

## River Bend 1

### 2Q/2004 Plant Inspection Findings

## Initiating Events

**Significance:** G Dec 31, 2003

Identified By: Self Disclosing

Item Type: FIN Finding

#### **Normal Service Water pump found to be air-bound when called upon to run**

A self-revealing finding was identified and determined to be of very low safety significance. A human performance error caused the isolation of the air release valve for normal service water Pump C. The air release valve for a normal service water pump served as a high point vent on the system while the pump was secured. As a result, normal service water Pump C became air bound while in standby, and failed to develop discharge pressure when started during a manual swap of running normal service water pumps on September 1, 2003. The inspectors determined that the finding did not represent a noncompliance because it occurred on non-safety-related normal service water system.

The inspectors determined that the failure to maintain normal service water Pump C discharge air release valve isolation valve open was more than minor because it was associated with an increase in the likelihood of an initiating event. The finding was of very low safety significance because there was only a small increase in the likelihood of a loss of normal service water with one of the three 50 percent capacity normal service water pumps unavailable and because the standby service water system was available throughout the time normal service Pump C was air bound.

Inspection Report# : [2003006\(pdf\)](#)

**Significance:** G Dec 31, 2003

Identified By: Self Disclosing

Item Type: FIN Finding

#### **Repeat failure of main turbine control system hydraulic lines leads to manual reactor scram and turbine trip**

A self-revealing finding was identified for failure to properly diagnose a failure of turbine control hydraulic line failure in August 2000. As a result, a similar line failed on February 22, 2003, causing the operators to scram the reactor and trip the main turbine. The inspectors determined that the finding did not represent a noncompliance because it occurred on non-safety-related secondary plant equipment.

The inspectors determined that this problem identification and resolution finding is more than minor because the misdiagnosis of the August 31, 2000 failure contributed to the February 22, 2003, failure. The finding affected the initiating events cornerstone and was considered to have very low safety significance because it did not contribute to the likelihood of a LOCA, nor the likelihood of both a reactor scram and mitigating equipment or functions being unavailable, and because there was no increased likelihood of a fire or internal/external flood.

Inspection Report# : [2003006\(pdf\)](#)

## Mitigating Systems

**Significance:** G Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to maintain design control conditions of engineered safety features electrical switchgear.**

The inspectors identified two examples of a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to maintain the original design configuration of engineered safety feature switchgear. The inspectors found all of the heat dissipation louvers on top of the load centers and the relay control cabinets for both Divisions I and II auxiliary building 480 Vac engineered safety features switchgear covered with tape. Previously, the licensee had identified cardboard covering the ventilation louvers on breaker cubicles in the Division I engineered safety features 4160 Vac switchgear in the control building.

The failure to maintain design control over Switchgear EJS-SWGR2A and -2B and ENS-SWGR1A was a performance deficiency. The violation was more than minor because it was associated with the mitigating systems cornerstone attribute for design control. It affects the mitigating system cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences. This noncited violation was evaluated using Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." During the Phase 1 analysis, the issue was determined to have very low safety significance because it did not: (1) represent a design or qualification deficiency, (2) represent an actual loss of safety function of a system or a single train of a system for greater than the Technical Specification allowed out-of-service time, (3) represent an actual loss of safety function of non-Technical Specification trains of equipment per 10 CFR 50.65 for more than 24 hours, and (4) be screened as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event. Since this violation of 10 CFR Part 50, Appendix B, Criterion III, was of very low safety significance and was entered in the licensee's corrective action program as CR-RBS-2004-0512, -1389, -1855, and -1856, it is being treated as a noncited violation consistent with the NRC Enforcement Policy, NUREG-1600.

The inspectors also determined that on at least two occasions the licensee had the opportunity but failed to identify the tape covering the louvers on top of auxiliary building 480 Vac engineered safety features Switchgear EJS-SWGR2A. Therefore, the inspectors consider this finding to have problem identification and resolution crosscutting aspects for failure to identify a condition adverse to quality. Also the inspectors determined that the design engineering evaluation of as-found conditions for Division I engineered safety features 4160 Vac ENS-SWGR1A for past reportability was actually an evaluation of Division I 480 Vac engineered safety features EJS-SWGR1A and therefore a human performance error.

