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

August 8, 2012

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

SUBJECT: RIVER BEND STATION – NRC INTEGRATED INSPECTION REPORT 05000458/2012003

Dear Mr. Olson:

On June 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your River Bend Station. The enclosed inspection report documents the inspection results, which were discussed on July 10, 2012, with you and other members of your staff.

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

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

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

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

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

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

Sincerely,

/RA/

Vincent G. Gaddy, Branch Chief
Project Branch C
Division of Reactor Projects

Docket No.: 05000458
License No.: NPF-47

Enclosures: Inspection Report 05000458/2012003
w/ Attachment:
1. Supplemental Information
2. Information Request for Inspection Activities Documented in 2RS1, 2RS3, 4OA1, and 4OA7
3. Phase 3 Analysis for Failure to Specify Manual Actions for Safety Relief Valve Operations During a Station Blackout Event

cc w/ encl: Electronic Distribution

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

SRI:DRP/C	RI:DRP/C	SPE:DRP/C	C:DRS/EB1	C:DRS/EB2	C:DRS/OB
GFLarkin	AJBarrett	RCHagar	TRFarnholtz	GBMiller	MCHaire
/E/VGG for	/E/VGG for	/RA/	/RA/	/RA/	/RA/
7/30/12	7/30/12	8/7/12	7/30/12	8/6/12	7/27/12
C:DRS/PSB1	C:DRS/PSB2	C:DRS/TSB	BC:DRP/C		
MCHay	GEWerner	RDAlexander	VGGaddy		
/RA/	JDrake for	/RA/	/RA/		
7/30/12	8/6/12	7/30/12	8/8/12		

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000458

License: NPF-47

Report: 05000458/2012003

Licensee: Entergy Operations, Inc.

Facility: River Bend Station

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

Dates: April 1 through June 30, 2012

Inspectors: G. Larkin, Senior Resident Inspector
A. Barrett, Resident Inspector
S. Garchow, Senior Operations Engineer
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C. Alldredge, Health Physicist
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Approved By: Vincent G. Gaddy, Chief
Project Branch C
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000458/2012003; 04/01/2012 – 06/30/2012; RIVER BEND STATION; Integrated Resident and Regional Report; Adverse Weather Protection; Problem Identification and Resolution; Followup of Events and Notices of Enforcement Discretion; Other Activities

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Three Green non-cited violations and two Green findings of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, “Significance Determination Process.” The cross-cutting aspect is determined using Inspection Manual Chapter 0310, “Components Within the Cross Cutting Areas.” Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, “Reactor Oversight Process,” Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a finding for failure to follow Operating System Procedure OSP-0048, "Switchyard, Transformer Yard, and Sensitive Equipment Controls." Specifically, the licensee failed to appropriately consider the plant impact when planning and approving work in the main transformer yard and switchyard potentially introducing unacceptable risk to plant operations contrary to Procedure OSP-0048 administrative controls. This issue was entered into the licensee’s corrective action program as Condition Reports CR-RBS-2012-02479, CR-RBS-2012-02821, and CR-RBS-2012-04129.

  The finding was more than minor in accordance with Appendix B, "Issue Screening," of Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," because the finding was associated with the protection against external events attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the routine failure to integrate switchyard and transformer yard work into the River Bend work process increased the likelihood that unintended, uncoordinated maintenance and test activities could reduce the diversity of electrical power and cause inadvertent reductions in nuclear plant defense-in-depth. The inspectors performed a Phase 1 significance determination process review of this finding per Inspection Manual Chapter 0609, Attachment 4, "Initial Screening and Characterization of Findings." The finding was determined to be of very low safety significance (Green) since the finding did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator, nor did it contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, and the finding did not

increase the likelihood of a fire or internal or external flooding. The inspectors determined the apparent cause of this finding was a lack of management oversight of station work activities. Therefore, this finding has a cross-cutting aspect in the area of human performance associated with the work practices component because station management failed to provide proper oversight of the process to protect sensitive areas of the plant [H.4(c)] (Section 1R01).

- Green. The inspectors identified a non-cited violation of Technical Specification 5.4.1.a that involved failure to implement a procedure to protect the plant during adverse weather conditions. Specifically, appropriate equipment walkdowns and corrective actions were not performed to protect equipment important to safety from severe weather risks in a timely manner. The concerns were documented in Condition Report CR-RBS-2012-02387.

  The finding was more that minor because it affected the protection against external factors attribute of the Initiating Events cornerstone. The finding was determined to be of very low safety significance (Green) since the finding did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator, nor did it contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, and the finding did not increase the likelihood of a fire or internal or external flooding. The inspectors determined the apparent cause of this finding was operation's expectation that excellent housekeeping nominally exists in the switchyard and transformer yard. Therefore, there was no need to dispatch personnel to verify housekeeping because that action would risk personnel safety. The status of an unsecured ladder in the transformer yard is evidence that up to date information is essential to confirm whether housekeeping is satisfactory. Therefore, the finding has a cross-cutting aspect in the area of human performance associated with the decision-making component because the station did not demonstrate that nuclear safety was an overriding priority because it failed to implement the roles and authorities in their severe weather operations procedure [H.1(a)] (Section 1R01).

- Green. The inspectors reviewed a self-revealing finding associated with main turbine control valve number 3 unexpectedly closing due to a failure to effectively implement vendor-recommended maintenance. In response, operators reduced reactor power to 90 percent. This issue was entered into the licensee's corrective action program as Condition Report CR-RBS-2012-02773.

  The finding was more than minor because it was associated with the Initiating Events cornerstone attribute of design control and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability by resulting in a plant downpower and subsequent planned outage for repair activities. The inspectors reviewed the finding using Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Based on the Phase 1 screening of the finding, the inspectors determined that the finding was of very low safety

significance (Green) because it did not affect loss of coolant accident initiators, did not contribute to increasing the likelihood of both an initiating event and affecting mitigating equipment, and did not increase the likelihood of a fire or flood. The inspectors did not identify a cross-cutting aspect because the performance deficiency is not indicative of the licensee's current performance (Section 4OA3).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for failing to correct a condition adverse to quality for lubricating the high pressure core spray diesel generator bearings. The station documented the finding in Condition Report CR-RBS-2012-02666.

  This performance deficiency was more than minor and was a finding because, if left uncorrected, inadequate lubrication work instructions could cause bearing failure due to inadequate lubrication or generator winding failure due to grease intrusion into the electrical windings in the generator. The significance of this finding was evaluated using a Phase 1 significance determination process screening and was determined to be of very low safety significance (Green) because it was not a design or qualification deficiency; did not represent a loss of system safety function; and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. The apparent reason the initial condition report was closed without correcting the work instruction to lubricate the high pressure core spray diesel generator bearings was that personnel who prepared and approved the operability evaluation were focused on proving operability not correcting a condition adverse to quality. Their focus was specific to the component's ability to perform its function and not on completely identifying the issue in the corrective action program. Therefore, the finding has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program component because the station did not identify this issue completely, accurately, and in a timely manner commensurate with its safety significance [P.1(a)] (Section 4OA2).

- Green. The inspectors identified a non-cited violation of 10 CFR 50.63, "Loss of All Alternating Current," paragraph (a) (2), which states, in part, "The reactor core and associated coolant, control, and protection systems, including station batteries and any other necessary support systems, must provide sufficient capacity and capability to ensure that the core is cooled and appropriate containment integrity is maintained in the event of a station blackout for the specified duration. The capability for coping with a station blackout of specified duration shall be determined by an appropriate coping analysis. Licensees are expected to have the baseline assumptions, analyses, and related information used in their coping evaluations available for NRC review." Specifically, from November 1985 to May 17, 2012, the licensee failed to specify actions while AC power is unavailable to ensure that safety relief valves provided sufficient

capacity and capability to ensure appropriate containment integrity is maintained during a station blackout event. This violation has been entered into the corrective action program as Condition Report CR-RBS-2012-03376.

The inspectors determined that failure to specify actions for safety relief valve operation in procedures in accordance with NUMARC-8700 was a performance deficiency. The finding was more than minor because it adversely affected the procedure quality attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the station blackout coping procedures did not specify actions that would ensure the heat capacity temperature limit for the suppression pool would not be exceeded during the station blackout coping period. Using Phase 1 of Inspection Manual Chapter 0609, "Significance Determination Process," the inspectors determined that the Mitigating Systems Cornerstone was affected because the finding could cause degradation of core decay heat removal. Using Table 4a from the Phase 1 worksheet, the inspectors determined that the finding represents a loss of safety function; therefore, a Phase 2 analysis was necessary. However, the inspectors determined that a Phase 2 analysis was not sufficient to assess significance because of the complexity of the finding. Therefore, a Phase 3 analysis was necessary. The result of the Phase 3 analysis determined that the change in core-damage-frequency (ΔCDF) for the performance deficiency was 2.4E-7 or very low safety significance (Green). The senior reactor analyst determined that the change in large-early-release-frequency (ΔLERF) was 4.8E-8 or very low safety significance (Green). No cross-cutting aspect was identified because the most significant contributor was not indicative of current licensee performance (Section 4OA5).

B. Licensee-Identified Violations

Violations of very low safety significance or severity level IV that 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 associated corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

River Bend Station began the inspection period at 100 percent rated thermal power.

- On April 6, 2012, the plant reduced reactor power to 98 percent to perform partially withdrawn control rod tests and main turbine bypass valve tests. The plant returned to full power on April 6, 2012.

- On April 18, 2012, the plant reduced power to 99.6 percent to repair the reactor feedwater leading edge flow monitor. After repairs, the plant returned to full power on April 20, 2012.

- On April 23, 2012, main turbine control valve number 3 unexpectedly drifted shut causing turbine control valve number 4 and both main steam bypass valves to open to maintain reactor set pressure. Operators responded to reduce reactor power to 90 percent.

- On April 28, 2012, the plant reduced power to 85 percent to stabilize main turbine control valve number 4 oscillation caused in part by control valve number 3 drifting shut on April 23, 2012.

- On May 3, 2012, the plant shut down to repair main turbine control valve number 3 mechanical and electrical malfunctions. Troubleshooting found all 20 control valve number 3 hydraulic actuator's push rod spring housing coupling bolts failed. On May 8, 2012, the plant resumed power operation and returned to 100 percent power on May 14, 2012.

- On May 21, 2011, a sharp decline in main condenser vacuum and a subsequent reactor scram resulted from a failed 13.8 kV cable splice that supplied power to two of three normal service water pumps, two circulating water pumps, and circulating water cooling tower B and D fans. On May 23, 2012, the plant resumed power operations.

- On May 24, 2012, operators manually scrammed the reactor while at 33 percent reactor power. The reactor scram was caused by a fault located in the reactor feedwater pump 1B motor termination box. The fault was not isolated by the motor's supply breaker due to a mechanically bound 86 lockout relay. The feeder breaker to the 13.8 kV nonsafety-related bus tripped to clear the reactor feedwater pump 1B fault. Because of a previous cable failure and fire on Monday, May 21, 2012, all operating circulating water pumps and normal service water pumps were powered through this 13.8 kV feeder breaker. The loss of the running pumps resulted in the loss of condenser vacuum and cooling water to all turbine building and safety-related loads. On June 1, 2012, the plant resumed power operations.

- On June 2, 2012, after the station was unable to reseat safety relief valve, B21-RVF051G, operators took the mode switch to shutdown at approximately 3 percent

reactor power. On June 8, 2012, the plant resumed power operations after replacing all leaking safety relief valves.

- On June 12, 2012, the plant reached 85 percent reactor power with two reactor feedwater pumps operating. Further power ascension was stopped pending alignment of reactor feedwater pump 1B motor pump side bearing.

- On June 13, 2012, the plant reduced power to 75 percent to start reactor feedwater pump 1B. However, reactor feedwater pump 1B motor bearing alignment was unsatisfactory. The plant increased power back to 85 percent.

