

River Bend 1

2Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Mar 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Internal Operating Experience Not Used to Prevent Recurrence of Reactor Recirculation FCV Runbacks

The inspectors identified a noncited violation of Technical Specification 5.4.1.a for an inadequate procedure for securing a reactor feedwater pump. Specifically, the licensee failed to incorporate internal operating experience into the procedure. As a result, a reactor recirculation flow control valve runback resulting from a known reactor vessel water level loop tolerance issue recurred, resulting in an unplanned power reduction. This issue was entered into the licensee's corrective action program as Condition Report RBS-2007-4749.

The finding is more than minor since it affects the human performance area of the initiating events cornerstone and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. Using the NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding has very low safety significance since it did not contribute to both the likelihood of a reactor scram and the likelihood that mitigating equipment would not have been available.

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Mar 29, 2008

Identified By: Self-Revealing

Item Type: FIN Finding

Condensate Demineralizer Tank Liner Failure

A self-revealing finding was identified for the failure to properly repair condensate Demineralizer 1E tank liner prior to returning it to service. As a result, failure of the liner resulted in approximately 20,000 gallons of radiological contaminated condensate being spilled from the manway flange. Operations lowered reactor power from 90 percent to 82 percent to conserve condensate system inventory. This issue was entered into the licensee's corrective action program as Condition Report RBS-2007-5440.

The finding is greater than minor because it was associated with the equipment performance attribute of the initiating events cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown and power operations. Using the NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the finding was considered to be a transient initiator contributor which contributed to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available and, therefore, screened to Phase 2. Using the Phase 2 worksheets, the inspectors assumed that successful recovery of the condensate system from the leak was highly likely and determined the finding to be of very low safety significance. This finding has crosscutting aspects associated with human performance in the area of resources in that a complete, accurate, and up-to-date work package was not available to assure nuclear safety [H.2(c)].

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

RPS Terminal Board Loose Connection Results in a Reactor Scram

A self-revealing noncited violation of 10 CFR Part 50 Appendix B, Criterion V was identified involving the failure to adequately torque reactor protection system electrical terminal board connections during initial construction. This

failure resulted in a loose terminal connection causing thermal degradation that subsequently resulted in an automatic reactor scram during average power range monitor surveillance testing. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2007-04264.

The finding was more than minor because it was associated with the initiating events cornerstone attribute of equipment performance and affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance (Green) because the finding did not contribute to both the likelihood of a reactor trip and that mitigating equipment or functions would not be available following a reactor trip.

Inspection Report# : [2007005](#) (pdf)

Significance:  Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Preventive Maintenance Strategy Results in a Breaker's Failure to Promptly Open Due to Hardened Grease Results in a Complicated Reactor Scram

A self-revealing Green noncited violation of 10 CFR 50.65(A)(3) was identified for failure to incorporate internal and external operating experience into preventive maintenance activities to prevent industry known electrical circuit breaker deficiencies. Specifically, inadequate breaker maintenance, leading to grease hardening degradation, resulted in inadequate electrical fault protection on November 7, 2007. The failure to adequately isolate the electrical fault resulted in a complicated reactor scram involving the loss of the main condenser and reactor feedwater. The licensee entered this into their corrective action program as CR-RBS-2007-04922.

The finding was more than minor because it was associated with the initiating events cornerstone attribute of equipment performance and affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The inspectors evaluated the finding using Manual Chapter 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding required a Phase 2 analysis because the finding contributed to the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. A senior reactor analyst estimated the risk of the subject finding using the Risk-Informed Inspection Notebook for River Bend Station, Unit 1, Revision 2.1a. The analyst determined the finding was of very low safety significance.

This finding has a crosscutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because the licensee did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.

Inspection Report# : [2007005](#) (pdf)

Significance:  Dec 31, 2007

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate Preventative Maintenance Results in a Plant Down Power

A self-revealing finding was identified for failure to perform adequate preventive maintenance for control panels associated with providing make up water to the circulating water system. Adequate preventative maintenance was not performed on this system, resulting in failure, based on an inappropriate run to failure classification of this equipment. The failure of this system resulted in a significant unplanned reduction in reactor power to 20 percent. The licensee entered this issue into their corrective action program as Condition Report CR-RBS-2007-04447.

The finding was more than minor because it was associated with the initiating events cornerstone attribute of equipment performance and affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding has very low safety significance (Green) since the finding did not contribute to both the likelihood of a reactor trip and that mitigating equipment or functions would not be available following a reactor trip.

