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River Bend 1 – Quarterly Plant Inspection Findings

3Q/2017 – Plant Inspection Findings

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Initiating Events

Significance: G Apr 28, 2017

Identified By: NRC

Item Type: VIO Violation

Failure to Obtain Prior NRC Approval for a Change in Reactor Core Isolation Cooling Injection Point

The NRC identified a Severity Level IV violation for the licensee's failure to restore compliance for a non-cited violation (NCV) associated with failure to obtain NRC approval prior to making a change to the reactor core isolation cooling injection point. Specifically, as of April 28, 2017, the licensee had not restored compliance with a violation the NRC

identified on October 8, 2015. This violation described a previously made change to the facility without prior NRC approval in violation of 10 CFR 50.59, "Changes, Tests, and Experiments." The team determined that the licensee's failure to restore compliance within a reasonable amount of time was a performance deficiency. Title 10 CFR 50, Appendix B, Criterion XVI, requires in part that, "measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2017-03505.

The finding was more than minor because it is associated with the initiating events aspect of the reactor safety cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. The finding is of very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The finding has a human performance cross-cutting aspect associated with procedural adherence because individuals failed to follow the procedures delineated by the corrective action program [H.8]. Originally, the licensee met the criteria for dispositioning the issue (50.59) as a NCV. However, based upon the fact that the condition report, which documented the NCV, was closed without restoring compliance, the licensee no longer met the criteria for a NCV and therefore, this violation is being cited in a

notice of violation.

Inspection Report# : 2017009 (*pdf*)

Significance:  Nov 08, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

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

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)

Inspection Report# : 2016012 (*pdf*)

Mitigating Systems

Significance:  Jun 30, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Single Component Failure Leads to Loss of Both Divisions of Control Building Air Conditioning

The inspectors reviewed a self-revealing, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to correctly translate the design basis into plant specifications. Specifically, the licensee implemented a breaker design in the control building air conditioning system that allowed a single failure of one train of the system to render the other train inoperable, contrary to the design basis. The licensee entered this condition into their corrective action program as Condition Report CR-RBS-2017-01740. The licensee restored compliance by implementing modifications to the affected breakers designed to eliminate the single failure vulnerability.

The failure to correctly translate the design basis into plant specifications was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the design control

attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee's failure to implement an appropriate design in the main control room and standby switchgear room air conditioning subsystems adversely affected the availability, reliability, and capability of safety-related components that rely on those subsystems for cooling. The inspectors performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The finding required a detailed risk evaluation because it involved a loss of system and/or function. A Region IV senior reactor analyst performed a detailed risk evaluation for the issue and determined the issue to be of very low safety significance (Green). No cross-cutting aspect was assigned because the finding did not reflect current performance. (Section 40A3.3)

Inspection Report# : 2017002 (*pdf*)

Significance:  Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Evaluate the Extent of Condition for a Degraded 4.16 kV Magne Blast Safety-Related Circuit Breaker

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," which states, in part, "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." Specifically, on October 28, 2014, the licensee failed to perform extent of condition on other safety-related 4.16KV Magne Blast circuit breakers due to the failure of 4.16KV Magne Blast circuit breaker ACB03 on bus E22-S003, with damaged brush and misaligned brush holder of the circuit breaker charging motor, in accordance with Procedure EN-OP-104, "Operability Determination Process." Failure to perform this evaluation could adversely impact safety-related circuit breakers. In response to this issue the licensee reviewed their breaker performance records to assure that no additional failures had occurred and revised the procedure to assure that extent of condition is addressed. This finding was entered into the licensee's corrective action program as Condition Report CR RBS-2017-05078.

The team determined the failure to evaluate the impact of a damaged brush and misaligned brush holder of the charging motor of a safety-related 4.16KV Magne Blast breaker was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it related to the equipment performance attribute of the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failure to perform an extent of condition on other safety-related 4.16KV Magne Blast circuit breakers due to the failure of E22-S003 safety-related circuit breaker ACB03, 4.16KV Magne Blast breaker with damaged brush and misaligned brush holder could adversely affect the ability of these breakers to perform their safety functions. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At Power," dated July 19, 2012, the finding screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect in the area of human performance associated with conservative bias because the licensee failed to ensure that individuals used decision-making practices that emphasized prudent choices [H.14]. (Section 1R21.2.4.b)

Inspection Report# : 2017007 (*pdf*)

Significance:  Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform an Adequate Operability Determination for a Condition Identified During an NRC Walkdown

The team identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," which states, in part, measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Specifically, between June 15, 2017, and June 28, 2017, the licensee failed to address the operability of a terminal block installed within an unsealed junction box. In response to this issue the licensee performed an operability determination to ensure that the terminal block would perform its design function in this condition. This finding was entered into the licensee's corrective action program as Condition Report CR-RBS-2017-05084.

