



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

December 20, 2016

Mr. William F. Maguire
Site Vice President
Entergy Operations, Inc.
River Bend Station
5485 U.S. Highway 61N
St. Francisville, LA 70775

**SUBJECT: RIVER BEND STATION – NRC SUPPLEMENTAL INSPECTION REPORT
05000458/2016012 AND ASSESSMENT FOLLOW-UP LETTER**

Dear Mr. Maguire:

During the fourth quarter 2014, River Bend Station experienced two unplanned scrams which caused the Unplanned Scrams with Complications performance indicator to cross the Green-White threshold. In February 2015, the station reported the Unplanned Scrams with Complications performance indicator as White. This performance indicator remained White from the fourth quarter 2014 through the third quarter 2015.

On March 4, 2015, the NRC informed you that a supplemental inspection using Inspection Procedure 95001, "Supplemental Inspection Response to Action Matrix Column 2 Inputs," would be required. On August 12, 2016, you informed the NRC of River Bend Station's readiness for the supplemental inspection.

On September 30, 2016, the NRC completed the on-site portion of the supplemental inspection and discussed the preliminary results with you and other members of your staff. On November 8, 2016, the NRC completed the supplemental inspection and discussed the results of this inspection and the implementation of your corrective actions with you and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC performed this supplemental inspection to determine if: (1) the root and contributing causes of the significant performance issues were understood; (2) the extent of condition and extent of cause for the significant performance issues were identified; (3) the corrective actions taken to address and preclude repetition of significant performance issues were prompt and effective; and (4) the corrective action plans direct prompt actions to effectively address and preclude repetition of significant performance issues.

Your staff completed nine root cause evaluations to address the significant performance issues. These evaluations assessed the unplanned scrams that caused the White performance indicator, and additional performance issues that occurred before the NRC performed this inspection. These additional performance issues included scrams on June 1 and November 27, 2015; on January 9, 2016; and a loss of shutdown cooling event on January 10, 2016.

Based on the results of this inspection, the NRC determined that River Bend Station performed a comprehensive evaluation of the events that led to the White performance indicator, as well as the subsequent unplanned scrams and events. The NRC also determined that completed and planned corrective actions were sufficient to address the performance issues that led to the White performance indicator. As a result, the inspection objectives were met.

This letter also informs you of the NRC's assessment of your facility. Based on the guidance in Inspection Manual Chapter 0305, "Operating Reactor Assessment Program," our continuous review of plant performance, and the results of this inspection, the NRC updated its assessment of River Bend Station. The NRC's assessment consisted of a review of River Bend Station's performance indicators and inspection results. Specifically, the NRC determined the performance at River Bend Station to be in the Licensee Response Column of the Reactor Oversight Process Action Matrix as of the date of this letter. This letter supplements, but does not supersede, the mid-cycle assessment letter issued on August 31, 2016.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement; and the NRC resident inspector at the 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; and the NRC resident inspector at the River Bend Station.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document

W. Maguire

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Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Please contact Greg Warnick at 817-200-1144 with any questions you have regarding this letter.

Sincerely,

/RA Ryan Lantz Acting for/

Troy W. Pruett, Director
Division of Reactor Projects

Docket No. 50-458
License No. NPF-47

Enclosure:
Inspection Report 05000458/2016012
w/Attachment: Supplemental Information

cc w/ encl: Electronic Distribution for River Bend Station

U.S. NUCLEAR REGULATORY COMMISSION (NRC)

REGION IV

Docket: 50-458

License: NPF-47

Report: 05000458/2016012

Licensee: Entergy Operations, Inc.

Facility: River Bend Station

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

Dates: September 26 through November 8, 2016

Inspectors: F. Ramírez, Senior Resident Inspector, Lead Inspector
M. Young, Senior Resident Inspector
R. Smith, Nuclear Systems Engineer
M. Langelier, P.E., Resident Inspector

Approved By: Troy W. Pruett, Director
Division of Reactor Projects

SUMMARY OF FINDINGS

Inspection Report 05000458/2016012; 9/26/2016 – 11/8/2016; River Bend Station, Supplemental Inspection - Inspection Procedure 95001

This supplemental inspection was conducted by two senior resident inspectors, a resident inspector, and a regional inspector. The inspectors identified one finding having very low (Green) safety significance. The inspectors determined the finding was a non-cited violation. The significance of most findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects 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."

Cornerstone: Initiating Events

The NRC inspectors performed this supplemental inspection in accordance with Inspection Procedure 95001, "Supplemental Inspection Response to Action Matrix Column 2 Inputs," dated August 24, 2016, to assess the licensee's evaluation associated with an Unplanned Scrams with Complications White performance indicator. As a result of two unplanned scrams that occurred in the fourth quarter of 2014, River Bend Station's performance indicator for Unplanned Scrams with Complications crossed the Green-White threshold during the fourth quarter 2014 and remained White through the third quarter of 2015.

In addition to the two scrams that caused the Unplanned Scrams with Complications performance indicator to cross the Green-White threshold, River Bend Station experienced a third complicated scram in January 2016. The scope of this inspection included the nine root cause evaluations that addressed the three unplanned scrams with complications plus subsequent scrams and events. The licensee identified 11 root causes and 22 corrective actions to prevent recurrence of the significant performance issues.

The inspectors determined that the licensee performed a comprehensive evaluation of the numerous equipment issues that contributed to three scrams with complications and two uncomplicated scrams between October 17, 2014, and January 9, 2016. The inspectors also completed or planned corrective actions were sufficient to address the performance that led to the White performance indicator. Given the licensee's acceptable performance in addressing the Unplanned Scrams with Complications White performance indicator, the inspectors concluded the inspection objectives were met. As a result, in accordance with guidance in Inspection Manual Chapter 0305, "Operating Reactor Assessment Program," the NRC determined the performance at River Bend Station to be in the Licensee Response Column of the Reactor Oversight Process Action Matrix.

Findings

- Green. The inspectors identified a finding of very low safety significance and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to create adequate effectiveness review plans in accordance with River Bend Station Procedure EN-LI-118, "Cause Evaluation Process." Specifically, for 10 out of 22 corrective actions that were created to

prevent recurrence of significant performance issues, the licensee did not have appropriate quantitative or qualitative measures of success to determine the effectiveness of correction actions. The licensee entered this issue into their corrective action program as Condition Reports CR-RBS-2016-06652 and CR-RBS-2016-06694. The licensee restored compliance by immediately preparing and approving adequate effectiveness review plans.