Inspection Report# : [2004003\(pdf\)](#)

**Significance:**  Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Unacceptable preconditioning of Technical Specification diesel generator surveillance testing.**

The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's performance of unacceptable preconditioning of Technical Specification emergency diesel generator surveillance testing. The inspectors found three unacceptable preconditioning activities the licensee performed during the May and June 2004 emergency diesel generator monthly surveillance tests. The inspectors determined that this finding has problem identification and resolution aspects because the licensee identified some of these activities as unacceptable preconditioning in their evaluation of NRC Information Notice 97-16, "Preconditioning of Plant Structures, Systems, and Components Before ASME Code Inservice Testing or Technical Specification Surveillance Testing," dated June 9, 1997, yet failed to take actions to correct the test procedures.

The inspectors determined the unacceptable preconditioning of emergency diesel generator surveillance testing was a performance deficiency. The finding was more than minor because it was associated with the mitigating systems cornerstone attribute for procedure quality. The finding affected the cornerstone objective to maintain availability and reliability of systems that respond to events to prevent undesirable consequences. The inspectors reviewed the finding using Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Based on the results of the Phase 1 screening of the finding, the inspectors determined that the finding was of very low safety significance (Green) because it was not a design or qualification deficiency, was not an actual loss of safety function for a system or train, and was not risk significant due to a seismic, fire, flooding, or severe weather initiating event. The inspectors determined that unacceptable preconditioning of Technical Specification diesel generator surveillance testing was a violation of 10 CFR Part 50, Appendix B, Criterion V. Because the violation was of very low safety significance and was entered into the licensee's corrective action program as CR-RBS-2004-1839 and -1858, it is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy, NUREG 1600.

The inspectors identified crosscutting aspects related to problem identification and resolution. In their evaluation of NRC Information Notice 97-15, the licensee identified and evaluated some activities that precondition the emergency diesel generators during their prestart checks for surveillance testing, but failed to take appropriate actions to correct the procedures.

Inspection Report# : [2004003\(pdf\)](#)

**Significance:**  Apr 06, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Failure to adequately address roof leaks in the auxiliary building resulted in electrical grounds on safety related switchgear**

The licensee failed to adequately address leaks in the roof of the auxiliary building following several instances when roof leaks were identified and documented in the licensee's corrective action program. On February 5, 2004, rainwater inleakage through the auxiliary building roof resulted in an electrical ground on the control circuits of auxiliary building 480 Vac engineered safety features Switchgear EJS-SWG2A. The finding was of very low safety significance because, although it degraded one train of safety-related equipment, and could have degraded it again, it did not: increase the likelihood of a primary or secondary system loss of coolant accident initiator, contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, or increase the likelihood of a fire or internal/external flood.

The inspectors determined that the failure to correct the leaks in the auxiliary building was a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." Because this problem identification and resolution finding was of very low safety significance and was entered into the licensee's corrective action program as Condition Report CR-RBS-2004-01083, it is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy, NUREG-16000.

Inspection Report# : [2004002\(pdf\)](#)

**Significance:**  Feb 13, 2004

Identified By: Licensee

Item Type: FIN Finding

**Untimely Corrective Actions for Degraded Fire Protection Feature**

The licensee relied on compensatory measures for seven years instead of correcting a fire protection coating deficiency in three areas important to safe shutdown. In 1997, the licensee identified that the fire protective coatings on most structural steel beams in safety-related buildings did not meet the required thickness for a 3-hour fire rating. The deficient condition typically existed over one-fourth of each beam. While the majority of the deficiencies were repaired by building up the thickness, three fire areas remain degraded and had been subject to hourly fire watches since 1997. The team concluded that the planned corrective actions to restore the fire protection feature to its required condition for the remaining degraded areas were not timely.

This finding was greater than minor because it was similar to example 2.e in Appendix E of Manual Chapter 0609 and the finding is associated with degradation of a fire protection feature. This finding screened as having very low safety significance because the compensatory fire watches were in

place as required and the remaining defense in depth elements remained unaffected.

Inspection Report# : [2004007\(pdf\)](#)

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**Significance:** Feb 13, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Procedures for Ventilation and Smoke Control Associated With a Fire**

The inspectors identified a non-cited violation of License Condition 2.C(10) and by reference the fire protection program and Appendix R to 10 CFR 50, Section III.K.12.h. The non-cited violation was identified related to fire response procedures and pre-fire strategies that did not contain adequate procedure steps for controlling the ventilation system alignment in order to both remove smoke and assure adequate cooling to remaining safe shutdown equipment. The team identified that the licensee did not account for fire dampers with heat-activated fusible links throughout the system, which could reasonably be expected to close when hot smoke was passed through the dampers. The licensee made a prompt change to FPP-0010, "Fire Fighting Procedure," to make operators aware of the condition as a compensatory measure. This issue was entered into the licensee's corrective action program under Condition Report 2004-000276.

