. The licensee documented this deficiency in Condition Report 2006-00046 and planned to correct the deficiency in 2009. This finding had very low safety significance (Green). This item is further discussed in Section 4OA3.1.

- License Condition 2.C(10) specifies that the licensee shall comply with the requirements of the fire protection program as specified in Attachment 4 to the license. The Updated Safety Analysis Report, Section 9B.4.7, specifies, in part, "Fire protection features shall be capable of limiting fire damage so that one train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station(s) is free of fire damage." Contrary to the above, on May 21, 2007, the licensee determined that they failed to ensure that the Division 1 emergency diesel generator, which was required to achieve hot shutdown, remained operable, hence, free of fire damage under all conditions. Specifically, if service water became unavailable because of a spurious actuation (e.g. valve closure) coincident with a loss of offsite power, the emergency diesel generator could potentially fail prior to transfer of control to the remote shutdown panel. The licensee promptly implemented appropriate compensatory measures and initiated plans to correct the deficiency. The licensee documented this deficiency in Condition Report 2007-02102 and planned to correct the deficiency in 2009. This finding had very low safety significance (Green). This item is further discussed in Section 4OA3.2.

- A licensee is required by 10 CFR 50.54(q) to follow and maintain an emergency plan that meets the requirements of 10 CFR 50.47(b); 10 CFR 50.47(b)(15) requires that emergency response training be provided to those who may be called upon during an emergency; Appendix E to 10 CFR 50, IV(F)(1) requires that emergency responders, including control room personnel responsible for accident assessment and radiological monitoring teams, receive initial training and periodic retraining. Contrary to this, licensee personnel responsible for accident assessment and radiological monitoring teams did not receive required periodic retraining. Specifically, six radiation protection technicians and one chemistry technician stood eleven watches between January and April 2008 in required on-shift emergency response organization positions without having received required annual retraining prior to December 31, 2007. This issue was identified in the licensee's corrective action program as Condition Report CR-RBS-2008-02661. This finding is of very low safety significance because it was a failure to comply with regulatory requirements, the finding was associated with a 50.47(b) planning standard, the affected planning standard was not risk significant as defined in Inspection Manual Chapter 0609, Appendix B, Section 2, and the finding was not a loss of the emergency response function because the licensee had a functional training program and other on-shift personnel having the same emergency response duties received the training. This item is further discussed in Section 4OA2.1.

- Technical Specification 3.1.7 requires, in part, that two standby liquid control subsystems shall be operable. Contrary to the technical specification requirement, from March 14, 2003, to October 28, 2008, the standby liquid control system was not capable of performing its design safety function to limit suppression pool particulate iodine to evolve into airborne iodine. In accordance with NRC Inspection Manual Chapter 0612, Appendix B, "Issue Screening," the inspectors determined that the failure to drain the test tank, maintaining the seismically qualified configuration, was a licensee performance deficiency. The issue was more than minor because it was similar to Example 3.a in Manual Chapter 0612, Appendix E, and it met the "not minor if" requirement because changes were required in the procedure to correctly resolve the seismic concerns.

The inspectors evaluated the issue using the Significance Determination Process (SDP) Phase 1 Screening Worksheet for the Initiating Events, Mitigating Systems, and Barriers Cornerstones provided in Manual Chapter 0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined that this finding affected the Mitigating Systems Cornerstone and that the finding screened as potentially risk significant to a seismic initiating event because assuming that the tank completely failed, affecting the nearby pumps and electrical equipment, the loss would degrade both trains of the multi-train standby liquid control system. Therefore, a Phase 3 analysis was conducted by a senior reactor analyst in accordance with Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations."

In accordance with Manual Chapter 0609, Appendix A, the analyst performed a Phase 3 assessment of the risk contributions from a seismic initiator using insights and/or values provided by the Risk Assessment of Operational Events Handbook, Volume 2, "External Events."