The team determined that the failure to perform an adequate operability determination was a performance deficiency. The finding was determined to be more than minor because it was associated with the Mitigating Systems Cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences. Specifically, the failure to ensure operability of valve E51-AOVF054 and its associated circuits would impact the operability of the reactor core isolation cooling system. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of nontechnical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. This finding had a cross-cutting aspect in the area of problem identification and resolution associated with resolution because the licensee failed to take effective corrective actions to address issues in a timely manner commensurate with their safety significance. Specifically, the licensee failed to perform an adequate operability determination for an identified condition [P.3]. (Section 1R21.3.4.b)

Inspection Report# : 2017007 (*pdf*)

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Follow Station Guidance on Control of Scaffolding

The inspectors identified a non-cited violation of Technical Specification 5.4, "Procedures," for the licensee's failure to follow station maintenance procedures related to the control of scaffolding in the reactor building. Specifically, the licensee installed scaffolding less than two inches from safety-related containment unit cooler HVR-UC1B without completing an engineering evaluation. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2016-07963. Corrective actions included removing the scaffolding.

The licensee's installation of scaffolding within two inches of a safety-related containment unit cooler, without completing an engineering evaluation, was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, containment unit cooler HVR-UC1B was rendered inoperable by the incorrectly installed scaffolding and remained inoperable until the scaffolding was removed. The inspectors screened the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At Power." Using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined the finding to be of very low safety significance (Green) because the finding did not represent an actual loss of function of one or more trains of safety-related equipment for greater than its technical specification allowed outage time. This

finding has a cross cutting aspect in the area of human performance, avoid complacency, because the licensee failed to recognize and plan for the possibility of mistakes, latent issues, and inherent risks, even while expecting successful outcomes. Specifically, the station failed to implement appropriate error reduction tools when it did not perform and document Procedure EN MA 133, "Control of Scaffolding," Attachments 9.5 and 9.6, which could have prevented the scaffolding construction error [H.12].

Inspection Report# : 2017001 (*pdf*)

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Properly Pre-Plan and Perform Maintenance on the Control Building Chilled Water System

The inspectors identified a non-cited violation of Technical Specification 5.4, "Procedures," for the licensee's failure to properly pre-plan and perform maintenance on safety-related components in accordance with documented instructions appropriate to the circumstances. Specifically, the licensee used work order instructions that did not contain sufficient detail for the reassembly of SWP-PVY32C, a safety-related valve in the control building ventilation system. As a result, SWP-PVY32C developed a refrigerant leak, and on November 17, 2015, the valve failed. This in turn caused the control building ventilation system to fail, and the high pressure core spray system was consequently declared inoperable. The licensee entered this condition into their corrective action program as Condition Report CR-RBS-2017-02364. Corrective actions included incorporating the torque values into the model work order instructions for future maintenance and reassembly.

The failure to properly pre-plan and perform maintenance on safety-related components in accordance with documented instructions was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, when the control building ventilation system failed, it impacted the operability of the high pressure core spray system. The inspectors screened the finding in accordance with NRC Inspection Manual Chapter 0609, "Significance Determination Process." Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2 - "Mitigating Systems Screening Questions," the inspectors determined that the finding was of very low safety significance (Green) because it did not affect the design or qualification of a mitigating structure, system, or component (and the structure, system, or component maintained its operability), it did not represent a loss of safety function, it did not represent an actual loss of function of at least a single train for greater than its technical specification outage time, and it did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety significant in accordance with the licensee's Maintenance Rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of human performance, challenge the unknown, because individuals did not stop when faced with uncertain conditions. Specifically, workers proceeded with assembling the valve when the torque values or torqueing sequence were not specified [H.11]. (Section 40A3.1)

Inspection Report# : 2017001 (*pdf*)

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Enter Applicable Technical Specification Action Statements When Control Building Chillers Were Out of Service

The inspectors identified a non-cited violation of Technical Specifications 3.8.4, "DC Sources - Operating," 3.8.7, "Inverters - Operating," and 3.8.9, "Distribution Systems - Operating," for the licensee's failure to either restore inoperable electrical power subsystems, inverters, and distribution subsystems to operable status within the applicable

completion times, or be in Mode 3 in 12 hours and Mode 4 in 36 hours. Specifically, electrical power systems required by the above limiting conditions for operation were inoperable due to the associated division of the control building chilled water system chillers being out of service and therefore unavailable to provide the technical specification support function of attendant cooling that is needed for the associated electrical systems to perform their specified safety functions. As a result of this deficiency, the station reduced the reliability and availability of systems cooled by control building chilled water system chillers by allowing configurations that did not conform to the single failure criterion. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2015-02525. Corrective actions included entering the appropriate limiting conditions for operation of affected safety-related systems when the non-safety related support system were non-functional.