- On June 21, 2012, the plant reached 100 percent and remained at 100 percent reactor power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate-ac Power

a. Inspection Scope

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

- The coordination between the transmission system operator and the plant's operations personnel during off-normal or emergency events

- The explanations for the events

- The estimates of when the offsite power system would be returned to a normal state

- The notifications from the transmission system operator to the plant when the offsite power system was returned to normal

During the inspection, the inspectors focused on plant-specific design features and the procedures used by plant personnel to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Safety Analysis Report and performance requirements for systems selected for inspection and verified that

operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- Division 1 and 2 emergency diesel generators
- River Bend Station transformer yard
- 13.8 kV electrical distribution system

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

b. Findings

Introduction. The inspectors identified a Green finding for failure to follow Operating System Procedure OSP-0048, "Switchyard, Transformer Yard, and Sensitive Equipment Controls."

Description. On April 8, 2012, technicians performed summer reliability maintenance on the station transformers in the main transformer yard. The maintenance included building scaffolding and cleaning transformer cooling fins and fans. The inspectors walked down the main transformer yard and found that the gates to the yard had been left unlocked and unattended. This was contrary to OSP-0048, "Switchyard, Transformer Yard, and Sensitive Equipment Controls," step 7.2.6, which requires that "Transformer yard vehicle access gates shall be maintained in a locked condition except when attended or to allow entry or exit."

During the review of OSP-0048, the inspectors noted that the work package failed to include OSP-0048, Attachment 4, "Plant Impact Statement." OSP-0048 requires that the station complete Attachment 4 for scheduled and unscheduled work. Prior to beginning work, the "Plant Impact Statement" required the operations manager or the plant manager approve the stated work in writing. Specifically, these managers review the following: (1) work activity description; (2) impact work activity may have on component, system, or plant; (3) plant mode and conditions required for activity; (4) date and time work activity is to begin and be completed; (5) minimum available offsite and onsite power supplies required; (6) a list of any vehicles and cranes required to perform the activity; and (7) any special precautions that should be taken prior to implementing the work. For the past several years, station personnel could not produce completed work orders where Attachment 4 was used and integrated into the work management process. The inspectors found that the plant impact was, in part, informally communicated between the switchyard point of contact and the work week managers without tracking and integrating the plant impact into the work management system.

The attachment provides information to integrate the maintenance request into the River Bend work process so that planning, maintenance, and testing activities that could affect electrical power diversity is coordinated with grid maintenance and testing activities to

prevent inadvertent reductions in nuclear plant defense-in-depth. Loss-of-grid events often occur from causes that are beyond the plant's control, such as failures of transmission lines or grid substation equipment. However, a significant number of these events have occurred because of maintenance-induced faults in equipment within the power plant switchyards and immediate distribution systems that are within the area of responsibility of the power plants. Therefore, the inspectors determined that the licensee failed to appropriately consider the plant impact when planning and approving work in the main transformer yard and switchyard potentially introducing unacceptable risk to plant operations contrary to OSP-0048 administrative controls.

Analysis. The failure of station personnel to ensure that the transformer yard vehicle access gates were locked, to document and evaluate maintenance requests using the "Plant Impact Statement," and to integrate the proposed maintenance into the River Bend work process schedule was a performance deficiency. The inspectors concluded that the finding was more than minor in accordance with Appendix B, "Issue Screening," of Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," because the finding was associated with the protection against external events attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the routine failure to integrate switchyard and transformer yard work into the River Bend work process increased the likelihood that unintended, uncoordinated maintenance and test activities could reduce the diversity of electrical power and cause inadvertent reductions in nuclear plant defense-in-depth. The inspectors performed a Phase 1 significance determination process review of this finding per Inspection Manual Chapter 0609, Attachment 4, "Initial Screening and Characterization of Findings." The finding was determined to be of very low safety significance (Green) since the finding did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator, nor did it contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, and the finding did not increase the likelihood of a fire or internal or external flooding. The inspectors determined the apparent cause of this finding was a lack of management oversight of station work activities. Therefore, this finding has a cross-cutting aspect in the area of human performance associated with the work practices component because station management failed to provide proper oversight of the process to protect sensitive areas of the plant [H.4(c)].

Enforcement. This finding does not involve enforcement action because no regulatory requirement violation was identified. This issue was entered into the licensee's corrective action program as Condition Reports CR-RBS-2012-02479, CR-RBS-2012-02821, and CR-RBS-2012-04129 and is designated as FIN 05000458/2012003-01, Failure to Follow Procedure to Protect Sensitive Plant Areas.

.2 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 April 3-4, 2012, the inspectors reviewed the plant personnel's overall

preparations/protection for the expected weather conditions. On April 4, 2012, in addition to the emergency-AC power system, the inspectors walked down the control building chiller systems 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 plant staff's preparations against the site's procedures and determined that the staff's actions, in part, were adequate. 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 the 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

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a for failure to implement a procedure to protect the plant during adverse weather conditions.

Description. On April 3, 2012, the National Weather Service issued a severe weather warning for the area surrounding River Bend Station. At 10:22 p.m., the station entered Abnormal Operating Procedure, AOP-0029, "Severe Weather Operations." The station exited the procedure at 11:21 p.m. After the warning expired, the inspectors walked down the station transformer yard and identified an unsecured ladder outside of the designated storage area. In addition, the inspectors noted other debris in the area and outside of the designated transformer yard area that could become missiles during high winds and potentially impact the technical specification preferred transformers or main transformers. The inspectors informed the control room personnel of the deficiencies, and station personnel took immediate action to remedy the problems.

The inspectors reviewed the six previous documented entries into AOP-0029 and found that AOP-0029, Attachment 2, step 1.13 had been deleted five times. Step 1.13 requires removing all loose material in the protected area and within line of sight of the reactor building; raising all crane hooks to the top and installing locking bolts; removing all gas bottles from exterior storage racks and secure inside; and verify doors and covers are securely closed on the transformers, switchyard equipment, fire hose stations, and outside electrical panels. The procedure allows the operations shift manager to delete steps from the procedure based on weather conditions and time to implement the procedure steps to protect personnel.

The purpose of AOP-0029, as stated in paragraph 1.3, says that "Equipment and structures in the outside areas are likely to be damaged, and all possible precautionary measures should be taken." Step 1.13 as written and implemented in five of the last six severe weather warnings did not demonstrate that all precautionary measures were taken. Specifically, appropriate equipment walkdowns and corrective actions were not performed to protect equipment important to safety from severe weather risks in a timely manner. The concerns were documented in Condition Report CR-RBS-2012-02387.

Analysis. The station's failure to implement AOP-0029, paragraph 1.3, to ensure all possible precautionary measures were taken was a performance deficiency. The performance deficiency was more than minor and is a finding because it affected the protection against external factors attribute of the Initiating Events cornerstone designed to limit the likelihood of events that upset plant stability. Specifically, the procedure failed to ensure appropriate equipment walkdowns and corrective actions were taken in a timely manner to protect equipment important to safety from severe weather risks. The finding was determined to be of very low safety significance (Green) since the finding did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator, nor did it contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, and the finding did not increase the likelihood of a fire or internal or external flooding. The inspectors determined the apparent cause of this finding was operation's expectation that excellent housekeeping nominally exists in the switchyard and transformer yard. Therefore, there was no need to dispatch personnel to verify housekeeping because that action would risk personnel safety. The status of an unsecured ladder in the transformer yard is evidence that up to date information is essential to confirm whether housekeeping is satisfactory. Therefore, the finding has a cross-cutting aspect in the area of human performance associated with the decision-making component because the station did not demonstrate that nuclear safety was an overriding priority because it failed to implement the roles and authorities in their severe weather operations procedure [H.1(a)].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, 1978. Regulatory Guide 1.33, Appendix A, requires, in part, written procedures for Acts of Nature (e.g., tornado, flood, dam failure, earthquakes). Procedure AOP-0029, "Severe Weather Operations," Revision 28, requires, in part, that "Equipment and structures in the outside areas are likely to be damaged, and all possible precautionary measures should be taken."

Contrary to the above, the licensee did not implement an applicable procedure recommended in Regulatory Guide 1.33, Revision 2, Appendix A, in that on or about April 3, 2012 and in response to five of the previous six severe-weather warnings which affected the site, the licensee did not implement procedure AOP-0029, Attachment 2, Step 1.13. Specifically, the licensee did not perform appropriate equipment walkdowns and take appropriate corrective actions to protect risk-significant equipment from severe weather risks. The station documented the finding in Condition Report CR-RBS-2012-

02666. Because this issue is of very low safety significance and has been entered into the station's corrective action program, this violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy:
NCV 05000458/2012003-02, Failure to Follow Severe Weather Operations Procedure.

1R04 Equipment Alignment (71111.04)

Partial Walkdown

a. Inspection Scope

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

- Main steam positive leakage control system Division 1
- Division 1 standby service water
- Control rod drive B

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 inspected 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 three partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Fire Inspection Tours

a. Inspection Scope

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

- May 23, 2012, turbine building, 67-foot and 123-foot elevations
- June 9, 2012, control building, 116-foot elevation
- June 9, 2012, control building, 136-foot elevation
- June 26, 2012, auxiliary building, fire area AB-2/Z-1, high pressure core spray
- June 26, 2012, auxiliary building, fire area AB-6/Z-1, low pressure core spray

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 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 inspected the areas 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.

- April 24, 2012, auxiliary building
- June 5, 2012, manhole inspection

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

b. Findings

No findings were identified.

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

.1 Quarterly Review of Licensed Operator Requalification Program

a. Inspection Scope

On May 29, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during training. The inspectors assessed the following areas:

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

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

b. Findings

No findings were identified.

.2 Quarterly Observation of Licensed Operator Performance

a. Inspection Scope

The inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened activity and risk due to shut down and start up activities to resolve equipment issue resulting from reactor scrams on May 21, 2012, May 24, 2012, and June 2, 2012. The inspectors observed the operators' performance of the following activities:

- Scram recovery actions on May 21, 2012
- Start up activities on May 23, 2012
- Scram recovery actions on May 24, 2012
- Start up activities on June 2, 2012
- Scram recovery actions on June 2, 2012

In addition, the inspectors assessed the operators' adherence to plant procedures, including conduct of operations procedure and other operations department policies.

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- Containment monitoring system
- Instrument air system
- Service air system
- Feedwater system

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

- Implementing appropriate work practices

- Identifying and addressing common cause failures

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

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

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

b. Findings

No findings were identified.

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

a. Inspection Scope

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

- Station transformer yard work, April 5, 2012
- Instrument air compressor failures, April 11, 2012
- Switchyard cable replacement work and main transformer number 2 scaffold installation and cooling coil cleaning, April 24, 2012

- Risk associated with penetration valve leakage control system out of service, May 9, 2012

- NPS-SWG1A and NPS-SWG1B fast bus transfer from offsite preferred transformers to station transformer, June 26, 2012

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

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

b. Findings

No findings were identified.