The inspectors determined that the performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the root cause evaluations were performed as a result of significant performance issues, and adequate effectiveness reviews are designed to ensure that corrective actions to prevent recurrence are effective in precluding the said significant performance issues. Inadequate effectiveness review plans would reasonably have the potential to prevent identifying ineffective corrective actions and allow significant performance issues to recur. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," and Inspection Manual Chapter 0609, Appendix A, Exhibit 1, "Initiating Events Screening Questions," the inspectors determined that the finding was of very low safety significance. This finding has an evaluation cross-cutting aspect in the area of problem identification and resolution because the organization did not thoroughly evaluate the issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, when creating effectiveness review plans the licensee believed that an aggregate review was appropriate in all circumstances, resulting in the plans having inadequate measures of success [P.2]. (Section 02.04.e)

REPORT DETAILS

4. OTHER ACTIVITIES

4OA4 Supplemental Inspection (95001)

.01 Inspection Scope

The NRC staff performed this supplemental inspection in accordance with Inspection Procedure 95001, "Supplemental Inspection Response to Action Matrix Column 2 Inputs," to assess the licensee's evaluation of a White Unplanned Scrams with Complications performance indicator (PI), which affected the Initiating Events Cornerstone in the Reactor Safety Strategic Performance Area. The inspection objectives were to:

- provide assurance that the root causes and contributing causes of individual and collective significant performance issues were understood;
- independently assess and assure that the extent of condition and extent of cause of significant individual and collective performance issues were identified;
- provide assurance that corrective actions taken to address and preclude repetition of significant performance issues were prompt and effective;
- provide assurance that corrective plans directed prompt actions to effectively address and preclude repetition of significant performance issues.

Two scrams caused the Unplanned Scrams with Complications PI to cross the Green-White threshold. On October 17, 2014, River Bend Station scrambled from 100 percent power in response to a malfunction in the main turbine electro-hydraulic control system. Following the scram, a mis-operation of the condensate system demineralizers caused a loss of the feedwater system, requiring additional operator recovery actions. On December 25, 2014, River Bend Station scrambled from 85 percent power due to a loss of power on the Division II reactor protection system bus in conjunction with a pre-existing half scram on Division I. Following the scram, a Level 8 signal caused the running main feedwater pump to trip. The station started a different main feedwater pump; however, a failure of the startup feedwater regulating valve caused the reactor pressure vessel level to decrease below the Level 3 setpoint which, in turn, caused a second scram signal (NRC Inspection Report 05000458/2015009). These unplanned scrams with complications resulted in Licensee Event Reports (LERs) 2014-002-00, "Reactor Scram due to Average Power Range Monitor High-Flux Signal Following a Malfunction of the Main Turbine Electro-Hydraulic System," and 2014-006-00, "Automatic Reactor Scram and Primary Containment Isolation due to Loss of Power on the Division II Reactor Protection System with a Concurrent Division I Half-Scram." These LERs were inspected with results documented in NRC Inspection Report 05000458/2015001 and NRC Inspection Report 05000458/2015004 respectively.

In the annual assessment letter dated March 4, 2015, the NRC informed the licensee that due to the two unplanned scrams, the station's PI for Unplanned Scrams with Complications crossed the Green-White threshold during the fourth quarter of 2014. In addition, the NRC communicated plans to conduct a supplemental inspection in accordance with Inspection Procedure 95001.

In January 2016, before the licensee completed its readiness for this supplemental inspection, they experienced a third unplanned scram with complications. Specifically, on January 9, 2016, an electrical transient on a 230kV transmission line caused an automatic reactor scram from 100 percent power concurrent with the closure of all main steam isolation valves. The licensee reported the event in LER 2016-002-00, "Automatic Reactor Scram and Division 2 Primary Containment Isolation due to Offsite Grid Electrical Transient," which was inspected with results documented in NRC Inspection Report 05000458/2016009.

On August 12, 2016, the licensee informed the NRC that they were ready for the supplemental inspection. In preparation for this inspection, the licensee completed nine root cause evaluations (RCEs). Four of those evaluations specifically addressed the equipment and organizational issues associated with the Unplanned Scrams with Complications PI. Since additional scrams and equipment issues had manifested themselves inside the time period of the three unplanned scrams (between October 2014 and January 2016), the licensee included five supplementary RCEs for the team's review since they had identified similar organizational and programmatic weaknesses.

The inspectors reviewed the licensee's RCEs associated with the scrams with complications and the supplementary RCEs as listed below. The inspectors also held discussions with licensee personnel to determine if the root and contributing causes and the contribution of safety culture components were understood, and that corrective actions taken or planned were appropriate to address the causes and preclude repetition.

A brief summary of each RCE follows.

- 1) RCE 2014-05200, "Reactor Scram due to Erroneous EHC Signal," Revision 2A (Scram with Complications on October 17, 2014)

On October 17, 2014, the River Bend Station scrambled from 100 percent power due to a malfunction in the electro-hydraulic control (EHC) system. Specifically, the main turbine steam bypass valves fully opened and all four main turbine control valves closed due to an erroneous turbine steam flow reference signal. The resulting increase in reactor steam pressure caused reactor power to rise, triggering the average power range monitors (APRMs) high flux trip setpoint, which initiated the reactor protection system (RPS) scram signal. The licensee stabilized the plant and prior to startup replaced five circuit boards that were determined to be the likely cause of the EHC malfunction.

NRC Inspection Report 05000458/2015001, dated May 7, 2015, documented the inspection results of this event and closure of LER 2014-002-00.

- 2) RCE 2015-05469, "Removal of All Condensate Demineralizers from Service Following Reactor Scram," Revision 2A (Scram with Complications on October 17, 2014)

On October 17, 2014, following the unplanned scram discussed above (RCE 2014-05200), two senior nuclear equipment operators (SNEOs) assigned to the auxiliary control room removed ten condensate system demineralizers from service. This action resulted in a trip of the only operating reactor feed pump and a total loss of feedwater to the reactor. The loss of feedwater caused the reactor pressure vessel level to decrease below the Level 3 setpoint, which, in turn, caused a second scram signal. Subsequently, a third SNEO, who reported to the auxiliary control room to offer assistance, realized that there was a total loss of feedwater and immediately contacted the main control room to inform them of what occurred. The SNEO who initially isolated the ten condensate demineralizers began re-establishing condensate flow by restoring the condensate demineralizers to service, which restored feedwater system flow.

NRC Inspection Report 05000458/2015001, dated May 7, 2015, documented the inspection results of this event and closure of LER 2014-002-00.

- 3) RCE 2015-05474, "12/25/2014 Scram due to RPS 'B' Trip," Revision 2A (Scram with Complications on December 25, 2014)

On December 25, 2014, River Bend Station scrambled from 85 percent power. This event resulted from the loss of power on the Division II reactor protection system bus in conjunction with a pre-existing half scram on Division I. Four minutes after the scram, reactor water level increased to the Level 8 setpoint, causing the running main feedwater pump to trip. Operators attempted to re-start main feedwater pump C, but its supply breaker failed to close. The station started main feedwater pump A. The startup feedwater regulating valve should have opened to establish control, but the valve failed to open, causing reactor pressure vessel level to decrease slightly below the Level 3 setpoint, resulting in a second scram signal. The station later placed feedwater regulating valve C in service, restored feedwater flow, raised reactor pressure vessel water level above the Level 3 setpoint, and maintained vessel level in a normal shutdown band.

NRC Inspection Report 05000458/2015009, dated July 7, 2015, documented the inspection results of this event, and NRC Inspection Report 05000458/2015008, dated August 13, 2015, documented the inspection results and closure of LER 2014-006-00.