This finding was greater than minor because it affected the Mitigating Systems Cornerstone objective of equipment reliability, in that loss of cooling or exposure to smoke and hot gases could cause failure of safe shutdown equipment that was supposed to remain unaffected by a particular fire. This finding screened as having very low safety significance because it affects a fire protection feature that was not a defense in depth element.

Inspection Report# : [2004007\(pdf\)](#)

## **Barrier Integrity**

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**Significance:** Jun 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to identify a functional failure.**

The NRC inspectors identified a noncited violation of 10 CFR 50.65(a)(2). On May 15, 2003, the licensee failed to set goals and monitor the performance of the secondary containment system as required by 10 CFR 50.65(a)(1). As required by 10 CFR 50.65(a)(2), the licensee must demonstrate effective control of a structure's condition through appropriate preventive maintenance to not require paragraph (a)(1) monitoring. The licensee had no justification for not requiring (a)(1) monitoring, after they failed to demonstrate effective control of the performance of the secondary containment system through appropriate preventive maintenance. The inspectors considered this violation to be noncited consistent with Section VI.A.1 of the NRC Enforcement Policy. The licensee entered this noncited violation into its corrective action program as Condition Report CR-RBS-2004-01706.

The inspectors determined this violation was more than minor because the failure to identify functional failures resulted in the system not being evaluated for 10 CFR 50.65(a)(1) status and had a credible impact on safety. The licensee performed engineering evaluations which concluded that, had a design basis accident occurred while the condition existed, the main control room, exclusion area boundary, and low population zone doses would have remained within the limits of 10CFR50.67. The inspectors determined the safety significance of this violation to be very low by the Reactor Safety Significance Determination Process. The inspectors answered the Phase 1 question regarding containment as yes because the inspectors determined that this finding represented a degradation of the radiological barrier only; therefore, in accordance with Manual Chapter 0609, Appendix A, Attachment 1, this finding is of very low safety significance.

Inspection Report# : [2004003\(pdf\)](#)

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**Significance:** Nov 07, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Identify Failed Open Secondary Containment Doors as Condition Adverse to Quality**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, for failure to identify conditions that would have caused unexpected entry into Technical Specification Action Statements and had the potential to cause secondary containment to be inoperable.

The issue was more than minor because it affects the reactor safety/barrier integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide release caused by accidents or events. The results of the phase one evaluation of the significance determination process was that the issue was of very low safety significance because the finding only represents a degradation of the radiological barrier function provided by the auxiliary building and the duration of each of the 9 incidents was less than 10 minutes.

Inspection Report# : [2003007\(pdf\)](#)

## **Emergency Preparedness**

## Occupational Radiation Safety

**Significance:**  Mar 25, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to verify the correct configuration and adequacy of permanent shielding**

The inspectors identified a non-cited violation of Technical Specification 5.4.1.a because the licensee failed to follow procedural requirements to verify the correct configuration and adequacy of permanent shielding. On March 25, 2004, the inspectors identified that permanent shielding on a low-pressure core spray flush line, in the crescent area of the 70-foot elevation of the Auxiliary Building, was not in the correct configuration and not adequate for the intended application.

The failure to verify the correct configuration of permanent shielding and ensure that it was adequate for the intended application was a performance deficiency. The finding was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process and affected the cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation. When processed through the Occupational Radiation Safety Significance Determination Process the finding was determined to be of very low safety significance because the finding was not associated with as low as is reasonably achievable issues, there was no overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. The finding was entered into the licensee's corrective action program as Condition Report CR-RBS-2004-00924.

Inspection Report# : [2004002\(pdf\)](#)

**Significance:**  Aug 22, 2003

Identified By: NRC

Item Type: FIN Finding

### **Failure to maintain collective doses associated with RWP 2003-1800 ALARA**

The inspector identified an ALARA finding because performance deficiencies resulted in a collective dose of the work activity that exceeded 5 person-rem and exceeded the legitimate dose estimation by more than 50 percent. Specifically, Radiation Work Permit 2003-1800, "RF-11 Refueling Activities," accrued 34.962 person-rem and exceeded the dose estimate (19.939 person-rem) by 75 percent. A primary cause for the unplanned dose was the licensee's failure to effectively schedule the use of the Alternate Heat Decay Removal System, a system which had previously proven to be effective at removing radioactivity from the refueling pool. The licensee also failed to limit the number of personnel on the refueling bridge to the planned number, thus causing the work activity to accrue more collective dose than estimated. A contamination incident during the disassembly of the reactor vessel was caused by poor planning and required additional time for cleanup.