The failure to either restore inoperable electrical power subsystems, inverters, and distribution subsystems to operable status within the applicable completion times, or be in Mode 3 in 12 hours and Mode 4 in 36 hours was a performance deficiency. Specifically, electrical power systems required by the above limiting conditions for operation were inoperable due to the associated division of the control building chilled water system chillers being out of service and therefore unavailable to provide the technical specification support function of attendant cooling that is needed for the associated electrical systems to perform their specified safety functions. The performance deficiency was more than minor, and therefore a finding, because it was associated with the configuration control attribute of the Mitigating Systems Cornerstone, and adversely affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. As a result of this deficiency, the station reduced the reliability and availability of systems cooled by control building chilled water system chillers by allowing configurations that did not conform to the single failure criterion. The inspectors performed an initial screening of the finding in accordance with NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to require a detailed risk evaluation because it represented a loss of system and/or function. A senior reactor analyst performed a detailed risk evaluation for a previously identified performance deficiency associated with the licensee's failure to account for a loss of all control building chilled water system cooling scenario, either quantitatively or qualitatively, which resulted in uncompensated impairment to all systems associated with the main control room (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16132A144). This previously performed detailed risk evaluation bounds the risk associated with the finding dispositioned in this write-up: the failure to either restore inoperable electrical power subsystems, inverters, and distribution subsystems to operable status within the applicable completion times, or be in Mode 3 in 12 hours and Mode 4 in 36 hours. Therefore, the finding was determined to be of very low safety significance (Green). No cross cutting aspect was assigned as the performance deficiency is not indicative of current licensee performance. (Section 40A5.2)

Inspection Report# : 2017001 (*pdf*)

Significance:  Oct 12, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Plant Operating Procedures with Ten Examples

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for ten examples of failing to provide appropriate qualitative and quantitative criteria in alarm response procedures, and abnormal operating procedures. The licensee is currently evaluating the scope of these and other procedural inadequacies. These procedure deficiencies were entered into the licensee's corrective action program as Condition Report CR-RBS-2016-06683.

The failure of these ten procedures to have the appropriate qualitative and quantitative criteria to complete these activities was a performance deficiency. The finding was more than minor because it is associated with the procedure

quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring availability, reliability, and capability of systems needed to respond to initiating events to prevent undesired consequences. Specifically, inadequate procedures could adversely affect the operating crew's ability to take appropriate actions to ensure reactor safety is being maintained. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, the team determined that the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significance in accordance with the licensee's maintenance rule program for greater than 24 hours. The finding has a cross-cutting aspect in the area of human performance associated with documentation because the organization did not maintain complete, accurate, and up-to-date documentation for procedure writing and modification [H.7].

Inspection Report# : 2016301 (*pdf*)

Barrier Integrity

Significance: G Jun 30, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Maintain Operability of the Division I Control Room Fresh Air System While Changing Reactor Modes

The inspectors reviewed multiple examples of a self-revealing, non-cited violation of Technical Specification 3.0.4, "Limiting Condition for Operation Applicability," for the licensee's failure to restore safety-related equipment to operable status prior to changing modes. Specifically, the licensee failed to restore Division I of the Control Room Fresh Air system to operable status prior to entering Mode 2 on March 8, 2017, and again on March 11, 2017. The licensee entered this condition into their corrective action program as Condition Report CR-RBS-2017-03082. The licensee restored compliance by properly positioning damper HVC-DMP4A and restoring the Division I Control Room Fresh Air system to operable.

The failure to restore Division I of the Control Room Fresh Air system to operable status prior to entering Mode 2 was a performance deficiency. The performance deficiency was more than minor, and therefore a finding, because it affected the structures, systems, and components (SSC) and barrier performance attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the incorrect positioning of damper HVC-DMP4A resulted in inadequate air flow through Division I of the Control Room Fresh Air system and rendered it inoperable. The inspectors screened the finding in accordance with NRC Inspection Manual Chapter 0609, "Significance Determination Process." Using NRC Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 3 - "Barrier Integrity Screening Questions," the inspectors determined that the finding was of very low safety significance (Green) because it only represented a degradation of the radiological barrier function provided for the control room. This finding had a cross-cutting aspect in the area of human performance, challenge the unknown, because individuals did not stop when faced with uncertain conditions. Specifically, workers positioned damper HVC-DMP4A without work instructions or specified torque values [H.11]. (Section 4OA2.3)

Inspection Report# : 2017002 (*pdf*)

Emergency Preparedness Occupational Radiation Safety

Public Radiation Safety Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Current data as of : November 29, 2017

Page Last Reviewed/Updated Monday, November 06, 2017