1R15 Operability Evaluations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following assessments:

- CR-RBS-2012-02345, component cooling primary piping penetration to suppression pool cooling area does not have an inner boot, reviewed on April 4, 2012

- CR-RBS-2012-01858, relief valve lifted on reactor core isolation cooling, reviewed on April 9, 2012

- CR-RBS-2012-01751, residual heat removal insulation deficiencies, reviewed on April 16, 2012

- CR-RBS-2012-02806, operability inadequate on SSW-MOV96A failure, reviewed on April 25, 2012

- CR-RBS-2012-03185, Division 3 emergency diesel generator lube oil sample found with fuel oil contamination from cylinder 20 fuel injector leakage, reviewed on May 9, 2012

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

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

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- WO-00307333, "HVC-AOD19C Valve Operator Is Leaking Air," reviewed on April 18, 2012
- WO-00314259, "Determine Cause of Loop not Controlling in Auto (FWS-P1B Min Flow Valve)," reviewed on May 6, 2012
- WO-52378315, "E22EGS001 Post Maintenance Engine Run," reviewed on May 11, 2012
- WO-00316300, "NPS-SWG1A Large Motor Lead and Lug Inspection, FWS-P1A," reviewed on May 29, 2012
- WO-00316334, "NPS-SWG1A ACB14-86 Lockout Relay Failed to Trip," reviewed on May 29, 2012

- WO-00316384, “NPS-SWG1A ACB15-86 Lockout Relay Failed to Trip,” reviewed on May 30, 2012

- WO-00319201, “E22-EGS001 Cylinder #16 High,” reviewed on June 21, 2012

- WO-00316257-25, “EM Functional Check the 86 Relays, ENS-SWG1A ACB04,” reviewed on May 31, 2012

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

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

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

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

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

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for River Bend Station planned outage 12-01, conducted from May 4-8, 2012, and forced outage 12-01, conducted from May 21, 2012, to June 12, 2012, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the refueling outage, the inspectors observed portions of the shutdown and

cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.

- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.

- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities.

- Monitoring of decay heat removal processes, systems, and components.

- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.

- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.

- Controls over activities that could affect reactivity.

- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing.

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

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

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

test data to verify that the significant surveillance test attributes were adequate to address the following:

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

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

- REP-0007, “Spent Fuel Pool Coupon Surveillance Program,” performed on April 24, 2012 (routine)
- STP-207-4549, “RCIC Isolation – RCIC/RHR Steam Line Flow High Channel Functional Test (E31-N684B, E31-N691B),” performed on May 31, 2012 (routine)
- STP-204-0201, "LPCI A Discharge Piping Fill and Valve Lineup Verification," (routine, WO-524159920)
- STP-208-3605, Main Steam Line Penetration KJB-Z2 Valve Leak Rate Test," (containment isolation valve, WO-00300685)

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

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

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

This area was inspected to: (1) review and assess licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures, (2) verify the licensee is properly identifying and reporting Occupational Radiation Safety Cornerstone performance indicators, and (3) identify those performance deficiencies that were reportable as a performance indicator and which may have represented a substantial potential for overexposure of the worker.

The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed walkdowns of various portions of the plant, performed independent radiation dose rate measurements, and reviewed the following items:

- Performance indicator events and associated documentation reported by the licensee in the Occupational Radiation Safety Cornerstone
- The hazard assessment program, including a review of the licensee's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels
- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions
- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability
- Radiological hazards control and work coverage, including the adequacy of surveys, radiation protection job coverage, and contamination controls; the use of electronic dosimeters in high noise areas; dosimetry placement; airborne radioactivity monitoring; controls for highly activated or contaminated materials

(non-fuel) stored within spent fuel and other storage pools; and posting and physical controls for high radiation areas and very high radiation areas

- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

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

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.01-05.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

This area was inspected to verify in-plant airborne concentrations are being controlled consistent with ALARA principles and the use of respiratory protection devices on-site do not pose an undue risk to the wearer. The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed licensee personnel, performed walkdowns of various portions of the plant, and reviewed the following items items:

- The licensee's use, when applicable, of ventilation systems as part of its engineering controls

- The licensee's respiratory protection program for use, storage, maintenance, and quality assurance of NIOSH certified equipment, qualification and training of personnel, and user performance

- The licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions, status of SCBA staged and ready for use in the plant and associated surveillance records, and personnel qualification and training

- Audits, self-assessments, and corrective action documents related to in-plant airborne radioactivity control and mitigation since the last inspection

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

These activities constitute completion of the one sample as defined in Inspection Procedure 71124.03-05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the first quarter 2012 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

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

b. Findings

No findings were identified.

.2 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the first quarter 2011 through the first quarter 2012. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed corrective action program records associated with high radiation area (greater than 1 rem/hr) and very high radiation area non-conformances. The inspectors reviewed radiological, controlled area exit transactions greater than 100 mrem. The inspectors also conducted walkdowns of high radiation areas (greater than 1 rem/hr) and very high radiation area entrances to determine the adequacy of the controls of these areas.

These activities constitute completion of the occupational exposure control effectiveness sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.3 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed performance indicator data for the first quarter 2011 through the first quarter 2012. The objective of the inspection was to determine the accuracy and completeness of the performance indicator data reported during these periods. The inspectors used the definitions and clarifying notes contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, as criteria for determining whether the licensee was in compliance.

The inspectors reviewed the licensee's corrective action program records and selected individual annual or special reports to identify potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose.

These activities constitute completion of the radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.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

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends in steam leaks, operator performance, and safety-related and high-risk equipment failures that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of December 2011 through May 2012 although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments.

The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

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

b. Findings and Observations

Inspection report 05000458/2011005 identified an increasing trend in poor maintenance practices and lack of questioning attitude by plant staff, especially in regard to long-standing issues, resulting in failures and degrading conditions in safety-related and high-risk systems and components. In the first and second quarter of 2012, the inspectors focused inspections on the maintenance rule and the predictive monitoring programs. The inspectors identified two non-cited violations of 10 CFR 50.65 a(2) and several minor violations for failing to follow the requirements of the Entergy fleet maintenance rule procedures. In response, River Bend completed an independent focused assessment of the Maintenance Rule Program. The assessment identified the following areas for improvement:

1. Maintenance Rule Program health is being adversely impacted by inadequate management engagement in program staffing, training, and oversight of personnel required to support the program.

2. Maintenance Rule programmatic infrastructure does not support consistent evaluation, documentation, and change control.

3. Implementation of the Maintenance Rule is not accomplishing improvement in unit reliability or the intent of 10 CFR 50.65 to ensure structures, systems, and components availability.

For this semi-annual problem identification and resolution review, the inspectors continued to observe the adverse trend of equipment failures in both safety-related and high-risk systems. The licensee performance indicators for control room deficiencies, control room alarms, unplanned limiting conditions of operation, and critical component failures are currently red. In addition, the maintenance work order backlog performance indicator is also red. The continuing adverse trend included the following failures and degraded conditions:

Safety-Related Components

Digital radiation monitoring system monitor failures
Main steam safety relief valve seat leakage
Hydrogen igniter breaker trip coil failure
Residual heat removal B breaker relay failure
Average power range, intermediate range, and source range neutron monitor failures
Division 3 battery room ventilation failure

Reactor core isolation cooling system inadvertent isolation
Standby gas treatment feeder breaker failure
Reactor core isolation cooling breaker trip causing isolation of steam drain pots
Reactor heat removal C test return valve breaker trip due to fuse failure
Division 3 diesel generator fuel oil leakage into lube oil
Control building heating and ventilation system heater coil failure
Main steam positive leakage control system compressor level control failures
Service water discharge valve reversing contactor failure
Standby service water cooling tower pump house ventilation fan breaker failures
Suppression pool cleanup isolation valve failure
Reactor core isolation cooling governor valve oscillations
Reactor core isolation cooling flow controller failure
Containment hydrogen analyzer failures

Risk Important Components

Non-safety vital bus 86 lockout relay failures
NPS-SWG1A cable splice failure
Feedwater pump motor termination failure
Instrument air compressor oil leaks, oil tubing failures, intercooler failures, and dryer failures
Feedwater pump C minimum flow valve failure

The inspectors identified an adverse trend in procedure adherence. The inspectors identified the following examples:

Inconsistencies in tracking component and plant leaks
Electric motor baker testing not completed per work instructions
Failure to follow the onsite safety review committee process
Failure to follow the cathodic protection program requirements
Failure to perform fire extinguisher inspections

The inspectors identified an adverse trend in the performance of operability evaluations because the completed evaluations contain insufficient information for an independent review to determine operability. On several occasions, the inspectors questioned the conclusions in the licensee's evaluations that resulted in revision to the operability evaluation to provide clarifying information or a revision of the condition from operable to operable but degraded. The operability evaluations were performed for equipment concerns in the following systems:

Control building chilled water (CR-RBS-2012-01570 & CR-RBS-2012-03209)
Leakage control penetration valve (CR-RBS-2012-03504)
Division 1 and 2 hydrogen igniters (CR-RBS-2012-03659)
Division 2 diesel air tanks (CR-RBS-2012-04120)

The inspectors also noted the use of "rollup" condition reports to group system components failures to perform a single cause evaluation for multiple failures of reactor core isolation cooling components and feedwater system components without

addressing the causes of individual “component failures (Condition Reports CR-RBS-2012-1904 and CR-RBS-2011-09141).”

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee’s corrective action program, the inspectors recognized a corrective action item documenting excess grease on the Division 3 emergency diesel generator bearing similar to condition reports documenting over-greasing of the standby service water pump motors. The inspectors reviewed the associated condition report and found that the licensee did not evaluate the cause for excess grease on the diesel generator bearing, and did not initiate corrective actions to address the inadequate maintenance instructions detailed in the condition report's operability evaluation.

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

b. Findings

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for failing to correct a condition adverse to quality for lubricating the high pressure core spray diesel generator bearings.

Description. On February 21, 2012, a building operator discovered excess grease around the generator shaft inner bearing on the high pressure core spray diesel generator. Operations declared the diesel operable with an engineering evaluation required. An engineering evaluation was completed on February 24, 2012, and described inadequate work instructions used to grease the bearings, in that the instructions failed to follow the guidance in the EPRI lubrication manual, NP-7502. Specifically, the licensee's work instructions did not include running the diesel generator following the grease addition. Also, the licensee found that the maintenance work instructions had added twice the amount of grease to the bearing as required. On April 17, 2012, the inspectors reviewed the associated Condition Report CR-RBS -2012-01366 that had been closed. In that report, the inspectors found that no cause evaluation had been performed to address the excess grease on the diesel generator bearing, and that no corrective actions had been initiated to address the inadequate maintenance instructions detailed in the condition report's operability evaluation. In addition, the inspectors found that the extent of condition for over-greasing of the standby service water pump motors failed to include lubrication procedures on high pressure core spray diesel generator. The licensee documented the inspectors’ concerns in Condition Report CR-RBS-2012-02666. The licensee issued corrective actions to update the maintenance work instructions to include the proper methodology to grease the high pressure core spray diesel generator inner bearing.

Analysis. The inspectors determined that the failure to correct inadequate work instructions to lubricate the high pressure core spray diesel generator bearings is a

performance deficiency. This performance deficiency was more than minor and was a finding because, if left uncorrected, inadequate lubrication work instruction could cause bearing failure due to inadequate lubrication or generator winding failure due to grease intrusion into the electrical windings in the generator. The significance of this finding was evaluated using a Phase 1 significance determination process screening and was determined to be of very low safety significance (Green) because it was not a design or qualification deficiency; did not represent a loss of system safety function; and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. The apparent reason the condition report was closed without correcting the work instruction to lubricate the high pressure core spray diesel generator bearings was that personnel who prepared and approved the operability evaluation were focused on proving operability not correcting a condition adverse to quality. Their focus was specific to the component's ability to perform its function and not on completely identifying the issue in the corrective action program. Therefore, the finding has a cross-cutting aspect in the area of problem identification and resolution affecting the corrective action program component because the station did not identify this issue completely, accurately, and in a timely manner commensurate with its safety significance [P.1(a)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XVI, required that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviation, defective material and equipment, and non-conformances are promptly identified and corrected. Contrary to the above, the licensee failed to correct a known deficiency. Specifically, on April 4, 2012, the licensee's closed Condition Report CR-RBS-2012-01366 without correcting the inadequate maintenance instruction. The station documented the finding in Condition Report CR-RBS-2012-02666. Because this issue is of very low safety significance and has been entered into the station's corrective action program, this violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV05000458/2012003-03, High Pressure Core Spray Diesel Generator Bearing Lubrication Deficiencies.