- 4) RCE 2015-05473, "Recurring High Reactor Water Level (Level 8) Trips of the Main Feedwater Pumps," Revision 1A

The licensee completed this RCE to evaluate the site's history of transients that have resulted in reactor water level increasing to Level 8. These incidents, which have occurred since startup testing, caused feedwater pump trips during plant events. The Level 8 events have been a result of acceptance of feedwater level control system (FWLCS) and feedwater (FW) system adverse trends. These adverse trends resulted in reactor scrams that challenged the ability of operators to regulate and control reactor water level and prevent a Level 8 reactor feedwater

pump trip. Previous corrective actions to revise the post-scam operator response strategies were not fully effective in preventing the recurrence of the Level 8 reactor feedwater pump trips. Engineering and operations personnel generally accepted that Level 8 reactor feed pump trips post-scam were inherent in the system design and an expected plant post-scam response. Therefore, the post-scam Level 8 pump trips were not considered an adverse condition and were not entered into the station's corrective action program.

NRC Inspection Report 05000458/2012012, dated December 28, 2012, documented the inspection results of this specific issue.

5) RCE 2015-07532, "White PI Exceeded: Two Unplanned Scrams with Complications," Revision 1A

The licensee completed this RCE to evaluate the common causes for the site experiencing two unplanned scrams with complications in less than a year, which exceeded the PI Green-White threshold. These two events are described in RCE 2014-05200 and RCE 2015-05474. Multiple issues enabled the two unplanned scrams, such as the site's inadequate attention to emerging problems through the use of the corrective action program, inadequate teamwork between organizations to resolve long-standing issues, and lack of commitment to operational performance.

6) RCE 2015-03974, "Loss of 24 Vdc Power in Panel H13-P854, BOP Analog Instrumentation Panel, Results in Reactor Scram," Revision 1A (Reactor Scram on June 1, 2015)

On June 1, 2015, an automatic reactor scram occurred when operating at approximately 90 percent power due to low water level in the reactor vessel. This event resulted from the loss of the 24 Vdc control power to the non-safety related electrical panel H13-P854. Upon loss of power to this panel, the reactor feedwater pump minimum flow valves opened. The opening of these valves caused a reduction in feed flow to the reactor and a reduction in suction pressure to the main feedwater pumps. As a result, feedwater pump 1A tripped on low suction pressure, and shortly after, water level in the reactor vessel lowered to the automatic scram setpoint (Level 3).

NRC Inspection Report 05000458/2015004, dated February 10, 2016, documented the inspection results of this event and closure of LER 2015-005-00.

7) RCE 2015-08463, "Reactor Scram due to Loss of Reserve Station Service Line 1," Revision 1A (Reactor Scram on November 27, 2015)

On November 27, 2015, with the plant operating at 100 percent power, an automatic reactor scram occurred following the loss of power to both divisions of RPS. This condition resulted from a single phase fault in the local 230kV switchyard. Due to powering both RPS buses from the alternate source, the fault caused a voltage transient on in-plant switchgear, which was sufficient to trip the scram relays in Division II RPS. The protective relays for the switchyard caused the breakers connected to the north 230kV bus to trip, ultimately resulting in loss of the Division 1 RPS bus and an automatic reactor scram.

NRC Inspection Report 05000458/2016009, dated May 12, 2016, documented the inspection results of this event and closure of LER 2015-009-00. NRC Inspection Report 05000458/2016002, dated July 29, 2016, documented the inspection results and closure of LER 2015-009-01.

- 8) RCE 2016-00180, "Fancy Point-Big Cajun Line, MSIV Isolation and Reactor Scram," Revision 1A (Scram with Complications on January 9, 2016)

On January 9, 2016, an automatic reactor scram occurred concurrent with the closure of all main steam isolation valves (MSIV) from 100 percent power. This condition resulted from an electrical transient caused by a phase-to-phase fault on a 230kV transmission line. Due to powering both reactor protection system buses from the alternate source, the fault caused a momentary decrease in voltage on both reactor protection buses, which caused loss of voltage to the MSIV control solenoids, resulting in an automatic reactor scram and MSIV closure.

NRC Inspection Report 05000458/2016009, dated May 12, 2016, documented the inspection results of this event and closure of LER 2016-002-00.

- 9) RCE 2016-00210, "Loss of Shutdown Cooling," Revision 1A (Event on January 10, 2016)

On January 9, 2016, the plant entered Mode 4 following an automatic reactor scram (RCE 2016-00180). On January 10, 2016, the plant was operating in Mode 4 with reactor coolant system temperature at 128 degrees Fahrenheit and residual heat removal (RHR) system train A in service in shutdown cooling (SDC) mode. In accordance with the licensee's standard operating procedure for the RHR system, the licensee was performing an activity to install a jumper to bypass the 135 pounds per square inch SDC isolation function, which serves to protect the RHR system from an overpressure condition while in service. During the jumper installation, due to human performance errors, a fuse blew, which caused the inadvertent closure of the RHR SDC outboard suction isolation valve and the RHR pump A SDC injection valve. As a result, RHR pump A tripped on an anticipatory low suction pressure, which resulted in a loss of SDC. The RHR system was restored to operation in the SDC mode 74 minutes after the loss occurred. Reactor coolant temperature increased 68.7 degrees Fahrenheit during the loss of SDC.

NRC Inspection Report 05000458/2016009, dated May 12, 2016, documented the inspection results of this event.

.02 Evaluation of the Inspection Requirements

This report documents the inspectors' assessment of each inspection objective based on a collective review of all nine RCEs.

.02.01 Problem Identification

- a. Determine that the evaluations documented who identified the issues (i.e., licensee-identified, self-revealing, or NRC-identified) and under what conditions the

issues were identified

Each of the events described in Section 4OA4.01 were the result of self-revealing issues. The inspectors determined that the licensee's evaluations documented who identified the issue and under what conditions the issues were identified.

- b. Determine that the evaluations documented how long the issues existed and prior opportunities for identification

The licensee evaluations of the events documented when the issues originated, the circumstances in which each issue could have been previously identified, and documented the conditions, when applicable, involving similar events that had occurred at the station. The inspectors determined that the licensee's evaluations were adequate with respect to identifying how long the issues existed and if there were any prior opportunities for identification.

- c. Determine that the evaluations documented significant plant-specific consequences, as applicable, and compliance concerns associated with the issues

The licensee evaluations included a plant-specific, risk-informed safety significance evaluation of the issues. In each safety evaluation, the licensee discussed the consequences of each event with respect to the plant, as well as the consequences to the general public's safety, nuclear safety, industrial safety, and radiological safety. The inspectors concluded that the licensee appropriately documented the risk consequences and compliance concerns associated with each issue.

- d. Findings

No findings were identified.

02.02 Root Cause, Extent of Condition, and Extent of Cause Evaluation

- a. Determine that the problems were evaluated using a systematic methodology to identify the root and contributing causes

The inspectors determined that the licensee's RCEs employed a combination of the following evaluation techniques: Event and Causal Factors Charts, Barrier Analysis, Comparative Timeline, Failure Modes Analysis, Performance Improvement International Organization and Program Interface Chart, Why Staircase, Organizational and Programmatic Evaluation Process, Equipment Troubleshooting, and Management Oversight Risk Tree Analysis.

The inspectors determined that the licensee selected appropriate analysis methods to ensure thorough and complete evaluations. The inspectors concluded that the licensee adequately evaluated each issue using a systematic methodology to identify the root and contributing causes.