This finding was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute (ALARA planning/estimated dose) and affected the associated cornerstone objective (to ensure adequate protection of worker health and safety from exposure to radiation). The finding involved a failure to maintain or implement, to the extent practical, procedures or engineering controls needed to achieve occupational doses that were ALARA, and that resulted in unplanned, unintended occupational collective dose for a work activity. When processed through the Occupational Radiation Safety Significance Determination Process, this ALARA finding was found to have no more than very low safety significance because the licensee's 3-year rolling average collective dose was not greater than 240 person-rem.

Inspection Report# : [2003005\(pdf\)](#)

**Significance:**  Aug 22, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to post a radiological hazard**

The team identified a non-cited violation of Technical Specification 5.4.1a because the licensee failed to post a radiological hazard (hot spot). Station Procedure RP-109, "Hot Spot Program," Revision 0, Step 5.2.1, required that hot spots are identified with a hot spot tag to alert workers of the hazard. However, on August 19, 2003, the team identified a hot spot on an accessible drain line from the radwaste sample sink reading 200 millirem per hour on contact and 50 millirem per hour at one foot from the source. The licensee performed a survey 11 days earlier that identified the radiation levels, however, the technician and the survey reviewer failed to tag the hot spot to warn workers of the hazard.

The finding was more than minor because it was associated with the Occupational Radiation Safety cornerstone attribute (Program and Process) and affected the associated cornerstone objective. The finding involved the potential for a workers unplanned or unintended dose resulting from actions contrary to procedures. When processed through the Occupational Radiation Safety Significance Determination Process the team determined that the finding had very low safety significance because the finding did not involve as low as is reasonably achievable (ALARA) planning or work controls, no individual received an overexposure or a substantial potential for overexposure, and the ability to assess dose was not compromised.

Inspection Report# : [2003009\(pdf\)](#)

## Public Radiation Safety

**G****Significance:** Aug 22, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**Failure to properly control radioactive material**

A self-revealing non-cited violation of Technical Specification 5.4.1a was reviewed by the team because the licensee did not prevent the release of detectable licensed radioactive material from the controlled access area. Specifically, Section 5.1.1 of Procedure RSP-213, "Control and Handling of Radioactive Materials," Revision 16, stated, in part, that material can be unconditionally released from the controlled access area if there is no detectable loose surface and fixed contamination above background radiation levels. However, on March 31, 2003, the licensee failed to evaluate an item, against their procedural criteria, prior to it being unconditionally released from the controlled access area and subsequently released from the protected area. Fixed contamination levels were as high as 1,000 corrected counts per minute per probe area.

The finding was more than minor because it was associated with the Public Radiation Safety cornerstone attribute (Program and Process) and affected the associated cornerstone objective. The finding involved an occurrence in the radioactive material control program that was contrary to licensee procedures. When processed through the Public Radiation Safety Significance Determination Process, the team determined the finding had very low safety significance because the public exposure associated with the item was less than 5 millirem and there were not more than 5 occurrences.

Inspection Report# : [2003009\(pdf\)](#)

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## Physical Protection

[Physical Protection](#) information not publicly available.

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## Miscellaneous

**Significance:** N/A Nov 07, 2003

Identified By: NRC

Item Type: FIN Finding

**Problem Identification and Resolution Program Assessment**

The team concluded that the licensee was effective at identifying problems and putting them into the corrective action program. The licensee's effectiveness at problem identification was evidenced by the relatively few deficiencies identified by external organizations (including the NRC) that had not been previously identified by the licensee, during the review period. However, the team identified a repetitive failure on the part of the licensee to properly identify the inability of secondary containment doors to close and potential failures of secondary containment. The licensee effectively used risk in prioritizing the extent to which individual problems would be evaluated and in establishing schedules for implementing corrective actions. Corrective actions, when specified, were generally implemented in a timely manner. Licensee audits and assessments were found to be effective. On the basis of interviews conducted during this inspection, workers at the site felt free to input safety findings into the problem identification and resolution program.

Inspection Report# : [2003007\(pdf\)](#)

Last modified : September 08, 2004