<u>Assumptions</u>:

To evaluate the change in risk caused by this performance deficiency, the analyst made the following assumptions:

a. The River Bend Station SPAR model, Revision 3.45 and a spreadsheet evaluation of the River Bend seismic hazard represented appropriate tools for evaluation of the subject finding.

b. The standby liquid control system test tank had remained full of water during power operations for approximately 5 years.

c. Given Assumption b. the appropriate exposure period is one year, representing the most recent assessment period was used for exposure to this failure.

d. The standby liquid control system test tank would only have failed during a seismic event. Therefore only seismic initiators, seismically-induced initiators, and independent failures occurring simultaneously with seismic events were evaluated.

e. The failure of the standby liquid control system would affect the core damage frequency if the seismic event occurred simultaneously with an anticipated transient without scram because the failure would impact the systems function to shut down the reactor.

f. The failure of the standby liquid control system would affect the core damage frequency if the seismic event also resulted in a loss of coolant accident because the failure would impact the systems function to control suppression pool chemistry.

g. The likelihood of a seismic event equal to or larger than 0.5g peak ground acceleration occurring within 24 hours of an independent plant initiator is approximately 4E-10.

h. A seismic event smaller than 0.5g peak ground acceleration is not likely to affect plant operations at River Bend Station.

i. Given Assumptions g and h, the probability that a seismic event large enough to affect the plant occurs at the same time as an unrelated plant initiator is inconsequential to this analysis.

j. The seismic hazard vector for River Bend Station provided in Table 4A-1 of the Risk Assessment of Operation Events Handbook, Volume 2, “External Events,” Revision 1.01, is appropriate for evaluation of the subject finding.

Analysis:

In accordance with Assumptions e, f and i, the analyst determined that, for the subject performance deficiency to affect the core damage frequency, a seismic event must either occur at the same time as an anticipated transient without scram, or result in a loss of coolant accident (LOCA).

As such, the analyst evaluated the subject performance deficiency by determining each of the following parameters for any seismic event producing a given range of median average spectral acceleration "a" [SE(a)]:

- The frequency of the seismic event SE(a) ($\lambda_{SE(a)}$);
- The probability that a LOCA occurs during the event ($P_{LOCA\text{-}SE(a)}$);
- The probability that an independent LOCA occurs ($P_{INIT\text{-}SE(a)}$); and
- The probability of an ATWS occurring ($P_{ATWS\text{-}SE(a)}$).

The frequency of a seismically induced demand on the SLC system ($\lambda_{SLC\text{-}SE(a)}$) can then be quantified as follows:

$$\lambda_{SLC\text{-}SE(a)} = \lambda_{SE(a)} * [P_{LOCA\text{-}SE(a)} + P_{INIT\text{-}SE(a)} + P_{ATWS\text{-}SE(a)}]$$

Given that each range "a" was selected by the analyst specifically to be independent of all other ranges, the total frequency of an induced demand, $\lambda_{SLC}$, can be quantified by summing the $\lambda_{SLC\text{-}SE(a)}$ for each range evaluated as follows:

$$\Delta CDF = \sum_{a=.05}^{1.0} \lambda_{SLC\text{-}SE(a)}$$

over the range of SE(a).

<u>Results</u>:

The resulting value, quantified in a spreadsheet, was 5.4 x $10^{-7}$. The analyst noted that this conditional probability is significantly higher than a best estimate because the method used was to assume that the failure of the standby liquid control system was guaranteed following a failure of the test tank and that the failure of the standby liquid control system always resulted in core damage. Both these assumptions are known to be bounding. Therefore, this finding was of very low risk significance.

Entergy documented this issue in Condition Report RBS-2008-06244. This item is further discussed in Section 4OA3.3.

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

Licensee Personnel

E. Borazanci, Senior Engineer
G. Bush, Manager, Plant Maintenance
M. Chase, Manager, Training and Development
J. Clark, Assistant Operations Manager - Shift
F. Corley, Electrical Design Engineering Supervisor
B. Cox, Manager, Operations
C. Forpahl, Manager, Engineering Programs & Components
R. Heath, Superintendent, Chemistry
B. Houston, Manager, Radiation Protection
K. Huffstatler, Senior Licensing Specialist
A. James, Manager, Plant Security
R. Kerar, Senior Engineer
K. Klamert, Senior Engineer
R. Kowaleski, Manager, Corrective Actions & Assessments
J. Leavines, Manager, Emergency Preparedness
D. Lorfing, Manager, Licensing
W. Mashburn, Manager, Design Engineering
B. Matherne, Manager, Planning and Scheduling
R. McAdams, Manager, System Engineering
J. McElwain, Manager, Human Resources
E. Olson, General Manager, Plant Operations
M. Perito, Vice President, Operations
R. Persons, Superintendent, Training
G. Pierce, Assistant Operations Manager - Support
J. Roberts, Director, Nuclear Safety Assurance
J. Schlesinger, Supervisor, Engineering
J. Schroeder, Assistant Operations Manager – Training
T. Tankersley, Manager, Quality Assurance
D. Wiles, Director, Engineering
R. Womack, Manager, Outage