4OA3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report 05000458/2011-001-00: Unplanned Automatic Actuation of Standby Service Water Pump

On January 20, 2011, while manually starting Division 2 standby service water as the standby cooling tower return valve was opened, system pressure lowered below the automatic start setpoint and pump 2C started automatically. The licensee determined that Division 1 standby service water was not properly aligned for single pump operation due to an inadequate system load chart in the standard operating procedure for the standby service water system, SOP-0042. Procedure SOP-0042, Attachment 5, did not include the spent fuel cooling or reactor heat removal heat exchangers flow loads. In addition, the operators performing this evolution failed to recognize that the required flow for this configuration would exceed the capacity of the single running pump. The licensee documented this issue in Condition Report CR-RBS-2011-00766. This failure to comply with Technical Specification 5.4.1.a constitutes a violation of minor significance

that is not subject to enforcement action in accordance with the NRC Enforcement Policy.

.2 Turbine Control Valve Number 3 Unexpected Closing

a. Inspection Scope

On April 23, 2012, while at 100 percent reactor power, turbine control valve number 3 unexpectedly drifted shut causing turbine control valve number 4 and both main steam bypass valves to open to maintain reactor set pressure. Operators responded to the abnormal condition and reduced reactor power to 90 percent. The inspectors responded to the control room to ensure that operator response actions were appropriate.

During an extent of condition walkdown, technicians observed broken bolts on the positioner arm of the number 3 control valve. On May 3, 2012, the station entered a planned outage to repair control valve number 3. Troubleshooting found all 20 bolts in control valve number 3 hydraulic actuator's push rod spring housing coupling had failed.

b. Findings

Introduction. The inspectors reviewed a Green self-revealing finding associated with main turbine control valve number 3 unexpectedly closing.

Description. In 1995, General Electric issued Technical Information Letter (TIL) 1162, "Nuclear Control Valve and Combined Intermediate Valve Push Rod-Spring Guide Couplings," to advise licensees of a potential failure involving bolts in the push rod-spring housing coupling of both control and combined intermediate valves. Recommended corrective actions included, in part, instructions to change out the push-rod spring housing coupling bolts and lock tabs. General Electric stressed that failure to adhere to the recommended disassembly and reassembly procedures could result in an initial bolt torque with higher than normal stresses that could cause bolt yielding and fatigue over an extended period of operation. In 1997 and 1999, the station replaced control valve number 3 push rod-spring housing coupling bolts to comply with the above mentioned TIL.

On April 23, 2012, while at 100 percent reactor power, turbine control valve number 3 unexpectedly drifted shut causing turbine control valve number 4 and both main steam bypass valves to open to maintain reactor set pressure. Operators responded to the abnormal condition and reduced reactor power to 90 percent. On May 3, 2012, the station entered a planned outage to repair control valve number 3. Troubleshooting found all 20 bolts in control valve number 3 hydraulic actuator's push rod-spring housing coupling had failed. Review of the failed bolts found that the surface finish in the head to shank transition region was coarse and appeared to be worse than the TIL 1162 recommended surface finish. Vendor metallurgical tests concluded that the bolts failed in high cycle fatigue due to a loss of preload. Though the bolt's surface finish did not contribute to a load of preload, the surface finish did provide stress concentration points where micro factures could begin to reduce the bolts material strength and contributed to fatigue failure.

Visual inspection of the lock tabs indicated that the lock tab holes were oversized in relation to the bolt shank, there was significant and uneven deformation of the lock tabs near the edge of the holes, and some lock tabs on as-found joints did not appear to capture the bolt head to prevent bolt rotation. A second vendor's engineering analysis, using a classical bolted joint assessment and finite element analysis, concluded that the evidence suggests that the calculated lock tab bearings stresses were high relative to the strength of the lock tab material. Such bearing stresses can result in delayed bearing failure, which resembles creep, and can cause a reduction of bolt tension and preload with time. The inspectors concluded that TIL 1162 was not effectively implemented because the reuse of existing lock tabs and the use of undersized bolts, shank diameter of 0.391inch rather than the recommended 0.445inch diameter, with coarse bolt surface finish lead to a loss of bolt preload and subsequent fatigue failure.

Licensee corrective actions included: replacing all bolts and lock washers subject to TIL 1162 requirements, applying the appropriate bolt torque per the vendor's specifications, and updating the design and maintenance documentation to specify the correct torque for the coupling bolts.

Analysis. The inspectors determined that failure to properly implement General Electric TIL 1162 was a performance deficiency. The performance deficiency was determined to be more than minor and is a finding because it was associated with the Initiating Events cornerstone attribute of design control and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability by resulting in a plant downpower and subsequent planned outage for repair activities. The inspectors reviewed the finding using Inspection Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Based on the Phase 1 screening of the finding, the inspectors determined that the finding was of very low safety significance (Green) because it did not affect loss of coolant accident initiators, did not contribute to increasing the likelihood of both an initiating event and affecting mitigating equipment, and did not increase the likelihood of a fire or flood. Therefore, the inspectors did not identify a cross-cutting aspect because the performance deficiency is not indicative of the licensee's current performance.

Enforcement. This finding does not involve enforcement action because no regulatory requirement violation was identified. This issue was entered into the licensee's corrective action program as Condition Report CR-RBS-2012-02773 and is designated as FIN 05000458/2012003-04, Failure to Properly Assemble Turbine Control Valve Push Rod-Spring Housing Coupling.

.3 Failed 13.8 kV Cable Splice Results In a Reactor Scram

a. Inspection Scope

On May 21, 2011, while at 100 percent reactor power, a failed 13.8 kV cable splice supplying power to two of three normal service water pumps, two circulating water pumps, and circulating water cooling tower B and D fans resulted in sharp decline in main condenser vacuum and a subsequent reactor scram. The failed cable splice

caused a small fire put out by the fire brigade. Due to a subsequent event on May 24, 2012 (see 4OA3.4 below), the NRC commenced an Augmented Inspection Team (AIT) assessment of the circumstances surrounding the May 24, 2012, loss of non-safety related service water event at the River Bend Station, and to assess the cause evaluation and corrective actions associated with the cable splice fire on May 21, 2012. Specifically, the team: 1) evaluated whether the corrective actions are appropriate for the cause of the May 21 failure and whether the extent of condition has been completely identified, 2) assessed the plant configuration to determine whether the licensee's operational decision making process appropriately considered plant risk prior to startup following the reactor scram on May 21, and 3) assessed the effectiveness of fire brigade response to the May 21 and 24 events.

b. Findings

The results of this inspection will be documented in NRC Inspection Report 05000458/2012009.

.4 Main Feedwater Pump 1B Electrical Fault Results in a Reactor Scram

a. Inspection Scope

On May 24, 2012, operators at River Bend Station manually scrammed the reactor at 33 percent reactor power. The reactor scram was the result of a fault located in the main feedwater pump 1B motor termination box. The fault was not isolated by the motor feeder breaker due to a mechanically bound breaker 86 lockout relay. The supply breaker NPS-1B for the 13.8 kV nonsafety-related bus tripped to clear the FWS-P1B fault. Because of a previous cable failure and fire on Monday, May 21, 2012, all operating circulating water pumps and normal service water pumps were powered through this breaker. The loss of the running pumps resulted in the loss of condenser vacuum and cooling water to all turbine building and safety-related loads. Both divisions of safety-related standby service water system started to restore cooling to the safety-related loads. The fire brigade was dispatched to the 1B feedwater pump (FWS-P1B) and to the normal switchgear building on the report of smoke and an acrid smell caused by the 86 lockout relay coil. No fires were noted.

b. Findings

The results of this inspection will be documented in NRC Inspection Report 05000458/2012009.

.5 Plant Shutdown to Repair Leaking Main Steam Safety Relief Valves

a. Inspection Scope

On June 02, 2012, at approximately 3 percent reactor power, operators referenced abnormal operating procedure for stuck open safety relief valves. Operator inserted a manual reactor scram after efforts to reseat one of three leaking safety relief valve was unsuccessful. The shutdown was controlled and uneventful.

Damage to the main steam relief valves occurred on May 24, 2012, during a loss of feedwater event when operators used reactor core isolation cooling to supply cooling water to the reactor and cycled several main steam safety relief valves to maintain reactor pressure.

b. Findings

The results of this inspection will be documented in NRC Inspection Report 05000458/2012009.

4OA5 Other Activities

(Closed) URI 05000458/2011008-04: Station Blackout-Containment Venting

a. Inspection Scope

During the 2011 NRC Component Design Basis Inspection at River Bend Station, the inspectors identified an unresolved item concerning the licensee's strategy to vent containment through containment personnel airlocks, as written in River Bend Station Abnormal Operating Procedure AOP-0050, "Station Blackout," and Emergency Operating Procedure EOP-0005, "Emergency Operating and Severe Accident Procedure," Enclosure 21. This issue was discovered during the inspection team's review of Condition Report CR-RBS-2011-03471. The issue was documented in NRC Inspection Report 05000458/2011008.

As documented in Condition Report CR-RBS-2011-03471, Abnormal Operating Procedure AOP-0050, "Station Blackout," provided instructions for venting pressurized containment vapor to the annulus through a 3-inch hardened vent path. However, the licensee's evaluation of these actions determined that the hardened vent path was too small to prevent a containment over-pressure condition in an extended station blackout greater than the 4-hour coping period. The evaluation determined that the vent path could delay but not prevent containment from reaching its design pressure of 30 psig which would occur 6-8 hours after the event. Additionally, containment failure, which was calculated to occur at 50-55 psia, would occur approximately 16 hours into an extended station blackout. Because the hardened vent was not sufficient, the licensee revised the containment venting strategy in AOP-0050 and EOP-0005 to allow venting through one of the containment personnel airlocks and out to the environment through an open auxiliary building door.

From the Updated Safety Analysis Report, the inspectors determined that the licensing basis for containment and the associated systems including the containment personnel airlock described in the Updated Safety Analysis Report are to maintain containment integrity during and following a design basis accident. Additionally, the team determined that the use of the personnel airlock as a vent path to depressurize containment during a station blackout event did not appear to be described in any of the available licensing basis documents. Therefore, the inspectors questioned the suitability of the action to vent containment using the personnel airlocks. The inspectors determined that more

inspection was necessary to resolve the issue and issued unresolved item URI 05000458/2011008-04, "Station Blackout-Containment Venting."

The inspectors' review of the unresolved item verified that the only accident scenario that would result in the licensee venting containment is an extended station blackout event lasting longer than the specified station blackout 4-hour coping period. Therefore, the extended station blackout event that would result in the necessity to vent containment was neither an event for which the plant was designed nor the licensee was required to mitigate. Since the licensee was not required to mitigate this "outside-design-basis" event, a performance deficiency could not be assessed for the licensee's containment venting strategy and the unresolved item was closed. However, the inspectors determined that the potential for a containment over-pressure condition following an extended station blackout represented a new generic safety issue that could affect Mark III containments similar to River Bend Station. The inspectors forwarded this information to the Office of Nuclear Reactor Regulation, Japan Lessons-Learned Directorate, for inclusion in future development of Japan Lesson-Learned recommendations.

Although no performance deficiencies were identified with respect to the containment venting, one performance deficiency was identified with the strategy to cope with a station blackout.

b. Findings

Failure to Specify Manual Actions for Safety Relief Valve Operations during a Station Blackout Event

Introduction. The inspectors identified a Green non-cited violation of 10 CFR 50.63, "Loss of All Alternating Current," for the licensee's failure to specify operator actions for safety relief valve operation during station blackout conditions into procedures for complying with 10 CFR 50.63, as specified by NUMARC-8700.