- b. Determine that the root cause evaluations were conducted to a level of detail commensurate with the significance of the problems

The licensee's RCEs included sufficient information for each event regarding event timelines, event descriptions, previous occurrences, missed opportunities, and analysis

discussion. Each RCE used multiple evaluation methodologies, as discussed in Section 02.02.a, to ensure the level of detail matched the significance of each event. The inspectors determined that the RCEs were conducted to a level of detail commensurate with the significance of the problems discussed.

c. Determine that the root cause evaluations included a consideration of prior occurrences of the problem and knowledge of prior operating experience

The licensee's RCEs included a review of internal and external operating experience. The licensee conducted a fleet-wide search of Entergy's corrective action program for any previously documented conditions related to the event documented in each RCE. For each of the RCEs, the licensee documented extensive operating experience. The licensee found multiple examples of internal and external operating experience and recognized, in several instances, that there were missed opportunities where the station could have taken actions to prevent events.

The inspectors noted that none of the RCEs included NRC communications in the operating experience review as required by River Bend Station Procedure EN-LI-118, "Cause Evaluation Process," Revision 22. The inspectors subsequently identified that the licensee's operating experience search engine (INPO Consolidated Entry System) was not returning any NRC operating experience documents, such as, generic letters, information notices, and bulletins. The inspectors noted that Procedure EN-LI-118 states that searches for external operating experience should start with the INPO Consolidated Entry System and NRC search tools. In addition, Procedure EN-LI-118 provides guidance to search other external databases that may contain relevant data. Therefore, the licensee should have noted that the search results did not contain NRC communications, and should have used other methods to identify applicable documentation. The licensee subsequently found that the last operating experience search that documented NRC generic communications was performed in June 2015.

The inspectors determined that this issue constituted a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because the licensee did not follow River Bend Station's Procedure EN-LI-118. Specifically, the licensee failed to consider searching other external databases that may contain relevant data during their operating experience reviews. The inspectors determined that the safety significance of this violation was minor because this issue could not be reasonably viewed as a precursor to a significant event; if left uncorrected, it would not have the potential to lead to a more significant safety concern; it does not relate to a PI; and it did not adversely affect a cornerstone objective. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2016-06601 and plans to restore compliance by re-performing operating experience searches for all the site RCEs performed since June 2015. This failure to comply with 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

The inspectors concluded that the licensee's RCEs included a consideration of prior occurrences of similar equipment failures and operating experience.

- d. Determine that the root cause evaluations addressed the extent of condition and the extent of cause of the problem

The inspectors determined that the RCEs addressed the extent of condition and extent of cause. In addition to evaluating the root causes, each RCE assessed the contributing causes when addressing the extent of cause and extent of condition of each event. The inspectors identified three observations as discussed below.

Observation 1: RCE 2015-08463, "Reactor Scram due to Loss of Reserve Station Service Line 1," (Reactor Scram on November 27, 2015)

The inspectors identified that the licensee's extent of cause evaluation was initially narrow in scope. The licensee determined that the root cause was insufficient recognition of risk in the design and licensing bases associated with operating at power with both RPS buses on the alternate power source. The licensee limited the original extent of cause evaluation to RPS, instead of a more appropriate scope of all components in the plant that could be placed into an alternate configuration, and would increase the risk of a scram. The licensee subsequently stated that they had taken credit for a review that was completed as part of the RCE for the reactor scram caused by an erroneous EHC signal (RCE 2014-05200). The inspectors determined that the EHC review only looked at components that were in abnormal configurations at the time of the review and not components that could be put into an abnormal configuration. As an immediate corrective action, the licensee performed an extent of cause review to identify all the components that could be put into an abnormal configuration and would increase the risk of a scram. The licensee also verified that procedures associated with those abnormal configurations identified the risk appropriately. The inspectors did not identify any issues from this new review and concluded that the revised extent of cause evaluation was adequate.

Observation 2: RCE 2016-00210, "Loss of Shutdown Cooling," (Event on January 10, 2016)

The inspectors identified that the licensee's extent of cause evaluation was initially narrow in scope. The licensee determined that the root cause was the failure to sustain corrective actions to prevent recurrence of a 1994 loss of shutdown cooling event. Specifically, the licensee inadequately revised River Bend Station's Procedure SOP-0031, "Residual Heat Removal," by removing steps that were specifically added to prevent a loss of shutdown cooling. The inspectors identified that the extent of cause evaluation was narrowly focused in that the word "ineffective" was the only search criteria when performing a search for similar cases in plant databases. When the inspectors provided this observation to the licensee, the licensee re-performed the extent of cause evaluation by reviewing all site effectiveness reviews for a 10-year period to identify any instances of failures to sustain CAPRs, or occurrences where a procedure revision was not sustained in subsequent revisions of the procedure. The licensee's new extent of cause search did not identify any issues similar to the inspectors' observation. The inspectors reviewed the revised extent of cause evaluation and concluded that it was adequate.

Observations 1 and 2 were immediately addressed by the licensee and were entered into their corrective action program as Condition Reports CR-RBS-2016-06675 and CR-RBS-2016-06671, respectively. In addition, the updated extent of cause reviews did

not require new corrective actions and did not change the overall conclusions of the associated RCEs. As a result, the inspectors determined that the RCEs adequately addressed the extent of condition and extent of cause for the issues.

Observation 3: Programmatic Weaknesses

The inspectors performed a collective review of the extent of condition and the extent of cause reviews for all nine RCEs to determine whether the licensee properly considered programmatic aspects and whether identified weaknesses were being addressed. Three themes noted by the inspectors are discussed below.

Management Oversight

The inspectors noted that management oversight concerns contributed to the root and contributing causes of the significant performance issues within the scope of this inspection. The inspectors noted examples where River Bend Station's management accepted adverse conditions as normal occurrences (such as recurring high reactor water level trips of the main feedwater pumps), accepted unnecessary risks of prolonged alternate alignment of systems (such as operating with the reactor protection system buses aligned to alternate power), and accepted first answers when following the troubleshooting process. The inspectors concluded that the licensee had already identified this area for additional focus. The River Bend Station Recovery Plan dated August 24, 2016, specified site leaders were not reinforcing high standards and were not holding employees accountable. Since management oversight was included in the site's recovery plan, River Bend Station had already established corrective actions to arrest decline in this area, prevent further degradation, and improve performance.

Procedure Use and Adherence

The inspectors noted that procedure use and adherence contributed to the significant performance issues. The inspectors noted examples of procedure use and adherence issues in both unplanned scrams that occurred in October and December 2014, and resulted in a White Unplanned Scrams with Complications PI. For example, nuclear equipment operators did not follow procedure and isolated all condensate system demineralizers during an unplanned scram; and the site did not adhere to troubleshooting procedures and did not complete the process to find the proper causes for equipment issues. Another event that involved procedure use and adherence issues was the loss of shutdown cooling event that occurred in January 2016, caused by a nuclear equipment operator working in a protected panel without proper authorization. The inspectors concluded that the licensee had already identified this area for additional focus, as documented in the River Bend Station Recovery Plan dated August 24, 2016. Since procedure use and adherence was included in the site's recovery plan, River Bend Station had already established corrective actions to arrest decline in this area, prevent further degradation, and improve performance.