NRC Personnel

G. Guerra, Emergency Preparedness Inspector
J. Mateychick, Senior Reactor Inspector
P. Qualls, Senior Engineer
E. Uribe, Reactor Inspector
D. Loveless, Senior Reactor Analyst

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

| | | |
|---|---|---|
| 05000458/2009002-01 | NCV | Inadequate Risk Assessment While the Control Building Chilled Water System was Removed from Service (Section 1R13) |

Closed

| | | |
|---|---|---|
| 05000458/2006-001-00 | LER | Unanalyzed Condition Regarding RCIC Availability in Post-Fire Safe Shutdown Scenario (Section 4OA3.1) |
| 05000458/2007-003-00 | LER | Unanalyzed Condition of Emergency Diesel Generator in Post-Fire Safe Shutdown Scenario (Section 4OA3.2) |
| 05000458/2009-001-00 | LER | Standby Liquid Control System Inoperable Greater than Allowable Outage Time (Section 4OA3.3) |

## LIST OF DOCUMENTS REVIEWED

**Section 1RO1: Adverse Weather Protection**

CONDITION REPORTS

CR-RBS-2008-05050
CR-RBS-2008-05281
CR-RBS-2008-05383
CR-RBS-2008-05404
CR-RBS-2009-01458
CR-RBS-2009-01486
CR-RBS-2009-01495

MISCELLANEOUS DOCUMENTS

USAR Section 2.4, Hydrologic Engineering

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| AOP-0029 | Severe Weather Operation | 23 |
| AOP-0064 | Degraded Grid | 0 |

**Section 1RO4: Equipment Alignment**

CONDITION REPORTS

CR-HQN-2009-0052
CR-RBS-1996-1137
CR-RBS-2006-2705
CR-RBS-2009-0052
CR-RBS-2009-0184
CR-RBS-2009-0951
CR-RBS-2009-0952
LO-HQNLO-2007-0186
LO-RLO-2004-0116

MISCELLANEOUS DOCUMENTS

ANSI/HI 9.8-1998, “American Nation Standard for Pump Intake Design”

Alden Research Laboratory, Inc. 2006-359_H258C, “Hydraulic Model Study of High Pressure Core spray Pump Suction to Evaluate the Formation of Air Drawing Vortices and Air Withdrawal for Clinton Nuclear Power Station,” December 2006

American Society of Civil Engineers Papers and Discussions, “Siphon Spillways,” by G. F. Stickney, March 1, 1922

DWG EP-108R, “Tunnel Piping Condensate Storage Tank, Pumps & Assoc Piping Sects,” Revision 6

EAPPC*0019-NE, “Vortex Worksheet for Vortex Limit,” Revision 4EPC, App. C

ER 97-0147, “Minimum Suction Strainer Submergence”

Fleet Engineering Guide EN-ME-G-001, “Evaluation of Pump Protection from Low Submergence,” Revision 0

G13.18.2.4*017, “Effects of Flow on Setpoints of 1E22*ESN654C and G,” Revision 1

G13.18.2.6*183, “High Pressure Core Spray System Hydraulic Performance,” Revision 0

G13.18.6.1.E22*010-0, “HPCS Pump Suction Transfer- Condensate Storage Tank Level Low Setpoint Calculation, Revision 0

G13.18.10.0*016, “Determine if the ECCS Pumps are Susceptible to Vortexing,” Revision 0

G13.18.14.0*33, “Effects on HPCS Pump from Postulated Pipe Break in CST Suction Line,” Revision 0

Generic Letter 2008-01, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems,” January 11, 2008

PN-239, “HPCS Sys Reserve Vol. In CST Verification,” Revision 0

PN-300, “RCIC System Head Calcs – Power Uprate,” Revision 2C

PN-300, “RCIC Pump Head Resulting From Reroute To “A” Feedwater Line Per MR 96-0069

PN-308, “Verification Of Acceptability of 2 Second Time Delay on HPCS and RCIC Condensate Level Transmitter,” Revision 2

RBS ER 98-0580, “Revise Documentation to Reflect Effective Reduction in HPCS/RCIC CST Reserve Volume due to Flow Induced Error,” Revision 0

Regulatory Guide 1.82, “Water Sources for Long-Term Recirculation Cooling Following a Loss-Of-Coolant Accident,” Revision 3