Description. River Bend Station is a 4-hour station blackout coping plant. The River Bend Station Updated Safety Analysis Report, Appendix 15C, "Station Blackout," contains the licensed basis coping strategy to meet 10 CFR 50.63. To ensure that the plant will meet the coping time, Appendix 15C assumes reactor core isolation cooling is the only means of decay heat removal, it is taking suction from the condensate storage tank, and operators will manually open one safety relief valve and leave it in that position. These operator actions would prevent the plant from exceeding the heat capacity temperature limit (HCTL) of the suppression pool within 4 hours.

The licensee's coping strategy was created using the alternative methodology of NUMARC-8700, "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors." This alternative methodology was endorsed as an acceptable method in NRC Regulatory Guide 1.155, "Station Blackout." NUMARC-8700, Section 4.2.1, "Station Blackout Response Guidelines," provides guidance for operator actions to be taken during a station blackout event. Guideline 7 states:

"Plant procedures should specify actions to permit appropriate containment isolation and safe shutdown valve operations while ac power is unavailable. These actions may include:

(a) providing additional bottle air or nitrogen at the valves;

(b) specifying manual valve operation to maintain shutdown (e.g., manual valve seating to reduce system losses);

(c) ensuring appropriate containment integrity."

The inspectors reviewed Abnormal Operating Procedure AOP-50, "Station Blackout," and Emergency Operating Procedure EOP-1, "RPV Control," to determine if the procedures specified operator actions to take manual control of the safety relief valves to prevent the suppression pool from exceeding the heat capacity temperature limit, as stated in Updated Safety Analysis Report Appendix 15C. Abnormal Operating Procedure AOP-50 assumes the safety relief valves will automatically cycle for reactor pressure vessel pressure control. However, the inspectors identified that Abnormal Operating Procedure AOP-50 did not specifically identify operator actions to manually operate any safety relief valves. The inspectors also determined that there was no guidance to leave open a safety relief valve at the 1-hour point as assumed in the station blackout analysis. Because operator actions for safety relief valve operation were not specified in procedures for station blackout coping, the inspectors determined Abnormal Operating Procedure AOP-50 licensee did not meet Guideline 7 of NUMARC-8700, Section 4.2.1. The failure to meet Guideline 7 is a failure to comply with 10 CFR 50.63.

In teleconferences between River Bend Station personnel and the inspectors, River Bend Station personnel stated that operators are trained to recognize conditions of the reactor, enter Emergency Operator Procedure EOP-1, then stabilize and reduce temperature of the reactor using safety relief valves. The inspectors acknowledged that Emergency Operating Procedure EOP-1 contained statements to use safety relief valves to stabilize pressure and reduce temperature of the reactor. However, Emergency Operating Procedure EOP-1 did not contain specific information or time critical statements on how the safety relief valves should be operated during a station blackout condition, when suppression pool cooling is not available. This is particularly important when the 4-hour coping period in the station blackout analysis is contingent upon operators manually opening and closing safety relief valves, then leaving a safety relief valve open at 1-hour into the accident. Additionally, the inspectors reviewed the station blackout and safety relief valve training modules used to train operators on successful safety relief valve actions. These training modules did not contain information that specified safety relief valve actions for successful mitigation of station blackout conditions without suppression pool cooling. The inspectors determined that specific training and instruction was necessary to prevent the operators from taking actions that would introduce unrecoverable conditions.

Analysis. The inspectors determined that failure to specify actions for safety relief valve operation in procedures in accordance with NUMARC-8700 was a performance deficiency. The finding was more than minor because it adversely affected the

procedure quality attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to respond to undesirable consequences. Specifically, the station blackout coping procedures did not specify actions that would ensure the heat capacity temperature limit for the suppression pool would not be exceeded during the station blackout coping period. Using Phase 1 of Inspection Manual Chapter 0609, "Significance Determination Process," the inspectors determined that the Mitigating Systems Cornerstone was affected because the finding could cause degradation core decay heat removal. Using Table 4a from the Phase 1 worksheet, the inspectors determined that the finding represents a loss of safety function; therefore, a Phase 2 analysis was necessary. However, the inspectors determined that a Phase 2 analysis was not sufficient to assess significance because of the complexity of the finding. Therefore, a Phase 3 analysis was necessary. The result of the Phase 3 analysis determined that the change in core-damage-frequency (ΔCDF) for the performance deficiency was 2.4E-7 or very low safety significance (Green). The senior reactor analyst determined that the change in large-early-release-frequency (ΔLERF) was 4.8E-8 or very low safety significance (Green). No cross-cutting aspect was identified because the most significant contributor was not indicative of current licensee performance.

Enforcement. Title 10 CFR 50.63, "Loss of All Alternating Current," paragraph (a) (2), which states, in part, "The reactor core and associated coolant, control, and protection systems, including station batteries and any other necessary support systems, must provide sufficient capacity and capability to ensure that the core is cooled and appropriate containment integrity is maintained in the event of a station blackout for the specified duration. The capability for coping with a station blackout of specified duration shall be determined by an appropriate coping analysis. Licensees are expected to have the baseline assumptions, analyses, and related information used in their coping evaluations available for NRC review." Contrary to the above, River Bend Station procedures did not ensure that support systems provide sufficient capacity and capability to ensure that the core was cooled and appropriate containment integrity is maintained in the event of a station blackout for the specified duration. Specifically, from November 1985 to May 17, 2012, the licensee failed to specify actions while ac power was unavailable to ensure that safety relief valves provided sufficient capacity and capability to ensure appropriate containment integrity is maintained during a station blackout event. This violation has been entered into the corrective action program as Condition Report CR-RBS-2012-3376. Because this violation is of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as a non-cited violation consistent with the NRC Enforcement Policy: NCV 05000458/2012003-05, Failure to Specify Manual Actions for Safety Relief Valve Operations During a Station Blackout Event.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On June 7, 2012, the inspectors presented the results of the radiation safety inspections to Mr. Eric Olsen, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials

examined during the inspection should be considered proprietary. No proprietary information was identified.

The inspectors conducted a preliminary telephonic brief with J. Roberts and other members of the licensee's staff on the results of the inspection on May 17, 2012. The licensee acknowledged the findings presented. After completion of the final significance determination, the inspectors conducted a telephonic exit with K. Huffstatler on June 12, 2012. The licensee acknowledged the results as presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On July 10, 2012, the inspectors presented the integrated inspection results to Mr. Eric Olson, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

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 the NRC Enforcement Policy for being dispositioned as non-cited violations.

.1 The licensee identified a violation of Technical Specification 5.4.1. Technical Specification 5.4.1 requires, in part, that written procedures shall be implemented covering the procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Section 9, says, in part, that maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to the above, on January 18, 2008, the licensee performed maintenance that affected the performance of safety-related equipment with written instructions that were not appropriate to the circumstances. Specifically, work order WO-00098244, Task 04, Step 4.7, did not specify a torque value for valve SWP-MOV96B, actuator to yoke adapter plate, 1 1/8" diameter bolts. Bolts were tightened until the washers were compressed plus one more flat. The final torque value was marked "N/A" in the work package. The workers recognized that without the torque value for the bolts they could not perform the procedure as written. No condition report was generated. No procedure revision was generated. As a result of the inadequate applied bolt torque, on November 14, 2011, during performance of STP-256-6302, "Division II Standby Service Water Quarterly Valve Operability Test," SWP-MOV96B service water return header isolation valve was stroked fully closed, at the fully closed position the valve operator rotated an additional ¼" about the valve body. The station declared the system inoperable for repair. The finding is considered to be of very low safety significance (Green) because it was not a design or qualification deficiency; did not represent either a loss of system safety function, an actual loss of safety function of a single train, or an actual loss of safety function; and did not screen as potentially risk significant due to a seismic, flooding, or

severe weather initiating event. The issue has been entered into the licensee's corrective action program as Condition Report CR-RBS-2011-08148.

.2 As required in 10 CFR 20.1501(a), each licensee shall make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present. Contrary to the above, on January 29, 2012, radiation protection personnel did not perform a radiation survey of the turbine building 123 steam seal evaporator that was reasonable under the circumstances in order to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and potential radiological hazards present. Specifically, radiation protection personnel used a radiation survey for August 8, 1999. The dose rate measured was less than 100 millirem per hour, a radiation area. The survey from 1999 did not represent actual dose rates in the area. The actual dose rate on January 29 was 150 millirem per hour; a high radiation area. Consequently, the operator was briefed on the wrong information and was without knowledge of dose rate necessary to work in a high radiation area. Thus, operations personnel entered the steam seal evaporator room after being briefed from a radiation survey from 1999 resulting in receiving unplanned, unintended dose. Since this violation was of very low safety significance and was documented in Condition Reports CR-RBS-2012-01042 and 01072, it is being treated as a non-cited violation.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

T. Bolke, Senior Licensing Specialist
J. Boulanger, Manager, Maintenance
D. Burnett, Manager, Emergency Preparedness
G. Bush, Manager, Material, Procurement, and Contracts
A. Carter, Senior Health Physics Specialist
M. Chase, Manager, Training
J. Clark, Manager, Licensing
C. Colman, Manager, Engineering Programs & Components
F. Corley, Manager, Design Engineering
R. Creel, Superintendent, Plant Security
M. Feltner, Manager, Planning and Scheduling, Outages
C. Forpahl, Manager, System Engineering
A. Fredieu, Manager, Outage
R. Gadbois, General Manager, Plant Operations
T. Gates, Assistant Operations Manager - Shift
H. Goodman, Director, Engineering
G. Hackett, Manager, Radiation Protection
R. Heath, Manager, Chemistry
W. Holland, Supervisor, Radiation Protection
K. Huffstatler, Senior Licensing Specialist
G. Krause, Assistant Operations Manager – Training
E. Neal, Supervisor, Radiation Protection
E. Olson, Site Vice President
J. Roberts, Director, Nuclear Safety Assurance
T. Santy, Manager, Security
T. Shenk, Assistant Operations Manager – Support
M. Spustack, Supervisor, Engineering
D. Vines, Manager, Corrective Actions and Assessments
J. Vukovics, Supervisor, Reactor Engineering
L. Woods, Manager, Quality Assurance

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000458/2012003-01	FIN	Failure to Follow Procedure to Protect Sensitive Plant Areas (1R01)
05000458/2012003-02	NCV	Failure to Follow Severe Weather Operations Procedure (1R01)
05000458/2012003-03	NCV	High Pressure Core Spray Diesel Generator Bearing Lubrication Deficiencies (4OA2)
05000458/2012003-04	FIN	Failure to Properly Assemble Turbine Control Valve Push Rod-Spring Housing Coupling (40A3)
05000458/2012003-05	NCV	Failure to Specify Manual Actions for Safety Relief Valve Operations During a Station Blackout Event (4OA5)

Closed

05000458/2011008-004	URI	Station Blackout-Containment Venting (4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

CONDITION REPORT

CR-RBS-2012-02387

PROCEDURES

NUMBER	TITLE	REVISION
AOP-0029	Severe Weather Operation (12/22/2011)	027
AOP-0029	Severe Weather Operation (02/01/2012)	027
AOP-0029	Severe Weather Operation (03/21/2012)	027
AOP-0029	Severe Weather Operation	028
AOP-0029	Severe Weather Operation (04/02/2012)	028
AOP-0029	Severe Weather Operation (04/03/2012)	028
AOP-0029	Severe Weather Operation (04/05/2012)	028
AOP-0064	Degraded Grid	006

PROCEDURES

NUMBER	TITLE	REVISION
DC-158	Entergy Nuclear South Unit Seasonal Capability Updating Process	0
ENS-DC-199	Off Site Power Supply Design Requirements Nuclear Plant Interface Requirements	7
ENS-DC-201	ENS Transmission Grid Monitoring	5
OSP-0048	Switchyard, Transformer Yard and Sensitive Equipment Controls	015

Section 1R04: Equipment Alignment

CONDITION REPORTS

CR-RBS-2012-01178	CR-RBS-2012-01443	CR-RBS-2012-01751	CR-RBS-2012-01823
CR-RBS-2012-01954	CR-RBS-2012-02428	CR-RBS-2012-02429	CR-RBS-2012-02469
CR-RBS-2012-02659	CR-RBS-2012-02660	CR-RBS-2012-02665	