Procedure Quality

The inspectors noted that procedure quality contributed to the significant performance issues. For example, the site's procedure to control reactor water level was poor, steps to prevent a loss of shutdown cooling were removed from River Bend Station's Procedure SOP-0031, "Residual Heat Removal," and River Bend Station's

Procedure SOP-0093, "Condensate Demineralizers," did not contain precautions when changing the number of condensate demineralizers in service. From these examples, the inspectors noted that procedures lacked detail because of the over-reliance on skill of the craft.

Unlike with the themes of management oversight and procedure use and adherence discussed above, which are being addressed through the River Bend Station Recovery Plan dated August 24, 2016, the inspectors noted that the licensee was not formally addressing procedure quality through their corrective action program. Instead, the licensee documented Condition Report CR-RBS-2016-01341, which included an apparent cause evaluation associated with the quality of operations procedures, and was subsequently extended to other site departments. This apparent cause evaluation was completed in February 2016, and since then, River Bend Station relied on each individual department to track corrective actions and progress associated with procedure quality. The inspectors provided this feedback to the licensee, who acknowledged the issue. The licensee planned to re-evaluate procedure quality to identify adequate corrective actions to improve performance in this area. These actions are being tracked under CR-RBS-2016-07697.

- e. Determine that the root cause, extent of condition, and extent of cause evaluations appropriately considered the safety culture traits in NUREG-2165, "Safety Culture Common Language," referenced in Inspection Manual Chapter 0310, "Aspects Within Cross-Cutting Areas"

The licensee's RCEs included a review of whether a weakness in any safety culture component contributed to the issues. The licensee's evaluations identified weaknesses in safety culture components that were related to the identified root causes and contributing causes. The licensee established adequate corrective actions to address the safety culture weaknesses that were identified. The inspectors concluded that the licensee's evaluation appropriately considered safety culture components.

- f. Examine the common cause analyses for potential programmatic weaknesses in performance when a licensee has a second White input in the same cornerstone

The licensee does not have a second White input in the same cornerstone; therefore, this inspection item was not applicable.

- g. Findings

No findings were identified.

02.03 Corrective Actions Taken

- a. Determine that appropriate corrective actions are specified for each root and contributing cause or that the licensee has an adequate evaluation for why no corrective actions are necessary

The licensee's RCEs identified corrective actions to address root and contributing causes. Specifically, the licensee created 22 corrective actions to prevent recurrence (CAPRs) of the significant performance issues evaluated in all nine RCEs. The inspectors reviewed each of the corrective actions and determined they adequately

addressed the identified root and contributing causes. During their review, the inspectors identified three observations, as discussed below.

Observation 1: RCE 2015-05474, "12/25/2014 Scram due to RPS 'B' Trip," (Scram with Complications on December 25, 2014)

The inspectors identified that the licensee failed to correctly document a CAPR for a significant condition adverse to quality. Specifically, root cause 2 stated, "Operator ability to adequately control reactor pressure vessel water level during the post SCRAM response was hampered by known and unknown feed water control system problems and by following an inadequate strategy (procedure) which resulted in an unplanned SCRAM with complications." The inspectors noted that the corrective action to prevent recurrence for this RCE addressed the inadequate procedure aspect of the root cause but did not address the known and unknown feedwater control system problems. However, the inspectors noted that one of the corrective actions listed in the RCE addressed the feedwater control system problems. The licensee agreed with the inspectors' observation and changed the classification of the corrective action to a CAPR. There were no additional corrective actions as a result of this review. The inspectors reviewed the revised corrective action to prevent recurrence and its associated effectiveness review plan, and determined that they were adequate.

Observation 2: RCE 2015-03974, "Loss of 24 Vdc Power in Panel H13-P854, BOP Analog Instrumentation Panel, Results in Reactor Scram," (Reactor Scram on June 1, 2015)

One of the corrective actions identified in the RCE was to perform an extent of condition review of the preventive maintenance component classifications on electrical components. During this review, it was determined that 3 of the 13 evaluations that were reviewed required changes due to errors in the original evaluations. The licensee expanded the sample to review three additional evaluations. The inspectors challenged the licensee on whether they should have expanded the sample to the full set of evaluations (30) due to the amount of errors identified in the original sampling. The licensee agreed, and as an immediate corrective action, reviewed the remainder of the evaluations. No additional errors were identified.

Observation 3: RCE 2016-00210, "Loss of Shutdown Cooling," (Event on January 10, 2016)

The inspectors identified that the licensee failed to correctly document a CAPR for a significant condition adverse to quality. Specifically, root cause 1 stated, "failure to sustain corrective actions to prevent recurrence of a 1994 loss-of-shutdown cooling event." The corrective action to preclude repetition was, "Revise SOP-0031, Residual Heat Removal, to include opening breakers for shutdown cooling outboard isolation, and shutdown cooling (SDC) return valves prior to installing the jumper to bypass the 135 psig SDC isolations. This CAPR will include revising SOP-0031, Residual Heat Removal, to open the breakers during the 135 psig jumper removal in the event SDC is in service at the time of the jumper removal. This change will ensure that these steps are annotated with 'CAPR' and the CAPR number at the end of the step." The inspectors noted that the CAPR that was identified did not address how CAPRs will not be removed in the future, and only addressed correcting River Bend Station's Procedure SOP-0031.

The licensee agreed and determined that there was an existing corrective action in the RCE that could be designated as a CAPR. Therefore, the licensee changed the corrective action to a CAPR, and developed its associated effectiveness review plan. The inspectors reviewed the CAPR and effectiveness review plan, and determined that they were adequate.

These three observations were immediately addressed by the licensee. The following conditions reports were generated: CR-RBS-2016-06650 for RCE 2015-05474, and Condition Report CR-RBS-2016-06581 for RCE 2016-00210. The updated evaluations did not require new corrective actions and did not change the overall conclusions of the RCEs. As a result, the inspectors concluded that the identified corrective actions were appropriate and addressed the root and contributing causes.

b. Determine that corrective actions have been prioritized with consideration of significance and regulatory compliance

The licensee's immediate corrective actions following each event restored the impacted systems to an operable condition in order to restore compliance with plant technical specifications. The inspectors reviewed the prioritization of the corrective actions (including corrective actions to preclude repetition of the significant performance issues) and verified that actions of a generally higher priority were scheduled for completion ahead of those of a lower priority. In addition, the inspectors determined that the licensee's evaluations addressed regulatory compliance issues. The inspectors concluded that the licensee adequately prioritized the corrective actions with consideration of the risk significance and regulatory compliance.

c. Determine that corrective actions taken to address and preclude repetition of significant performance issues are prompt and effective

The licensee's RCEs identified a total of 22 corrective actions to prevent recurrence of the significant performance issues. The 22 CAPRs were adequate to address the adverse conditions in all nine RCEs that were within the scope of this inspection. The licensee's corrective actions also addressed weaknesses associated with extent of condition and extent of cause of the performance issues. The inspectors' review of the corrective actions to prevent recurrence determined that the corrective actions that were taken were prompt and effective.

d. Findings

No findings were identified.