12210-1A-1E22*ESN654, Tag No. 1E22*ESN654C&G Condensate Storage Tank Low Level

Vendor Manual VTD-B580-0117, “Byron Jackson Pump Division Vertical HPCS Pump [Publication Number 8020VMTIF7564218HPCS]

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| AOP-0004 | Loss of Off-Site Power | 31 |
| SDC-309 | Standby Diesel Generator Division 1 and 2 | 3 |
| SOP-0053 | Standby Diesel Generator and Auxiliaries | 307 |
| STP-309-0203 | Division 3 Diesel Generator Operability Test | 26A |
| STP-309-0207 | Division 2 Diesel Generator 184 Day Operability Test | 00 |
| STP-309-0602 | Division 2 ECCS Test | 23 |
| STP-309-0602 | Division 2 ECCS Test | 26 |

**Section 1RO5: Fire Protection**

MISCELLANEOUS DOCUMENTS

USAR Section 9A.2, Fire Hazards Analysis

PRE-FIRE PLAN/STRATEGY PROCEDURES

Cable Tray Area and Stairway #3 Fire Area C-16 and C-29, Revision 3, 06/10/2004
Diesel Generator A Control Room Fire Area DG-6/Z-1, Revision 3, 06/15/2004
Diesel Generator A Room Fire Area DG-6/Z-1, Revision 3, 06/15/2004
Diesel Generator B Control Room Fire Area DG-4/Z-1, Revision 3, 06/15/2004
Diesel Generator B Room Fire Area DG-4/Z-1, Revision 3, 06/15/2004
Diesel Generator C Control Room Fire Area DG-5/Z-1, Revision 3, 06/15/2004
Diesel Generator C Room Fire Area DG-5/Z-1, Revision 3, 06/15/2004
Water Chiller Equipment 1A Room Fire Area C-13W, Revision 3, 06/10/2004

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| FPP-0100 | Fire Protection System Impairment | 10 |
| FPP-0101 | Fire Suppression System Inspection | 10 |
| SOP-0037 | Fire Protection Water System Operating Procedure (System 251) | 27 |

**Section 1RO6: Flood Protection Measures**

CONDITION REPORTS

CR-RBS-2009-00075

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| Criterion 12210-220.940 | Moderate Energy Line Crack (MELC) and Post-LOCA Passive Failure | 1 |
| OSP-0029 | "*Log Report – Auxiliary, Reactor, and Fuel Building" | 36 |
| PN-314 | Moderate Energy Line Crack Flow Rates | 0 |
| PN-317 | Max Flood Elevations for Moderate Energy Line Cracks in Cat 1 Structures | 0 |
| PN-1378 | Moderate Energy Line Crack Flooding Rates | 0 |

**Section 1RO7: Heat Sink Performance**

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | REVISION/DATE |
|---|---|---|
| EPRI NP-7552 | Heat Exchangers Performance Monitoring Guidelines | December, 1991 |
| G13.18.2.1.*061 | Auxiliary Building Design Basis Heat Loads and Unit Cooler Sizing Verification | 3 |
| Generic Letter 89-13 | Service Water System Problems Affecting Safety-Related Equipment | |

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

SCENARIOS

RMS-OPS-423, "Loss of RBCCW," Revision 18
RMS-OPS-801, "Trip of CWS Pump – Steam Leak in Drywell," Revision 0

**Section 1R12: Maintenance Effectiveness**

CONDITION REPORTS

| | | |
|---|---|---|
| CR-RBS-2007-00025 | CR-RBS-2007-01987 | CR-RBS-2008-03681 |
| CR-RBS-2007-01502 | CR-RBS-2008-02133 | CR-RBS-2009-01522 |

MISCELLANEOUS DOCUMENTS

Calculation PB-290, Turbine Building Heating Requirements

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| SOP-0064 | Turbine Building HVAC System | 23 |

**Section 1R13: Maintenance Risk Assessment and Emergent Work Controls**

CONDITION REPORTS

CR-RBS-2009-00805
CR-RBS-2009-00862
CR-RBS-2009-01453

MISCELLANEOUS DOCUMENTS

PID-08-09D

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| ADM-0096 | Risk Management Program and Implementation Risk Assessment | 302 |
| AOP-0029 | Severe Weather Operation | 21 |
| AOP-0064 | Degraded Grid | 0 |
| EN-OP-115 | Conduct of Operations | 6 |
| EN-WM-101 | On-line Work Management | 3 |
| ENS-DC-199 | Off-Site Power Supply Design Requirements | 2 |