DRAWINGS

NUMBER	TITLE	REVISION
PID-36-01A	Control Rod Drive Hydraulic	21
PID-36-01C	Control Rod Drive Hydraulic	20
PID-36-1D	Control Rod Drive Hydraulic	8

MISCELLANEOUS

NUMBER	TITLE	DATE
File No. 3224.110-000-049R	GE Letter – Thread Lubricant	May 10, 1994
Vendor Document #209A6805	General Electric – Lubricants for Hydraulic Control Units	May 30, 1996

PROCEDURES

NUMBER	TITLE	REVISION
SOP-0002	Control Rod Drive Hydraulics (SYS #52)	041
SOP-0034	MSIV Sealing System (Positive Leakage Control) and Penetration Valve Leakage Control (SYS #208/255)	012

PROCEDURES

NUMBER	TITLE	REVISION
SOP-0042	Standby Service Water System (SYS #256)	036

Section 1R05: Fire Protection

CONDITION REPORTS

CR-RBS-2012-03960 CR-RBS-2012-03961

DRAWINGS

NUMBER	TITLE	REVISION
12210-EM-21A-4	Arrgt Operating Personnel Access Between Buildings, Sh 1	4
12210-EM-21B-4	Arrgt Operating Personnel Access Between Buildings, Sh 2	4
EB-003AD	Fire Area Boundaries Plant View-Elevations 109'-0" to 148'-0"	4
EB-003BD	Fire Area Boundaries Plant View-Elevations 109'-9" to 148'-0"	4
EB-003AE	Fire Area Boundaries Plant View-Elevations 113'-0" to 186'-3"	4
EB-003BE	Fire Area Boundaries Plant View-Elevations 113'-0" to 186'-3"	4

PROCEDURES

NUMBER	TITLE	REVISION
CB-116-127	Pre-Fire Strategies, HVAC Room Fire Area C-17	4
CB-138-138	Pre-Fire Strategies, Control Room Fire Area C-25	5

TECHNICAL SPECIFICATIONS

NUMBER	TITLE
TR 3.3.7.4	Fire Detection Instrumentation

Section 1R06: Flood Protection Measures

CONDITION REPORTS

CR-RBS-2012-02832 CR-RBS-2012-02833 CR-RBS-2012-02834 CR-RBS-2012-02835
CR-RBS-2012-02836 CR-RBS-2012-02837 CR-RBS-2012-02838 CR-RBS-2012-03122

DRAWINGS

NUMBER	TITLE	REVISION
12210-EV-IQ-8	Reactor Containment Drywell Penetration Details	---
EV-1AZ	Reactor Containment Vessel Miscellaneous Details and Sections	0
EP-121A	Primary Containment Schedule and Location of Piping Penetrations	11
PID-36-1D	Control Rod Hydraulic	8

Section 1R11: Licensed Operator Requalification Program

CONDITION REPORTS

CR-RBS-2012-02613 CR-RBS-2012-02700 CR-RBS-2012-02701

Section 1R12: Maintenance Effectiveness

CONDITION REPORTS

CR-RBS-2009-00454	CR-RBS-2009-02251	CR-RBS-2009-02372
CR-RBS-2009-02413	CR-RBS-2009-02415	CR-RBS-2009-02686
CR-RBS-2009-02906	CR-RBS-2009-02968	CR-RBS-2009-02977
CR-RBS-2009-03018	CR-RBS-2009-03754	CR-RBS-2009-04036
CR-RBS-2009-04166	CR-RBS-2009-04333	CR-RBS-2009-04525
CR-RBS-2009-04834	CR-RBS-2009-04892	CR-RBS-2009-04907
CR-RBS-2009-04920	CR-RBS-2009-04924	CR-RBS-2009-05063
CR-RBS-2009-05176	CR-RBS-2009-05253	CR-RBS-2009-05291
CR-RBS-2009-05332	CR-RBS-2009-05384	CR-RBS-2009-05492
CR-RBS-2009-05590	CR-RBS-2009-05656	CR-RBS-2009-05734
CR-RBS-2009-05797	CR-RBS-2009-05906	CR-RBS-2009-05948
CR-RBS-2009-05962	CR-RBS-2009-05992	CR-RBS-2009-05994
CR-RBS-2009-06077	CR-RBS-2009-06087	CR-RBS-2009-06106
CR-RBS-2009-06109	CR-RBS-2009-06110	CR-RBS-2009-06112-01
CR-RBS-2009-06155	CR-RBS-2009-06189	CR-RBS-2009-06363
CR-RBS-2009-06532	CR-RBS-2010-00022	CR-RBS-2010-00026
CR-RBS-2010-00052	CR-RBS-2010-00071	CR-RBS-2010-00132
CR-RBS-2010-00134	CR-RBS-2010-00146	CR-RBS-2010-00167
CR-RBS-2010-00240	CR-RBS-2010-00301	CR-RBS-2010-00392
CR-RBS-2010-00503	CR-RBS-2010-00529	CR-RBS-2010-00530
CR-RBS-2010-00575	CR-RBS-2010-00621	CR-RBS-2010-00650
CR-RBS-2010-00652	CR-RBS-2010-00673	CR-RBS-2010-00696
CR-RBS-2010-00859	CR-RBS-2010-01068	CR-RBS-2010-01069
CR-RBS-2010-01137	CR-RBS-2010-01166	CR-RBS-2010-01167
CR-RBS-2010-01189	CR-RBS-2010-01272	CR-RBS-2010-01311
CR-RBS-2010-01334	CR-RBS-2010-01393	CR-RBS-2010-01421

CR-RBS-2010-01428-01
CR-RBS-2010-01562
CR-RBS-2010-01572
CR-RBS-2010-01644
CR-RBS-2010-01735
CR-RBS-2010-01769
CR-RBS-2010-01854
CR-RBS-2010-01867
CR-RBS-2010-02080
CR-RBS-2010-02140
CR-RBS-2010-02347
CR-RBS-2010-02522
CR-RBS-2010-02567
CR-RBS-2010-02583
CR-RBS-2010-02584
CR-RBS-2010-02588
CR-RBS-2010-02650
CR-RBS-2010-02651
CR-RBS-2010-02664
CR-RBS-2010-02782
CR-RBS-2010-02799
CR-RBS-2010-02813
CR-RBS-2010-02820
CR-RBS-2010-03110
CR-RBS-2010-03237
CR-RBS-2010-03509
CR-RBS-2010-03554
CR-RBS-2010-03566
CR-RBS-2010-03582
CR-RBS-2010-03647
CR-RBS-2010-03678
CR-RBS-2010-03727
CR-RBS-2010-03732
CR-RBS-2010-03788
CR-RBS-2010-03822
CR-RBS-2010-03858
CR-RBS-2010-04009
CR-RBS-2010-04182
CR-RBS-2010-04259
CR-RBS-2010-04304
CR-RBS-2010-04361
CR-RBS-2010-04474-01
CR-RBS-2010-04718
CR-RBS-2010-04719
CR-RBS-2010-04720
CR-RBS-2010-04776
CR-RBS-2010-05109
CR-RBS-2010-05213
CR-RBS-2010-05257
CR-RBS-2010-05278
CR-RBS-2010-05296
CR-RBS-2010-05443
CR-RBS-2010-05549
CR-RBS-2010-05685-01
CR-RBS-2010-05899
CR-RBS-2010-06099
CR-RBS-2010-06239
CR-RBS-2010-06329
CR-RBS-2010-06468
CR-RBS-2010-06584
CR-RBS-2010-06795
CR-RBS-2011-00010
CR-RBS-2011-00259
CR-RBS-2011-00296
CR-RBS-2011-00849
CR-RBS-2011-01022
CR-RBS-2011-01044
CR-RBS-2011-01193
CR-RBS-2011-01710
CR-RBS-2011-01714
CR-RBS-2011-01805
CR-RBS-2011-01885
CR-RBS-2011-01948
CR-RBS-2011-02158
CR-RBS-2011-02181
CR-RBS-2011-02219
CR-RBS-2011-02222
CR-RBS-2011-02304
CR-RBS-2011-02325
CR-RBS-2011-02426
CR-RBS-2011-02455
CR-RBS-2011-02640-01
CR-RBS-2011-02674
CR-RBS-2011-02751
CR-RBS-2011-02847
CR-RBS-2011-02853
CR-RBS-2011-02986
CR-RBS-2011-03301
CR-RBS-2011-03452
CR-RBS-2011-03459
CR-RBS-2011-03533
CR-RBS-2011-03540
CR-RBS-2011-03573
CR-RBS-2011-03583
CR-RBS-2011-03663
CR-RBS-2011-03706-01
CR-RBS-2011-03723
CR-RBS-2011-03724
CR-RBS-2011-03726
CR-RBS-2011-03753
CR-RBS-2011-03846
CR-RBS-2011-03979-01
CR-RBS-2011-03982
CR-RBS-2011-04017
CR-RBS-2011-04166
CR-RBS-2011-04173
CR-RBS-2011-04225
CR-RBS-2011-04229
CR-RBS-2011-04437
CR-RBS-2011-04447
CR-RBS-2011-04458
CR-RBS-2011-04648
CR-RBS-2011-04652-1
CR-RBS-2011-04728-1
CR-RBS-2011-04760
CR-RBS-2011-04771
CR-RBS-2011-04791
CR-RBS-2011-04826
CR-RBS-2011-04892
CR-RBS-2011-05128
CR-RBS-2011-05161
CR-RBS-2011-05164
CR-RBS-2011-05247
CR-RBS-2011-05261
CR-RBS-2011-05304-01
CR-RBS-2011-05345
CR-RBS-2011-05346
CR-RBS-2011-05363
CR-RBS-2011-05411
CR-RBS-2011-05413
CR-RBS-2011-05576
CR-RBS-2011-05600
CR-RBS-2011-05659
CR-RBS-2011-05661
CR-RBS-2011-05692
CR-RBS-2011-05719
CR-RBS-2011-05761
CR-RBS-2011-05903
CR-RBS-2011-05960
CR-RBS-2011-05981
CR-RBS-2011-06358

CR-RBS-2011-06403	CR-RBS-2011-06519	CR-RBS-2011-06668-01
CR-RBS-2011-06770	CR-RBS-2011-07236	CR-RBS-2011-07336
CR-RBS-2011-07439	CR-RBS-2011-07444	CR-RBS-2011-07801-01
CR-RBS-2011-07843-01	CR-RBS-2011-07887	CR-RBS-2011-07930-01
CR-RBS-2011-08289	CR-RBS-2011-08418	CR-RBS-2011-08558
CR-RBS-2011-08818	CR-RBS-2011-09017	CR-RBS-2011-09029
CR-RBS-2011-09030	CR-RBS-2011-09032	CR-RBS-2011-09060
CR-RBS-2011-09073	CR-RBS-2011-09128	CR-RBS-2011-09141
CR-RBS-2012-00134	CR-RBS-2012-01123	CR-RBS-2012-01489
CR-RBS-2012-01883	CR-RBS-2012-01905	CR-RBS-2012-02027
CR-RBS-2012-02035	CR-RBS-2012-02273	CR-RBS-2012-02448
CR-RBS-2012-02540	CR-RBS-2012-02623	CR-RBS-2012-02674
CR-RBS-2012-02804	CR-RBS-2012-02901	CR-RBS-2012-02902
CR-RBS-2012-02903	CR-RBS-2012-02978	CR-RBS-2012-03641
CR-RBS-2012-03643		