02.04 Corrective Action Plans

a. Determine that appropriate corrective action plans are specified for each root and contributing cause or that the licensee has an adequate evaluation for why no corrective actions are necessary, and that corrective action plans have been prioritized with consideration of significance and regulatory compliance

The inspectors determined that the licensee's corrective action plans adequately address each of the root and contributing causes. The inspectors noted that the

corrective action plans were clearly defined and that the licensee had adequately prioritized the plans with due dates. The licensee also accounted for significance of the issues when prioritizing the actions, and considered regulatory compliance when applicable.

- b. Determine that corrective plans direct prompt actions to effectively address and preclude repetition of significant performance issues

The licensee's RCEs included numerous corrective plans to ensure the significant performance issues are effectively addressed. These corrective plans included 22 CAPRs. The inspectors reviewed the CAPRs and other corrective actions and determined that the licensee established a formal tracking mechanism for each specific corrective action. When establishing and prioritizing corrective plans, the licensee considered the significance assessment results of the different performance issues. As a result, the inspectors determined that the corrective plans directed prompt actions to effectively address and preclude repetition of significant performance issues.

- c. Determine that appropriate quantitative or qualitative measures of success have been developed for determining the effectiveness of planned and completed corrective actions

The inspectors determined that the licensee did not initially develop sufficient effectiveness review plans for the established CAPRs. The licensee's corrective action plans to address the significant performance issues included a total of 22 CAPRs. The inspectors found that for 10 out of 22 CAPRs, the licensee's effectiveness review plans did not have appropriate quantitative or qualitative measures of success to determine the effectiveness of corrective actions. The effectiveness review plans in question were associated with RCE 2014-05200, RCE 2015-07532, RCE 2015-08463, and RCE 2016-00180. The inspectors noted that 12 CAPRs had specific effectiveness review plans associated with them, and in addition, the licensee planned to review the effectiveness of all the root and contributing causes in aggregate for each RCE. The objective of this aggregate review was to ensure that the intent was met for all CAPRs and corrective actions. However, this meant that the sole means of effectiveness evaluation for 10 CAPRs was this aggregate review.

The inspectors concluded that since the aggregate review did not have specific success criteria (other than to verify that the intent of the CAPRs and CAs were met), the aggregate review alone would not have been adequate for these 10 CAPRs. Based on the inspectors' feedback, the licensee immediately prepared and approved additional effectiveness review plans for the 10 CAPRs. This issue is documented as a non-cited violation of NRC requirements in Section 02.04.e below.

Based on the licensee's supplemented efforts to incorporate appropriate effectiveness review plans for the affected RCEs, the inspectors concluded that adequate measures of success had been developed for determining the effectiveness of the corrective actions to prevent recurrence.

- d. Determine that each Notice of Violation (NOV) related to the supplemental inspection is adequately addressed, either in corrective actions taken or planned

The NRC staff did not issue a Notice of Violation to the licensee; therefore, this inspection item was not applicable.

e. Findings

Failure to Create Adequate Effectiveness Review Plans for Corrective Actions to Prevent the Recurrence of Significant Performance Issues

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to create adequate effectiveness review plans in accordance with River Bend Station Procedure EN-LI-118, “Cause Evaluation Process.” Specifically, for 10 out of 22 corrective actions that were created to prevent recurrence of significant performance issues, the licensee did not have appropriate quantitative or qualitative measures of success to determine the effectiveness of correction actions.

Description. In order to address the significant performance issues associated with the Unplanned Scrams with Complications White PI, the licensee prepared nine RCEs. The RCE process requires the preparation of effectiveness review plans to verify that the intended or expected results were achieved after implementation of the corrective actions to address root causes. Collectively, the licensee had created a total of 22 CAPRs. During their review, the inspectors noted that the effectiveness review plans for 10 of the CAPRs did not have sufficient quantitative or qualitative measures of success to ensure the effectiveness of the corrective action plans. The inspectors also noted that 12 CAPRs had effectiveness review plans with specific success criteria. In addition, the licensee planned to review, in aggregate, all the root and contributing causes for each evaluation to ensure that the intent of all CAPRs and corrective actions was met. The inspectors identified that 10 CAPRs, which were associated with RCEs 2014-05200, 2015-07532, 2015-08463, and 2016-00180, were solely dependent on this aggregate review as the effectiveness review plan.

The inspectors reviewed Procedure EN-LI-118, “Cause Evaluation Process,” which provides guidance on how to prepare effectiveness review plans as part of a RCE. Station Procedure EN-LI-118, Attachment 9.6, provides instruction on how to prepare the method, attributes, success, and timeliness criteria of effectiveness review plans. The procedure states that the licensee should establish the acceptance criteria for the attributes to be monitored or evaluated. The inspectors compared this requirement with the success criteria of the aggregate reviews and determined that aggregate reviews alone were not sufficient for 10 CAPRs. The inspectors also noted that the aggregate effectiveness review plan did not have specific success criteria. The licensee immediately prepared and approved additional effectiveness review plans for the 10 CAPRs that were impacted as a result of the issue identified by the inspectors. The inspectors reviewed the revised plans and concluded they were adequate.

Analysis. The inspectors determined that the licensee’s failure to develop adequate effectiveness review plans in accordance with Procedure EN-LI-118, “Cause Evaluation Process,” was a performance deficiency. The inspectors concluded that the performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the RCEs were performed as a result of significant performance issues, and adequate effectiveness reviews are designed to ensure that CAPRs are effective in precluding significant performance issues. Inadequate effectiveness review plans would reasonably have the potential to prevent identifying ineffective corrective actions and

allow significant performance issues to recur. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," and Inspection Manual Chapter 0609, Appendix A, Exhibit 1, "Initiating Events Screening Questions," the inspectors determined that the finding was of very low safety significance (Green).

The inspectors determined that the finding has an evaluation cross-cutting aspect in the area of problem identification and resolution because the organization did not thoroughly evaluate the issues to ensure that the resolution addressed the causes and extent of conditions commensurate with their safety significance. Specifically, when creating effectiveness review plans, the licensee believed that an aggregate review was appropriate in all circumstances, resulting in the plans having inadequate measures of success [P.2].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. River Bend Station Procedure EN-LI-118, "Cause Evaluation Process," Revision 22, a quality-related procedure, provided instructions for completing effectiveness review plans when performing a RCE. Procedure EN-LI-118, Step 5.13.1, stated, in part, that, "for effectiveness reviews determine the method, attribute, success, and timeliness criteria in accordance with Attachment 9.6." Attachment 9.6, stated, in part, to establish the acceptance criteria for the attributes to be monitored or evaluated.

Contrary to the above, between November 2014, and October 2016, the licensee failed to establish the acceptance criteria for the attributes to be monitored or evaluated for effectiveness reviews. Specifically, the effectiveness review plans for 10 out of 22 CAPRs did not have specific measures of success to ensure the effectiveness of the corrective action plans, which would have the potential to allow significant performance issues to recur. The licensee restored compliance by immediately preparing and approving adequate effectiveness review plans. Because this violation was of very low safety significance and the licensee entered the issue into their corrective action program as Condition Reports CR-RBS-2016-06652 and CR-RBS-2016-06694, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000458/2016012-01, "Failure to Create Adequate Effectiveness Review Plans for Corrective Actions to Prevent the Recurrence of Significant Performance Issues."