Inspection Report# : [2007005](#) (pdf)

Mitigating Systems

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Significance: Mar 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Improper Design Control for Evaluating Emergency Diesel Generator Turbocharger Combustion Air Pipe Stresses

The inspectors identified a noncited violation of Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for failure to incorporate accurate design information into a calculation to determine emergency diesel generator turbocharger discharge combustion air pipe stresses. This resulted in pipe failure. Specifically, a calculation assumed nonconservative pipe wall thicknesses and process air temperatures, treated pipe end points as rigid anchors and failed to use stress intensification factors. This resulted in low calculated pipe stresses. With appropriately calculated pipe stress values, Entergy personnel could reasonably have been expected to adequately modify the combustion air piping to preclude subsequent failures. This issue was entered into the licensee's corrective action program as Condition Report RBS-2008-2869.

This issue was determined to be more than minor because it affected the mitigating systems cornerstone objective and was similar to Manual Chapter 0612, Appendix E, Example 3.j because the errors were considered more than a minor calculation error in that the deficiency failed to identify the high pipe wall stresses that significantly reduced the overall allowable material strength margin. Later pipe and weld flaws developed at the intercooler adapter and turbocharger end connections that rendered the emergency diesel generator Division 2 inoperable. Using the Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the inspectors determined that the issue was of very low safety significance (Green) because it did not screen as risk significant due to a seismic, flooding, or severe weather initiating event.

Inspection Report# : [2008002](#) (*pdf*)

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Significance: Sep 29, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Risk Assessment for Removing Control Building Chilled Water System from Service

An NRC identified noncited violation of 10 CFR 50.65 (a)(4) was identified for the failure to assess and manage the increase in risk that may result from proposed maintenance activities on the control building chilled water system. This issue was entered into the licensee's corrective action program as Condition Report CR-RBS-2007-03059.

Using NRC Manual Chapter 0612, Appendix B, Section 3, Item 5(h), the finding is more than minor because the licensee's risk assessment had errors and incorrect assumptions that changed the outcome of the assessment. Using Manual Chapter 0609, "Significance Determination Process," Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," the finding is determined to have very low safety significance (Green) because the incremental core damage probability deficit for the affected time periods is less than 1.0E-6

Inspection Report# : [2007004](#) (*pdf*)

Barrier Integrity

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Significance: Mar 29, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Reactor Startup Procedure Results in Six Control Rod Withdrawal Errors

A self-revealing noncited violation of Technical Specification 5.4.1.a occurred when River Bend Station reactor operators failed to comply with General Operating Procedure GOP 000-1, "Plant Start Up." Specifically operators withdrew six control rods two notches past the target out notch position specified in Reactivity Control Plan RCP-15-003. No fuel damage resulted from these errors. This issue was entered into the licensee's corrective action program as Condition Report RBS-2008-2174.

This finding was more than minor because the finding affected the barrier integrity cornerstone attributes of configuration control and human performance and adversely impacts the cornerstone's objective to provide reasonable assurance that physical design barriers (fuel cladding) protect the public from radio nuclide releases caused by accidents or events. The inspectors completed a Phase 1 significance determination using Manual Chapter 0609 Appendix A, Significance Determination Process Phase 1 screening worksheet, and determined the finding to be of very low safety significance (Green) because the performance issue only degraded the fuel cladding barrier. This finding had crosscutting aspects associated with human performance in the area of work practices in that the reactor operators failed to use self-check and peer-check during control rod reactivity manipulations (H.4.a).

Inspection Report# : [2008002](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Evaluate the Magnitude and Extent of Radiological Hazards Results in Personnel Contaminations

A self-revealing noncited violation of 10 CFR 20.1501(a) was identified for failure to evaluate the magnitude and extent of radiological hazards associated with performing inspections of equipment in the containment building after a reactor trip on May 4, 2007. This failure resulted in six personnel contaminations and uptakes. Followup surveys identified contamination levels of 60 mRad/smear beta/gamma and up to 1300 dpm alpha. Air sample results determined a derived air concentration value of 44 for noble gas. The licensee has placed this event in the radiation protection continuing training program and entered it into their corrective action program as Condition Report CR-RBS-2007-1822.

This 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 in that the failure to evaluate the magnitude and extent of radiological hazards could cause unintentional dose to radiation workers. This finding was evaluated using the Occupational Radiation Safety Significance Determination Process and determined to be of very low safety significance (Green) because it did not involve: (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. This finding had a crosscutting aspect in the area of human performance related to the component of work control because the licensee did not communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance.