WORK ORDERS

WO 211439	WO 217373	WO 230583	WO 239857
WO 258730	WO 263122	WO 288810	WO 295559
WO 313851	WO 314245	WO 314249	

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

CONDITION REPORTS

CR-RBS-2010-06684	CR-RBS-2011-02429	CR-RBS-2011-03947	CR-RBS-2012-02479
CR-RBS-2012-02531	CR-RBS-2012-02533	CR-RBS-2012-02540	CR-RBS-2012-02783
CR-RBS-2012-02821	CR-RBS-2012-03166	CR-RBS-2012-03183	CR-RBS-2012-03183
CR-RBS-2012-03504			

ENGINEERING CHANGE REQUEST

NUMBER	TITLE	REVISION
EC #34930	Increase the Time Delay Drop Out Setting of 62B-1LSVA12 for LSV-C3A; Add Orifice on Unloader LSV-AOV44A Outlet; Remove Trap Float and Valve Linkages and Install Seat Orifice	001

PROCEDURES

NUMBER	TITLE	REVISION
DC-158	Entergy Nuclear South Unit Seasonal Capability Updating Process	0
EN-WM-101	On-line Work Management Process	7

PROCEDURES

NUMBER	TITLE	REVISION
ENS-DC-201	ENS Transmission Grid Monitoring	5
OSP-0048	Switchyard, Transformer Yard and Sensitive Equipment Controls	015

WORK ORDER

WO 00226402-01	WO 52341564	WO 52350231

Section 1R15: Operability Evaluations

CONDITION REPORTS

CR-RBS-2010-06684	CR-RBS-2011-05252	CR-RBS-2012-01751	CR-RBS-2012-01751
CR-RBS-2012-01858	CR-RBS-2012-01904	CR-RBS-2012-02249	CR-RBS-2012-02340
CR-RBS-2012-02345	CR-RBS-2012-02431	CR-RBS-2012-02463	CR-RBS-2012-02531
CR-RBS-2012-02582	CR-RBS-2012-02727	CR-RBS-2012-02806	CR-RBS-2012-02913
CR-RBS-2012-03159	CR-RBS-2012-03185	CR-RBS-2012-03209	CR-RBS-2012-03321

ENGINEERING CHANGE REQUEST

NUMBER	TITLE	REVISION
EC #35460	Evaluate Insulation Condition in RHR Cubicles with Respect to Concerns Identified in CR-RBS-2012-01751	000

PROCEDURES

NUMBER	TITLE	REVISION
EN-LI-108	Event Notification and Reporting	5
EN-OP-104	Operability Determination Process	6

Section 1R19: Post-Maintenance Testing

CONDITION REPORTS

CR-RBS-2012-01578	CR-RBS-2012-02767	CR-RBS-2012-02781	CR-RBS-2012-02854
CR-RBS-2012-03192	CR-RBS-2012-03222	CR-RBS-2012-03226	CR-RBS-2012-03252

PROCEDURE

NUMBER	TITLE	REVISION
TSP-0029	Control Bldg. Accumulator Test	06

WORK ORDERS

WO 52378149 WO 52378315

Section 1R20: Refueling and Other Outage Activities

CONDITION REPORTS

CR-RBS-2012-02880	CR-RBS-2012-02883	CR-RBS-2012-02905	CR-RBS-2012-02955
CR-RBS-2012-03021	CR-RBS-2012-03032	CR-RBS-2012-03035	CR-RBS-2012-03038
CR-RBS-2012-03042	CR-RBS-2012-03052	CR-RBS-2012-03059	CR-RBS-2012-03102
CR-RBS-2012-03104	CR-RBS-2012-03119	CR-RBS-2012-03121	CR-RBS-2012-03124
CR-RBS-2012-03126	CR-RBS-2012-03134	CR-RBS-2012-03139	CR-RBS-2012-03489
CR-RBS-2012-03491	CR-RBS-2012-03496	CR-RBS-2012-03503	CR-RBS-2012-03547
CR-RBS-2012-03551	CR-RBS-2012-03555	CR-RBS-2012-03559	CR-RBS-2012-03561
CR-RBS-2012-03567	CR-RBS-2012-03568	CR-RBS-2012-03572	CR-RBS-2012-03573
CR-RBS-2012-03579	CR-RBS-2012-03582	CR-RBS-2012-03583	CR-RBS-2012-03584
CR-RBS-2012-03588	CR-RBS-2012-03590	CR-RBS-2012-03610	CR-RBS-2012-03611
CR-RBS-2012-03612	CR-RBS-2012-03614	CR-RBS-2012-03615	CR-RBS-2012-03619
CR-RBS-2012-03622	CR-RBS-2012-03629	CR-RBS-2012-03641	CR-RBS-2012-03642
CR-RBS-2012-03643	CR-RBS-2012-03644	CR-RBS-2012-03646	CR-RBS-2012-03649
CR-RBS-2012-03650	CR-RBS-2012-03651	CR-RBS-2012-03662	CR-RBS-2012-03665
CR-RBS-2012-03667	CR-RBS-2012-03681	CR-RBS-2012-03685	CR-RBS-2012-03686
CR-RBS-2012-03687	CR-RBS-2012-03691	CR-RBS-2012-03692	CR-RBS-2012-03694
CR-RBS-2012-03696	CR-RBS-2012-03699	CR-RBS-2012-03700	CR-RBS-2012-03702
CR-RBS-2012-03705	CR-RBS-2012-03706	CR-RBS-2012-03716	CR-RBS-2012-03717
CR-RBS-2012-03724	CR-RBS-2012-03725	CR-RBS-2012-03739	CR-RBS-2012-03815
CR-RBS-2012-03816	CR-RBS-2012-03817	CR-RBS-2012-03827	CR-RBS-2012-03828
CR-RBS-2012-03843	CR-RBS-2012-03912	CR-RBS-2012-03928	CR-RBS-2012-03946
CR-RBS-2012-03970	CR-RBS-2012-03987		

DRAWINGS

NUMBER	TITLE	REVISION
0222.212-000-086	Main Steam Safety Relief Valve	302
ESK-05FWS02	Elementary Diagram 13.8 kV Switchgear Reactor Feedwater Pump 1B Supply ACB 28	15

NRC INFORMATION NOTICES

NUMBER	TITLE	DATE
IN 83-22	Boiling Water Reactor Safety/Relief Valve Failures	April 22, 1983
IN 83-26	Failure of Safety/Relief Valve Discharge Line Vacuum Breakers	May 3, 1983
IN 83-39	Failure of Safety/Relief Valves to Open at BWR – Interim Report	June 17, 1983

PROCEDURES

NUMBER	TITLE	REVISION
EN-OM-119	On-Site Safety Review Committee	8
EN-OP-102	Protective and Caution Tagging	14
EN-QV-130	Safety Review Committee	8
GOP-0003	Scram Recovery (12/25/2011)	021
GOP-0003	Scram Recovery (PO-12-01)	022
OSP-0037	Shutdown Operations Protection Plan (SOPP)	026

Section 1R22: Surveillance Testing

CONDITION REPORT

CR-RBS-2011-06932

PROCEDURE

NUMBER	TITLE	REVISION
REP-0007	Spent Fuel Pool Coupon Surveillance Program	7

Section 2RS1: Radiological Hazard Assessment and Exposure Controls

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
QA-14/15-2011-RBS-1	Radiation Protection / Radwaste Quality Assurance Audit	October 10, 2011 – November 11, 2011

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
QA-2012-RBS-005 S-CRB 25062	QA Follow-up of Two Quality Assurance Findings from the 2011 Radiation Protection/ Radwaste Audit documented in QA 14/15-2011-RBS-1	January 30, 2012 – February 3, 2012

CONDITION REPORTS

CR-RBS-2011-00586	CR-RBS-2011-00844	CR-RBS-2011-01118	CR-RBS-2011-01154
CR-RBS-2011-01434	CR-RBS-2011-01530	CR-RBS-2011-01560	CR-RBS-2011-01757
CR-RBS-2011-02391	CR-RBS-2011-03030	CR-RBS-2011-03097	CR-RBS-2011-03791
CR-RBS-2011-05635	CR-RBS-2011-06113	CR-RBS-2012-00383	CR-RBS-2012-00688
CR-RBS-2012-01039	CR-RBS-2012-01042	CR-RBS-2012-01072	CR-RBS-2012-01251
CR-RBS-2012-01316	CR-RBS-2012-01507	CR-RBS-2012-01725	CR-RBS-2012-03144

MISCELLANEOUS DOCUMENT

NUMBER	TITLE	DATE
EN-RP-143	Source Control: Inventory and Leak Check	March 15, 2012

PROCEDURES

NUMBER	TITLE	REVISION
RPP-0005	Management of Radiological Postings	29
EN-RP-101	Access Control for Radiologically Controlled Areas	6
EN-RP-102	Radiological Control	2
EN-RP-105	Radiological Work Permits	11
EN-RP-106	Radiological Survey Documentation	3
EN-RP-108	Radiation Protection Posting	10
EN-RP-131	Air Sampling	9
EN-RP-141	Job Coverage	5
EN-RP-141-01	Job Coverage Using Remote Monitoring Technology	4
EN-RP-143	Source Control	8
EN-RP-151	Radiological Diving	2

RADIATION WORK PERMITS

NUMBER	TITLE	REVISION
20121304	Forced Outage Minor Maintenance in the Drywell Authorized in LHRA, ARA, HCA	1
20121096	Outage Support to Replace RWCU Pump Seal on G33-PC001A. Authorized to enter HRA, ARA, HCA	3
20121300	Initial DW Entry for inspection teams to locate leaks after a planned/forced shutdown	0
20121316	Forced Outage Minor Maintenance Activities except DW, Authorized in LHRA, ARA, and HCA	3

Section 2RS03: In-plant Airborne Radioactivity Control and Mitigation

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

NUMBER	TITLE	DATE
QA-14/15-2011-RBS-1	Radiation Protection / Radwaste Quality Assurance Audit	October 10, 2011 – November 11, 2011
QA-2012-RBS-005 S-CRB 25062	QA Follow-up of Two Quality Assurance Findings from the 2011 Radiation Protection/ Radwaste Audit documented in QA 14/15-2011-RBS-1	January 30, 2012 – February 03, 2012

CONDITION REPORTS

CR-HQN-2011-00690	CR-HQN-2011-01144	CR-RBS-2011-01144	CR-RBS-2011-01364
CR-RBS-2011-02525	CR-RBS-2011-04940	CR-RBS-2011-06717	CR-RBS-2011-06718
CR-RBS-2011-07499	CR-RBS-2012-02144	CR-RBS-2012-03236	

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
12-1046-2	Air Sample Survey RWCU Pump Room	June 7, 2012
12-1096-2	Air Sample Survey RWCU Pump 1A	June 6, 2012
12-1096-3	Air Sample Survey CRD Rebuild Room	March 31, 2012

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	DATE
12-1304-1	Air Sample Survey Drywell 118 Elevation	June 4, 2012

PROCEDURES

NUMBER	TITLE	REVISION
EIP-2-103	Emergency Equipment Inventory	21
EN-RP-501	Respiratory Protection Program	4
EN-RP-402	DOP Challenge Testing of HEPA Vacuums and Portable Ventilation Units	
EN-RP-404	Operation of HEPA Vacuum Cleaners and HEPA Ventilation Units	4
EN-RP-502	Inspection and Maintenance of Respiratory Protection Equipment	6
EN-RP-503	Selection, Issue, and Use of Respiratory Protection Equipment	5
EN-RP-504	Breathing Air	3
EN-RP-504-01	UNICUS II Operating Instructions	0
EN-RP-505	Portacount Respirator Fit Testing	2

Section 4OA1: Performance Indicator Verification

PROCEDURES

NUMBER	TITLE	REVISION
EN-FAP-RP-002	Radiation Protection Performance Indicator Program	1
EN-LI-114	Performance Indicator Process	5