02.05 Evaluation of IMC 0305 Criteria for Treatment of Old Design Issues

The licensee did not request credit for self-identification of an old design issue; therefore, the risk-significant issue was not evaluated against the Inspection Manual Chapter 0305, "Operating Reactor Assessment Program," criteria for treatment of an old design issue.

40A6 Exit Meeting

On November 8, 2016, the inspectors presented the inspection results to Mr. William F. Maguire, Site Vice President, and other members of his staff, who acknowledged the findings. The inspectors asked the licensee if any of the material examined during the inspection should be considered proprietary. The licensee did not identify any

proprietary information.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

W. Maguire, Site Vice President
P. Lucky, Manager, Performance Improvement
S. Vazquez, Director, Engineering
J. Henderson, Manager, Systems and Components Engineering
K. Crissman, Senior Manager, Maintenance
M. Chase, Director, Regulatory and Performance Improvement
J. Reynolds, Senior Manager, Operations
T. Schenk, Manager, Regulatory Assurance
K. Huffstatler, Senior Licensing Engineer

NRC Personnel

J. Sowa, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000458/2016012-01 NCV Failure to Create Adequate Effectiveness Review Plans for Corrective Actions to Prevent the Recurrence of Significant Performance Issues (Section 40A4)

LIST OF DOCUMENTS REVIEWED

Section 40A4: Supplemental Inspection (95001)

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	BWROG Scram Frequency Reduction Sub-Committee Recommendation Evaluation Summary	September 27, 2016
	Case Study – Reactor Scram Due to Erroneous EHC Signal	August 12, 2016
	Currently Mitigated SPVs And Unmitigated SPVs	September 27, 2016
	Diagram – Feedwater System and FRV Controls	April 22, 2016
	External OE Search List for CR-RBS-2014-05200	June 28, 2016
	Feedwater Monitoring Plan (CA 23 for CR-RBS-2015-5473)	September 28, 2016
	Line of Sight Form CR-RBS-2015-05200	August 17, 2016

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Line of Sight Form CR-RBS-2015-05469	August 17, 2016
	Line of Sight Form CR-RBS-2015-05473	August 17, 2016
	Line of Sight for CR-RBS-2015-05474	August 20, 2016
	Line of Sight for CR-RBS-2015-07532	August 27, 2016
	Line of Sight for CR-RBS-2016-00180	August 20, 2016
	Line of Sight for CR-RBS-2016-00210	August 18, 2016
	Main Generator And Transformer Protective Trips	September 27, 2016
	Pressure Level and Water Level Trends for October 17, 2014 Scram	October 17, 2014
	Pressure Level and Water Level Trends for January 9, 2016 Scram	January 9, 2016
	RBS - Upgrade Main Turbine EHC Control System	July 28, 2016
	RCE CR-RBS-2014-05200 EHC Scram	2A
	RCE CR-RBS-2015-05469 CND Demineralizers	2A
	RCE CR-RBS-2015-05473, Recurring High Water Level (Level 8) Trips of the Main Feedwater Pumps During Plant Shutdown Transients	1A
	River Bend Station Recovery Plan	September 9, 2015
	River Bend Station Recovery Plan	August 24, 2016
	Self-Assessment for CR-RBS-2014-05200	June 3, 2016
	Self-Assessment for CR-RBS-2015-05469	February 3, 2016
	Self-Assessment for CR-RBS-2015-05473	February 11, 2016
	Self-Assessment of Station Readiness for NRC 95001 Inspection for Reactor Scram Due to RPS "B" Trip	February 29, 2016
	Self-Assessment of Station Readiness for NRC 95001 Inspection for NRC White PI Exceeded; Two Unplanned Scrams with Complications River Bend Station	February 29, 2016
	Simulator Configuration Update Letter (For DR 16-0090)	April 29, 2016
	Use of the Start-Up FRV (C33-LVF002) (White Paper)	July 26, 2016

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Westinghouse Distributed Control and Information Ovation System Training	October 2014
05000458/201509	River Bend Station – NRC Special Inspection Report 05000458/2015009; Preliminary White Finding	July 7, 2015
05000458/201609	River Bend Station – NRC Special Inspection Report 05000458/2016009	May 12, 2016
ACE-2015-0153	Declining Performance at River Bend Station	April 6, 2015
ACE-2015-2660	Apparent Cause Evaluation for Adverse Trend in Engineering Change (EC) Quality	0
ACE-2016-1558	Apparent Cause Evaluation for Shortfalls in Assessing and Mitigating Risk	0
AR118458	Add Instructions to FWLC Circuit Card PMs for Tin Whiskers	April 15, 2016
AR252268	PM Revisions Will Add Inspection and Cleaning Instructions	May 25, 2016
AR57964	Create a PM with a Frequency of 6 Years For SPV for the Turbine Controls	August 12, 2009
DR 16-0090	Difference in Swell and Shrink in the Simulator Model was Noted on Initial SRV Cycles from January 9, 2016 Scram Data Comparison	April 26, 2016
EC 50374	Feedwater Level Control Setpoint Setdown Modification	May 7, 2016
EC 58100	Engineering Change – Replace Fuses for BOP Instrument Panel H13-P854 Power	0
EC 58116	Engineering Change – Replace Feedwater and Recirc Balancing Panel H13-P612 Power Supply Line Fuses	0
EC 59110	Replacing the Valve Actuators for the FRV and the SUFRV	April 29, 2016
EN-DC-600	Email from Corporate In Relation to Question On EN-DC-600 Associated with CR-RBS-2015-5474 (This is to Confirm Revision on Schedule)	September 28, 2016
GE-828E232AA	Elementary Diagram Feedwater Control System	30
R-STM-0305	System Training Manual for DC Distribution	February 4, 2015

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
RCE-2015-3974	Root Cause Evaluation for Loss of 24VDC Power in Panel H13-P854, BOP Analog Instrumentation Panel, Results in Reactor SCRAM	1A
RCE-2015-5474	12/25/2014 Unplanned Scram Due to RPS "B" Trip	July 12, 2016
RCE-2015-7532	Common Cause Evaluation for Two Scrams with Complications	July 6, 2016
RCE-2015-8463	Root Cause Evaluation for Reactor SCRAM due to Loss of RSS#1	1A
RCE-2016-0180	Fancy Point-Big Cajun Line, MSIV Isolation & Rx Scram	August 3, 2016
RCE-2016-0210	Loss of Shutdown Cooling	February 27, 2016
RLP-OPS-0501-15-1	Cycle 15-1 OE/Plant Mods	006
RPPT-STG-41502	Cycle 15-2 Lessons Learned	April 10, 2015
RPPT-STM-0104	Condensate	003
RPPT-STM-0608	Condensate Demineralizers	001
RSMS-OPS-0922	Simulator Scenario – Rapid Static Scenarios (Loss of Various AC Busses)	4
RSTG-LOR-41503	LOR Cycle 15-3 Simulator Instructor Guide	3
SHR-304	120 Vac Electric Distribution	Q2-2016
SHR-310	Generator Excitation & Protection	Q2-2016
TQF-118-STEMP	Maintenance/Technical Training Schedule Template – Engineering Support Personnel /IT Long Range Training Schedule 2016	4
WO 415910	Work Order – Install New Fuses per EC58100	June 8, 2015
WO427451-01	PM To Replace And Perform Calibration Of C33-ESK626A	September 28, 2016
WO52637896-01	Loop Check and Calibration for C33-PTN008A (Reactor Pressure)	September 28, 2016