Inspection Report# : [2007005](#) (pdf)

Significance:  Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Radiation Work Permit and Radiation Worker Expectations

A self-revealing noncited violation of Technical Specification 5.4.1 was identified for failure to follow radiation work permit instructions resulting in a worker entering a posted high radiation area without authorization. On April 20, 2007, an individual received an electronic alarming dosimeter dose rate alarm after entering a posted high radiation area. The individual was signed on to a radiation work permit that did not allow entry into a high radiation area. This violation was entered into licensee's corrective action program as Condition Report CR-RBS-2007-1584.

This finding was greater than minor because it was associated with the occupational radiation safety cornerstone attribute of human performance and affected the cornerstone objective in that the failure to follow radiation work permit requirements could cause unintentional dose. This finding was evaluated using the Occupational Radiation Safety Significance Determination Process and determined to be of very low safety significance (Green) because it did

not involve: (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. This finding had a crosscutting aspect in the area of human performance related to the component of work practices because the individual involved did not use proper self-checking and entered an area he was not authorized to enter.

Inspection Report# : [2007005](#) (pdf)

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Significance: Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Post a Radiation Area

An NRC-identified noncited violation of 10 CFR 20.1902(a) was identified for failure to conspicuously post a radiation area. Specifically, the inspector identified an entrance to a radiation area on the 90-foot elevation of the radwaste building that was accessible by a permanently installed ladder from the 65-foot elevation, which was not conspicuously posted as a radiation area. General area dose rates in the area were as high as 7 mrem/hour. This violation was entered into the licensee's corrective action program as Condition Report CR-RBS-2007-4954.

This 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 in that the failure to post radiation areas could cause unintentional dose to radiation workers. This finding was evaluated using the Occupational Radiation Safety Significance Determination Process and determined to be of very low safety significance (Green) because it did not involve: (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. This finding had a crosscutting aspect in the area of human performance related to the component of work practices because radiation protection personnel did not adhere to management expectations regarding procedural compliance and following station procedures.

Inspection Report# : [2007005](#) (pdf)

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Significance: Sep 29, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Survey Following Containment Atmosphere Radiation Monitor Particulate Channel Alarms

An NRC-identified noncited violation of 10 CFR 20.1501(a) was identified involving multiple failures to perform radiological surveys to evaluate radiological hazards following control room alarms of the Containment Atmosphere Radiation monitor particulate channel. This issue was entered into the licensee's corrective action program as Condition Report CR-RBS-2007-04415.

This finding is more than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of program and process, and affects the cornerstone objective to ensure the adequate protection of a worker's health and safety from exposure to radiation because it could have resulted in workers being exposed to higher radiation levels. When processed through the Occupational Radiation Safety Significance Determination Process, the finding is determined to be of very low safety significance because it is not an as low as is reasonably achievable finding, there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised. The finding has a crosscutting aspect in the area of human performance, specifically the work control component, because the licensee failed to appropriately coordinate work activities by incorporating actions to address the impact of the work on different job activities and the need for work groups to communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance (H.3(b)).

Inspection Report# : [2007004](#) (pdf)

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Significance: Jul 13, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Conspicuously Post Radiation Areas

The team identified a noncited violation of 10 CFR 20.1902(a) because the licensee failed to post radiation areas in the radwaste building with a conspicuous sign or signs bearing the radiation symbol and the words "Caution, Radiation Area." The licensee posted radiation area signs only at the entrances to the different elevations of the building, instead of at the discrete radiation areas, even though most of the radwaste building was not a radiation area.

Dose rates in unposted radiation areas were as high as 15 millirems per hour. As corrective action, the licensee posted the discrete areas. Additional corrective action is still being evaluated.

The finding was greater than minor because it was associated with one of the cornerstone attributes (exposure control and monitoring) and the finding affected the Occupational Radiation Safety cornerstone objective, in that, uninformed workers could unknowingly accrue additional radiation dose. Using the Occupational Radiation Safety Significance Determination Process, the team determined that the finding was of very low safety significance because it did not involve: (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. Also, this finding had a cross-cutting aspect in the area of human performance and component of work control because the licensee did not coordinate work activities by incorporating actions to address the need to keep personnel apprised of plant conditions that may affect work activities.

Inspection Report# : [2007010](#) (*pdf*)

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Last modified : August 29, 2008