WORK ORDERS

WO 188360

**Section 1R15: Operability Evaluations**

CONDITION REPORTS

CR-RBS-2009-00006

DRAWINGS

Drawing No. 851E705

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-LI-102 | Corrective Action Process | 12 |
| EN-OP-104 | Operability Determinations | 3 |
| EN-OP-115 | Conduct of Operations | 3 |

**Section 1R18: Plant Modifications**

CONDITION REPORTS

CR-RBS-2009-01446
CR-RBS-2009-01447

**Section 1R19: Postmaintenance Testing**

CONDITION REPORTS

| | | |
|---|---|---|
| CR-RBS-1994-1616 | CR-RBS-2008-6818 | CR-RBS-2009-0490 |
| CR-RBS-1996-0634 | CR-RBS-2009 -0352 | CR-RBS-2009-0551 |
| CR-RBS-2008-2004 | CR-RBS-2009-0045 | LO-HQNLO-2007-0186 |
| CR-RBS-2008-2983 | CR-RBS-2009-0219 | LO-NOE-2008-0090 |
| CR-RBS-2008-6708 | CR-RBS-2009-0416 | |

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | DATE |
|---|---|---|
| NRC IN 91-62 | Diesel Engine Damage Caused by Hydraulic Lockup Resulting from Fluid Leakage into Cylinders | September 30, 1991 |
| NRC IN 2008-05 | Fires Involving Emergency Diesel Generator Exhaust Manifolds | April 12, 2008 |
| RBG-21407 | Standby Diesel Generator Engine Mounted Piping | June 27, 1985 |
| Specification 244.700 | Standby Diesel Generator Systems | April 12, 1985 |
| TDI DWG 09-805-74039 | Exhaust, Intake, & Crankshaft Vacuum Piping Schematic | January 9, 1980 |

PROCEDURES

| NUMBER | TITLE | REVISION/DATE |
|---|---|---|
| AOP-0003 | Automatic Isolations | 26 |
| CEP-IST-1 | IST Basis Document | 4 |
| EN-LI-102 | Corrective Action Process | 12 |
| STP-000-0201 | Monthly Operating Logs | January 15, 2009 |
| STP-052-6301 | Control Rod Drive Quarterly Valve Operability Test | 302 |

WORK ORDERS

WO 00174294 Task 01
WO 00175531 Task 01

**Section 1R22: Surveillance Testing**

CONDITION REPORTS

| | | |
|---|---|---|
| CR-HQN-2008-0253 | CR-RBS-2004-1858 | CR-RBS-2009-0045 |
| CR-RBS-1995-0824 | CR-RBS-2008-6818 | CR-RBS-2009-0490 |
| CR-RBS-1995-1147 | CR-RBS-2009-0045 | CR-RBS-2009-0490 |
| CR-RBS-2004-1858 | CR-RBS-2009-0045 | CR-RBS-2009-0490 |

MISCELLANEOUS DOCUMENTS

Set Point Data Sheet Number 12210-PN-CSH-PS250 for right bank starter
Standing Order 225, “Div 3 Diesel Generator Air Start System Requirements,” Revision 0

PROCEDURES

| NUMBER | TITLE | REVISION/DATE |
|---|---|---|
| 3244.700-041-074 | Cooper-Enterprise Service Information Memo Number 402 | E |
| CEP-IST-1 | IST Basis Document | 4 |
| EN-LI-102 | Corrective Action Process | Revision 12 |
| EN-MA-125 | Troubleshooting Control of Maintenance Activities | 4 |
| EN-OP-104 | Operability Determination | 3 |

| NUMBER | TITLE | REVISION/DATE |
|---|---|---|
| NRC Inspection Manual Part 9900 Technical Guidance | Standard Technical Specifications Section 3/4.8.1 TDI Diesel Generator Air Roll Tests | - |
| NUREG – 1416 | Operational Experience and Maintenance Programs of Transamerica Delaval, Inc., Diesel Generators | April 1994 |
| Regulatory Guide 1.108 | Periodic Testing Of Diesel Generator Units Used As Onsite Electric Power Systems At Nuclear Power Plants | 1 |
| STP-204-6302 | Div 2 LPCI Quarterly Pump and Valve Operability Test | 018 |
| STP-209-0201 | RCIC Discharge Piping Fill and Valve Lineup | 10 |
| STP-052-6301 | *Control Rod Drive Quarterly Valve Operability Test | 302 |
| STP-000-0201 | Monthly Operating Logs | January 15, 2009 |
| Vendor Manual VTD-C634-0112 | Transamerica Delaval Instruction Manual for Model DSR-48 Diesel Engine/Generator | 1 |