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
AOP-0001	Reactor Scram	27

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
AOP-0001	Reactor Scram	29
AOP-0001	Reactor Scram	31
AOP-0001	Reactor Scram	34
AOP-0003	Automatic Isolations	36
AOP-0010	Loss of One RPS Bus	25
AOP-0031	Shutdown from Outside the Main Control Room	322
AOP-0031	Shutdown from Outside the Main Control Room	327
EN-DC-175	Single Point Vulnerability Review Process	6
EN-EAP-LI-003	Corrective Action Review Board (CARB) Process	16
EN-HU-102	Human Performance Traps & Tools	14
EN-LI-102	Corrective Action Program	26
EN-LI-102	Corrective Action Program	27
EN-LI-118	Cause Analysis Process	21
EN-LI-118	Cause Analysis Process	22
EN-LI-121	Trending	18
EN-MA-125	Troubleshooting Control of Maintenance Activities	20
EN-OP-119	Protected Equipment Postings	8
EN-WM-104	On Line Risk Assessments	14
GOP-0003	Scram Recovery (For 10-17-2014 Scram)	24
GOP-0003	Scram Recovery	26
GOP-0003	Scram Recovery (General Procedure)	28
GOP-0003	Scram Recovery – 12/25/2014 Unplanned SCRAM due to RPS “B” Trip	December 25, 2014
GOP-0003	Scram Recovery – Fancy Point-Big Cajun Line, MSIV Isolation & Rx SCRAM	January 9, 2016
OSP-0022	Operations General Administrative Guidelines	14
OSP-0022	Operations General Administrative Guidelines	78
OSP-0022	Operations General Administrative Guidelines	97
OSP-0053	Emergency and Transient Response Support Procedure	24
OSP-0053	Emergency and Transient Response Support Procedure (CN-OSP-0053R024CN-A)	June 21, 2016

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
OSP-0053	Emergency and Transient Response Support Procedure	24
SOP-0009	Reactor Feedwater System	75
SOP-0009	Reactor Feedwater System (SYS #107)	76
SOP-0031	Residual Heat Removal (SYS #204)	335
SOP-0079	Reactor Protection System (SYS #508)	34
SOP-0093	Condensate Demineralizer System	33
SOP-0093	Condensate Demineralizer System	34
SOP-0093	Condensate Demineralizer System	36
SOP-0093	Condensate Demineralizer System	38

Condition Reports

CR-HQN-2014-00291	CR-HQN-2015-01290	CR-RBS-1992-00913	CR-RBS-1994-01413
CR-RBS-2002-01371	CR-RBS-2008-01232	CR-RBS-2010-03343	CR-RBS-2010-04126
CR-RBS-2012-02249	CR-RBS-2014-00171	CR-RBS-2014-04212	CR-RBS-2014-04213
CR-RBS-2014-05175	CR-RBS-2014-05200	CR-RBS-2014-05209	CR-RBS-2014-06233
CR-RBS-2014-06605	CR-RBS-2015-00153	CR-RBS-2015-00182	CR-RBS-2015-00186
CR-RBS-2015-00189	CR-RBS-2015-02660	CR-RBS-2015-03974	CR-RBS-2015-03976
CR-RBS-2015-03980	CR-RBS-2015-03981	CR-RBS-2015-03982	CR-RBS-2015-03984
CR-RBS-2015-04020	CR-RBS-2015-04021	CR-RBS-2015-04022	CR-RBS-2015-04023
CR-RBS-2015-04024	CR-RBS-2015-04025	CR-RBS-2015-04026	CR-RBS-2015-04030
CR-RBS-2015-04088	CR-RBS-2015-04725	CR-RBS-2015-05200	CR-RBS-2015-05469
CR-RBS-2015-05473	CR-RBS-2015-05474	CR-RBS-2015-05657	CR-RBS-2015-07532
CR-RBS-2015-07984	CR-RBS-2015-08098	CR-RBS-2015-08189	CR-RBS-2015-08463
CR-RBS-2015-08466	CR-RBS-2015-08467	CR-RBS-2015-08651	CR-RBS-2015-08712
CR-RBS-2015-08725	CR-RBS-2015-08763	CR-RBS-2015-08418	CR-RBS-2015-08835
CR-RBS-2016-00136	CR-RBS-2016-00180	CR-RBS-2016-00210	CR-RBS-2016-00285
CR-RBS-2016-00315	CR-RBS-2016-00370	CR-RBS-2016-01232	CR-RBS-2016-01341
CR-RBS-2016-01558	CR-RBS-2016-01696	CR-RBS-2016-04446	CR-RBS-2016-05262
CR-RBS-2016-05473	CR-RBS-2016-05474	CR-RBS-2016-06538	CR-RBS-2016-06539
CR-RBS-2016-06540	CR-RBS-2016-06581	CR-RBS-2016-06582	CR-RBS-2016-06589

Condition Reports

CR-RBS-2016-06590	CR-RBS-2016-06592	CR-RBS-2016-06602	CR-RBS-2016-06603
CR-RBS-2016-06641	CR-RBS-2016-06648	CR-RBS-2016-06650	CR-RBS-2016-06652
CR-RBS-2016-06702	LO-RLO-2016-00134	LO-RLO-2015-00172	CR-RBS-2016-06671
CR-RBS-2016-06675	CR-RBS-2016-06651	CR-RBS-2016-06601	CR-RBS-2016-06706
CR-RBS-2016-06704			

Work Orders

428094	429737	432594
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W. Maguire

- 3 -

Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Please contact Greg Warnick at 817-200-1144 with any questions you have regarding this letter.

Sincerely,

/RA Ryan Lantz Acting for/

Troy W. Pruett, Director
Division of Reactor Projects

Docket No. 50-458
License No. NPF-47

Enclosure:
Inspection Report 05000458/2016012
w/Attachment: Supplemental Information

cc w/ encl: Electronic Distribution for River Bend Station

DISTRIBUTION:
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ADAMS ACCESSION NUMBER: ML16355A077

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OFFICE	SRI:DRP/D	SRI:DRP/C	RIV:RCB	ASRI:DRP/B	BC:DRP/C	RIV:DRP			
NAME	FRamirez	MYoung	RSmith	MLangelier	GWarnick	TPruett			
SIGNATURE	/RA/	/RA/	/RA/	/RA/	/RA/	/RA Ryan Lantz Acting for/			
DATE	12/19/2016	12/16/2016	12/13/2016	12/14/2016	12/15/2016	12/20/2016			

OFFICIAL RECORD COPY

Letter to Mr. William Maguire from Mr. Troy Pruett, dated December 20, 2016

SUBJECT: RIVER BEND STATION – NRC SUPPLEMENTAL INSPECTION REPORT
05000458/2016012 AND ASSESSMENT FOLLOW-UP LETTER

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