Section 4OA2: Identification and Resolution of Problems

CONDITION REPORTS

CR-RBS-2011-04947	CR-RBS-2011-08398	CR-RBS-2011-08584	CR-RBS-2011-08590
CR-RBS-2011-08592	CR-RBS-2012-00675	CR-RBS-2012-01750	CR-RBS-2012-01904
CR-RBS-2012-03247	CR-RBS-2012-03468	CR-RBS-2012-03653	

PROCEDURES

NUMBER	TITLE	REVISION
EN-LI-102	Corrective Action Process	19
EN-LI-118	Root Cause Evaluation Process	17
EN-LI-119	Apparent Cause Evaluation (ACE) Process	15
EN-LI-119-01	Equipment Failure Evaluation	2

Section 4OA3: Event Follow-Up

CONDITION REPORTS

CR-RBS-2005-02292	CR-RBS-2006-04460	CR-RBS-2010-06417	CR-RBS-2011-00766
CR-RBS-2011-02209	CR-RBS-2012-02764	CR-RBS-2012-02773	CR-RBS-2012-02775
CR-RBS-2012-02777	CR-RBS-2012-02778	CR-RBS-2012-02788	CR-RBS-2012-03399
CR-RBS-2012-03435	CR-RBS-2012-03438	CR-RBS-2012-03439	CR-RBS-2012-03440
CR-RBS-2012-03441	CR-RBS-2012-03442	CR-RBS-2012-03444	CR-RBS-2012-03448
CR-RBS-2012-03449	CR-RBS-2012-03473	CR-RBS-2012-03527	CR-RBS-2012-03531
CR-RBS-2012-03532	CR-RBS-2012-03533	CR-RBS-2012-03534	CR-RBS-2012-03535
CR-RBS-2012-03544	CR-RBS-2012-03546	CR-RBS-2012-03551	CR-RBS-2012-03555
CR-RBS-2012-03559	CR-RBS-2012-03607		

DRAWINGS

NUMBER	TITLE	REVISION
EE-001AC	Start Up Electrical Distribution Chart	
ESK-05FWS02	Elementary Diagram 13.8 kV Switchgear Reactor Feedwater Pump 1B Supply ACB 28	15

LICENSEE EVENT REPORTS

NUMBER	TITLE	REVISION
LER 05000458/2005-002	Unplanned Automatic Actuation of Standby Service Water Due to Procedural Error	00
LER 05000458/2006-005	Automatic Start of Standby Service Water During Realignment of Reactor Plant Cooling Water	01
LER 05000458/2011-001	Unplanned Actuation of Standby Service Water System Due to Procedure Inadequacy	00

PROCEDURES

NUMBER	TITLE	REVISION
ARP-601-21	P601-21 Alarm Response	308
EN-OP-104	Operability Determination Process	6

Section 40A5: Other Activities

PROCEDURES

NUMBER	TITLE	REVISION
AOP-0050	Station Blackout	43
AOP-0050	Station Blackout	40
EOP-0001	Emergency Operating Procedure-RPV Control	25
EOP-0002	Emergency Operating Procedure-Primary Containment Control	14
EOP-0005	Emergency Operating and Severe Accident Procedure Enclosures	311
EPSTG*0001	Emergency Operating and Severe Accident Procedures – Plant Specific Technical Guidelines	14

CALCULATIONS

NUMBER	TITLE	REVISION/DATE
G13.18.12.4*4	Primary Containment Conditions During Station Blackout	1
G13.18.12.4*4, Addendum A	Level Instrument Effect on Station Blackout CST Depletion Time	November 13, 1998
G13.18.12.4*28	Containment Conditions During Station Blackout for Power Uprate	0
G13.2.7	Station Blackout Analysis for Primary Containment Pressure and Temperature and SRV Cycling	0
G13.18.14.1*18	RBS-GOTHIC Assessment of Drywell/Containment Pressure/Temperature Response to DBAs and SBAs	0

MISCELLANEOUS

NUMBER	TITLE	REVISION/DATE
RSMS-OPS-339	Simulator Training – DLA-MSIVs Shut/Use of SRVs for Pressure Control/STP-050-0700	1
	RBS White Paper – "Compliance with SBO Rule 10 CFR 50.63"	January 11, 2012

CONDITION REPORTS

2012-3376	2011-1671	2011-1670	2011-1669	2011-8809

The following items are requested for the
Occupational Radiation Safety Inspection
at River Bend Station
June 4-8, 2012
Integrated Report 2012003

Inspection areas are listed below.

Please provide the requested information on or before May 28, 2012.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.01 should be in a file/folder titled "1- A," applicable organization charts in file/folder "1- B," etc.

If information is placed on *ims.certrec.com*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

If more than one inspection procedure is to be conducted and the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, please contact Casey Alldredge at (817) 200-1547 or casey.alldredge@nrc.gov.

PAPERWORK REDUCTION ACT STATEMENT

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.

1. Radiological Hazard Assessment and Exposure Controls (71124.01)
Date of Last Inspection: January 24, 2011

A List of contacts and telephone numbers for the Radiation Protection Organization Staff and Technicians

B Applicable organization charts

C Audits, self assessments, and LERs written since date of last inspection, related to this inspection area

D Procedure indexes for the radiation protection procedures

E Please provide specific procedures related to the following areas. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.

1. Radiation Protection Program Description
2. Radiation Protection Conduct of Operations
3. Personnel Dosimetry Program
4. Posting of Radiological Areas
5. High Radiation Area Controls
6. RCA Access Controls and Radworker Instructions
7. Conduct of Radiological Surveys
8. Radioactive Source Inventory and Control
9. Declared Pregnant Worker Program

F List of corrective action documents (including corporate and subtiered systems) since date of last inspection

a. Initiated by the radiation protection organization
b. Assigned to the radiation protection organization

NOTE: The lists should indicate the <u>significance level</u> of each issue and the <u>search criteria</u> used. Please provide documents which are "searchable" so that the inspector can perform word searches.

If not covered above, a summary of corrective action documents since date of last inspection involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded (for Public Radiation Safety Performance Indicator verification in accordance with of IP 71151)

G List of radiologically significant work activities scheduled to be conducted during the inspection period (If the inspection is scheduled during an outage, please also include a list of work activities greater than 1 rem, scheduled during the outage with the dose estimate for the work activity.)

H List of active radiation work permits

I Radioactive source inventory list

3. In-Plant Airborne Radioactivity Control and Mitigation (71124.03)
Date of Last Inspection: January 24, 2011

A List of contacts and telephone numbers for the following areas:
1 Respiratory Protection Program
2 Self contained breathing apparatus

B Applicable organization charts

C Copies of audits, self-assessments, vendor or NUPIC audits for contractor support (SCBA), and LERs, written since date of last inspection related to:
1 Installed air filtration systems
2 Self contained breathing apparatuses

D. Procedure index for:
1 use and operation of continuous air monitors
2 use and operation of temporary air filtration units
3 Respiratory protection

E. Please provide specific procedures related to the following areas. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
1 Respiratory protection program
2 Use of self contained breathing apparatuses
3 Air quality testing for SCBAs

F. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection, related to the Airborne Monitoring program including:
1 continuous air monitors
2 Self contained breathing apparatuses
3 respiratory protection program

NOTE; The lists should indicate the significance level of each issue and the search criteria used. Please provide documents which are "searchable."

G List of SCBA qualified personnel - reactor operators and emergency response personnel

H Inspection records for self contained breathing apparatuses (SCBAs) staged in the plant for use since date of last inspection.

I SCBA training and qualification records for control room operators, shift supervisors, STAs, and OSC personnel for the last year.

A selection of personnel may be asked to demonstrate proficiency in donning, doffing, and performance of functionality check for respiratory devices.

RIVER BEND STATION

FAILURE TO SPECIFY MANUAL ACTIONS FOR SAFETY RELIEF VALVE OPERATIONS DURING A STATION BLACKOUT EVENT

PHASE 3 ANALYSIS

Performance Deficiency

Abnormal operating and emergency operating procedures were not specific to ensure that operators would use safety relief valves in a manner that would preserve conditions in the suppression pool to support operation of reactor core isolation cooling for the specified station blackout coping time of 4 hours.

Assumptions

1. The deficiency affects station blackout operations only. If suppression pool cooling is available, the deficient procedures do not affect the risk analysis.

2. SPAR-H was used to estimate the failure probability for operators to use safety relief valves in a manner that maintains adequate suppression pool conditions for 4 hours. The results are in Tables 1 and 2.

3. The condition existed for greater than one year; therefore the exposure period is set to one year.

4. The degradation of conditions in the suppression pool would take more than one hour to occur in all scenarios analyzed by the thermo-hydraulic calculations. Therefore, 30-minute and 1-hour sequences were eliminated from the computation.

5. The SPAR model was revised by Idaho National Labs to correct modeling problems in the station blackout event tree.

6. The analyst observed that many of the core damage sequences did not credit the use of high pressure core spray following a loss of sub-cooling in the suppression pool. The licensee provided a calculation demonstrating the capability of high pressure core spray to pump saturated water. This represents a conservative assumption in the analysis.

Table 1: Nominal Case

	Diagnosis		Action	
Initial Probability	----	0.01	----	0.001
Available Time	Extra Time	0.1	Nominal	1.0
Complexity	Obvious Diagnosis	0.1	Moderately Complex	2.0
Stress	High	2.0	High	2.0
Procedures	Nominal	1.0	Nominal	1.0
Final Failure Probability	----	2.0E-4	----	4E-3
Total Failure Probability		4.2E-3		

Table 2: Condition Case

	Diagnosis		Action	
Initial Probability	----	0.01	----	0.001
Available Time	Extra Time	0.1	Nominal	1.0
Complexity	Obvious Diagnosis	0.1	Moderately Complex	2.0
Stress	High	2.0	High	2.0
Procedures	Nominal	1.0	Incomplete	20
Final Failure Probability	----	2.0E-4	----	8E-2
Total Failure Probability		8.02E-2		

Diagnosis is defined as the operators understanding that they are in a station blackout and that they must use the applicable procedures successfully to cool down the plant.

Action is defined as using the procedures successfully to cool down the plant while preserving suppression pool conditions that would permit reactor core isolation cooling operation for the entire 4-hour coping time.

Analysis

A new basic event RCI102-TDP5, “Operator Fails to Use SRVs to Maintain Suppression Pool,” was placed under the “OR” gate of Fault Tree RC102 and set to “FALSE.” This fault tree is used only in the station blackout sub-event tree. For the nominal case, RCI102-TDP5 was set to 4.2E-3; in the condition case, it was set to 8.02E-2. The results, using the River Bend Station SPAR model, Revision 8.15 (a problem involving convolution and offsite power recoveries was identified by the analyst and corrected by Idaho National Labs prior to this run), with average test and maintenance and a truncation of 1.0E-13, were as follows:

	CDF	CDF for 30 min and 1 hour sequences	CDF for >1 hr sequences
Nominal Case	2.71E-6	3.03E-7	2.40E-6
Condition Case	3.10E-6	4.62E-7	2.64E-6
ΔCDF for > 1hr sequences			**2.4E-7**

Most of the risk increase is due to sequences involving a loss-of-offsite-power, loss of both emergency diesel generators, and a loss of reactor core isolation cooling from exceeding heat capacity temperature limit in the suppression pool.

External events are not expected to add significantly to the risk because they are unlikely to result in a station blackout. Tornadoes and high winds are already accounted for in the weather-related loss-of-offsite-power frequency. The seismic-induced loss-of-offsite-power is very low (1.46E-5/yr). Fire events that remove offsite power have much lower frequencies than the internal events frequencies in the SPAR model, and in fact, are already included in the data base that determined these values.

Large early release frequency (LERF) is determined by applying a LERF factor from NRC Manual Chapter 0609, Appendix H. For boiling water reactor Mark III containments, station blackout sequences have a LERF factor of 0.2. This results in an incremental-conditional-large-early-release-probability (ICLERP or ΔLERF) of 4.8E-8. This results in a very low (green) significance.