WORK ORDERS

51702008 Task 03
51797635 Task 01

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

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| EPP-2-401 | Inadvertent Siren Sounding | 7 |
| EPP-2-502 | Emergency Communications Equipment Testing | 23 |
| EPP-2-701 | Prompt Notification System Maintenance and Testing | 21 |

REPORTS

| TITLE | REVISION |
|---|---|
| River Bend Station Prompt Notification System Design Report | 1 |

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

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| EPP-2-104 | Maintenance of Emergency Telephone Numbers | 3 |
| EPP-2-202 | Emergency Response Organization | 11 |
| EPP-2-502 | Emergency Communications Equipment Testing | 23 |

REPORTS

| TITLE | DATE |
|---|---|
| Pager Test Evaluation Report, June 18, 2007 | June 20, 2007 |
| Pager Test Evaluation Report, September 18, 2007 | September 20, 2007 |
| Pager Test Evaluation Report, November 15, 2007 | November 16, 2007 |
| Pager Test Evaluation Report, March 31, 2008 | April 1, 2008 |
| Pager Test Evaluation Report, April 29, 2008 | May 5, 2008 |
| Pager Test Evaluation Report, September 26, 2008 | September 30, 2008 |
| Pager Test Evaluation Report, December 16, 2008 | December 17, 2008 |

**Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies**

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

| NUMBER | TITLE | DATE |
|---|---|---|
| QA-7-2008-RBS-1 | 2008 Audit, Emergency Preparedness | - |
| QS-2008-RBS-026 | Quality Assurance Surveillance | December 4, 2008 |
| RLO-2007-00038 | Emergency Preparedness Program Assessment | January 22, 2007 |
| RLO-2008-00063 | 2008 Emergency Planning Program Assessment | January 29, 2008 |
| RLO-2008-00090 | Quarterly Verification of Worker Qualifications | May 12, 2008 |
| RLO-2008-0125 | Emergency Preparedness Asssessment | December 15, 2008 |

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| EN-QV-105 | Nuclear Oversight Performance Reporting | 2 |
| EN-QV-109 | Audit Process | 13 |
| EPP-2-100 | Procedure Review, Revision, and Approval | 14 |
| EPP-2-501 | Emergency Facilities and Equipment Readiness | 14 |

REPORTS

| TITLE | DATE |
|---|---|
| River Bend Nuclear Station Oversight Report, Second Quarter 2007 | August 2, 2007 |
| River Bend Nuclear Station Oversight Report, Third Quarter 2007 | November 5, 2007 |
| River Bend Nuclear Station Oversight Report, Fourth Quarter 2007 | February 8, 2008 |
| River Bend Nuclear Station Oversight Report, First Quarter 2008 | May 20, 2008 |
| River Bend Nuclear Station Oversight Report, Second Quarter 2008 | August 14, 2008 |
| River Bend Nuclear Station Oversight Report, Third Quarter 2008 | November 19, 2008 |
| October 21, 2007, Protected Area Evacuation Drill | October 24, 2007 |
| December 12, 2008, Protected Area Evacuation Drill | December 22, 2008 |
| November 1, 2007, Medical Drill Report | November 6, 2007 |
| 2008 Medical Drill Report | January 12, 2009 |
| Training Evaluation Action Request 2007-56 | January 25, 2007 |
| Training Evaluation Action Request 2007-464 | August 6, 2007 |
| Post-Event Report: Notification of Unusual Event, January 23, 2008 | January 23, 2008 |

SCENARIOS

RDRL-EP-0802, “Site Drill Scenario,” Revision 1

WORK ORDERS

WO 00136837, Control Room Base Station Warble and Pulse Failure

**Section 4OA1: Performance Indicator Verification**

CONDITION REPORTS

| | | | |
|---|---|---|---|
| 2007-02023 | 2007-03056 | 2007-03276 | 2007-03961 |
| 2007-04919 | 2007-05504 | 2008-00037 | 2008-00123 |
| 2008-00753 | 2008-00782 | 2008-00811 | 2008-01271 |
| 2008-01622 | 2008-01616 | 2008-02128 | 2008-02661 |
| 2008-02662 | 2008-03264 | 2008-03301 | 2008-03302 |
| 2008-03877 | 2008-03959 | 2008-04184 | 2008-04881 |
| 2009-00106 | | | |

MISCELLANEOUS DOCUMENTS

2008 Emergency Planning Schedule of Drills

RBS Emergency Planning Position Paper: Meaningful Drill and Exercise Participation for ERO Members, October 22, 2007

River Bend Nuclear Generating Station Emergency Plan

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| EIP-2-002 | Classification Actions | 28 |
| EIP-2-006 | Notifications | 33 |
| EIP-2-007 | Protective Action Recommendation Guidelines | 22 |
| EN-EP-201 | Performance Indicators | 7 |
| EN-LI-102 | Corrective Action Process | 12 |
| EN-LI-114 | Performance Indicator Process | 4 |

**Section 4OA2: Identification and Resolution of Problems**

CONDITION REPORTS

| | | |
|---|---|---|
| CR-HQN-2009-0052 | CR-RBS-2008-2983 | CR-RBS-2009-0551 |
| CR-RBS-1994-1616 | CR-RBS-2009 -0352 | LO-HQNLO-2007-0186 |
| CR-RBS-1996-0634 | CR-RBS-2009-0052 | LO-NOE-2008-0090 |
| CR-RBS-1996-1137 | CR-RBS-2009-0184 | LO-RLO-2004-0116 |
| CR-RBS-2006-2705 | CR-RBS-2009-0416 | |

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | DATE |
|---|---|---|
| NRC Information Notice 91-62 | Diesel Engine Damage Caused by Hydraulic Lockup Resulting From Fluid Leakage Into Cylinders | September 30, 1991 |
| NRC Information Notice 2008-05 | Fires Involving Emergency Diesel Generator Exhaust Manifolds | April 12, 2008 |
| RBG-21407 | Standby Diesel Generator Engine Mounted Piping | June 27, 1985 |
| Specification 244.700 | Standby Diesel Generator Systems | April 12, 1985 |
| TDI Dwg 09-805-74039 | Exhaust, Intake &Crankshaft Vacuum Piping Schematic | January 9, 1980 |

PROCEDURES

| NUMBER | TITLE | REVISION/ |
|---|---|---|
| SDC-309 | Standby Diesel Generator Division 1 and 2 | 3 |
| STP-309-0203 | Division 3 Diesel Generator Operability Test | 26A |
| STP-309-0207 | Division 2 Diesel Generator 184 Day Operability Test | 00 |
| STP-309-0602 | Division 2 ECCS Test | 26 |
| STP-309-0602 | Division 2 ECCS Test | 23 |
| STP-309-0603 | Division 3 18 Month ECCS Test | 24 |
| STP-309-0612 | Division 2 Diesel Generator 24 Hour Run | 17 |

**Section 4OA3: Event Follow-Up**

DESIGN AND LICENSE BASIS DOCUMENTS

| NUMBER | TITLE | REVISION/DATE |
|---|---|---|
| ER-RB-2004-0140-000 | Evaluate the Impact on the Post-fire Safe Shutdown Analysis if Automatic Functions are NOT Lost Due to A Fire | 0 |
| GEK-90394 | River Bend 1, Fire Detection and Suppression System Operating and Maintenance Instructions | September 1984 |
| ER-SEA-95-001 | Individual Plant Examination of External Events (IPEEE) | 0 |

DRAWINGS

| NUMBER | TITLE | REVISION |
|---|---|---|
| EE-027A | Arrangement – Main Control Room | 15 |
| 914E501 | Reactor Core Cooling – Panel H13-P601 | 13 |
| 914E507 | Standby Diesel Generator – Panel H13-P877 | 9 |

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| AOP-0031 | Shutdown from Outside the Main Control Room | 304 |
| AOP-0031 | Shutdown from Outside the Main Control Room | 20A |

CONDITION REPORTS CR-RBS-

2004-00455
2006-00046
2006-03776
2007-02102

MISCELLANEOUS

Standing Order #193, RCIC System and Div 1 DG Availability During MCR Fire, Revision 4
Facility Operating License NPF-47

**Section 4OA5: Other Activities**

CONDITION REPORTS

CR-RBS-2008-06244
CR-RBS-2009-00185
CR-RBS-2009-00498