

## Byron 2

### 1Q/2004 Plant Inspection Findings

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## Initiating Events

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## Mitigating Systems



**Significance:** Mar 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**FAILURE TO PROMPTLY IDENTIFY AND CORRECT LUBE OIL ON THE 2B AUXILIARY FEEDWATER PUMP.**

A finding of very low safety significance and an associated Non-Cited Violation (NCV) was self-revealed when the licensee failed to promptly identify and correct a condition adverse to quality. Specifically, the licensee failed to identify the cause and take prompt corrective actions to correct a malfunction in the Unit 2 Train B auxiliary feedwater pump bearing oil system that caused bearing oil system that caused bearing oil leakage in December 2003. On January 14, 2004, the pump bearing oil system again malfunctioned and leaked oil in a similar manner. This resulted in the licensee taking additional unavailability time in January to identify the cause and repair the oil system to prevent future leakage. This deficiency affected the cross-cutting areas of Human Performance and Problem Identification and Resolution. Human Performance was affected because a non-licensed operator did not adequately verify oil in the site glass when the pump was returned to standby condition on January 14, 2004. Problem Identification and Resolution was affected because, although the licensee had an opportunity to identify and correct the cause for this condition in December 2003, the cause was not correctly identified at that time. The licensee has since repaired the pump and successfully performed six reliability runs with no subsequent leakage, and plans to complete similar repairs to the other three auxiliary feedwater pumps.

This issue was more than minor because it affected the equipment performance attribute of the mitigating systems cornerstone objective to ensure the reliability and availability of systems that respond to initiating events to prevent undesired consequences. The finding was of very low safety significance because there was no design deficiency, no actual loss of safety function, no single train loss of safety function for greater than the technical specification allowed outage time and no risk due to external events. The failure to correct the malfunction in December 2003 was considered a violation of 10 CFR 50, Appendix B, Criterion XVI.

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

**Significance:** SL-IV Dec 31, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**FAILURE TO UPDATE THE UPDATED FINAL SAFETY ANALYSIS REPORT IN A TIMELY MANNER.**

A finding of very low safety significance was self-revealed when the licensee discovered that an update to the Updated Final Safety Analysis Report was not accomplished for a period of almost 6 years following a design change. Between June and September of 1996, the licensee made a revision to the reactor water storage tank level set-point calculation to clarify design basis information with respect to emergency core cooling system and containment spray system operation and re-evaluated the time available to complete switchover to recirculation. The licensee did not include this update until the December 2002 revision to the Updated Final Safety Analysis Report.

Because this issue potentially impacted the NRC's ability to perform its regulatory function, this finding was evaluated using the traditional enforcement process. The finding was determined to be of very low safety significance because it did not actually impede or influence any regulatory actions. This was determined to be a Severity Level IV NCV of 10 CFR 50.71.

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



**Significance:** Dec 04, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**FAILURE TO IDENTIFY AND IMPLEMENT CORRECTIVE ACTIONS TO PREVENT RECURRENCE OF A SIGNIFICANT CONDITION ADVERSE TO QUALITY.**

The team identified a finding of very low safety significance and an associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for inadequate corrective actions to preclude repetition of a significant condition adverse to quality. The licensee failed to determine the cause and take prompt corrective actions to preclude repetition for the failure of the 2B centrifugal charging pump (CCP) shaft. Neither the root cause report or the common cause analysis associated with this failure identified a specific root cause for the failure. Absent a root cause, the licensee presented three potential causes. The licensee implemented minimal corrective actions to address only one of the

potential causes, specifically gas entrainment. Four options addressing the other two potential causes were identified and evaluated. For each of these options, the licensee determined that they were cost prohibitive and not financially justified. The team was unable to identify any corrective action planned or committed to in the licensee corrective actions program implementing actions to address the correction of the potential causes such that a high level of confidence exists that subsequent CCP shaft failures will be prevented.

The issue is more than minor because it affects the equipment performance attribute of the mitigating systems cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesired consequences. The finding was determined to be of very low safety significance because the finding (1) did not result in a design or qualification deficiency confirmed not to result in a loss of function per Generic Letter 91-18; (2) did not represent an actual loss of safety function; (3) did not represent an actual loss of safety function of a single train for greater than the technical specification allowed outage time; (4) did not represent an actual loss of safety function of one or more non-Technical Specification trains designated as risk significant per the Maintenance Rule for greater than 24 hours; and (5) did not screen as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating events.

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



**Significance:** Sep 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**FAILURE TO SPECIFY A CRITICAL DESIGN DIMENSION IN PROCUREMENT DOCUMENTATION.**

A finding of very low safety significance and an associated Non-Cited Violation (NCV) were identified through a self-revealing event. The licensee failed to adequately specify, in procurement documentation, the proper length for a replacement resistance temperature detector (RTD) installed into the diesel engine oil pan of the train B essential service water makeup pump assembly. This was discovered when an engineer observed excessive vibration of the RTD during the diesel pump operation. The vibration was excessive enough such that continued operability of the pump to perform its intended safety function could not be assured without removing the RTD. The primary cause of this finding was related to the cross-cutting area of Human Performance. The licensee removed the RTD to correct the problem; however, this resulted in additional system unavailability time.

This finding was more than minor because it involved the equipment availability attribute of the Mitigating System cornerstone objective regarding the availability of a system that responds to initiating events to prevent undesirable consequences. The finding was of very low safety significance because there was no design deficiency, no actual loss of safety function, no single train loss of safety function for greater than the technical specification allowed outage time and no risk due to external events. The issue was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion IV, "Procurement Document Control."

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



**Significance:** Sep 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**FAILURE TO FOLLOW PROCEDURE WHEN MAKING-UP ELECTROLYTE LEVEL.**

A finding of very low safety significance and an associated NCV were identified through a self-revealing event. The licensee failed to follow procedure for nickel cadmium battery bank surveillances when the licensee added boric acid as a makeup electrolyte solution vice demineralized water, as specified in the procedure, into the nickel cadmium battery bank cells that supply power to start the diesel engine of the train B essential service water makeup pump assembly. This primary cause of this finding affects cross-cutting area of Human Performance. The licensee replaced the battery assemblies to correct the problem; however, this resulted in additional system unavailability time.

This finding was more than minor because it involved the equipment availability attribute of the Mitigating System cornerstone objective regarding the availability of a system that responds to initiating events to prevent undesirable consequences. The finding was of very low safety significance because there was no design deficiency, no actual loss of safety function, no single train loss of safety function for greater than the technical specification allowed outage time and no risk due to external events. The issue was a Non-Cited Violation of Technical Specification paragraph 5.4.1(a) which required adherence to written procedures for performing maintenance that can affect the performance of safety-related equipment.

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



**Significance:** Jun 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

**FAILURE TO SPECIFY AN ADEQUATE EMERGENCY DIESEL GENERATOR HYDRAULIC OIL SAMPLING PROCESS WHICH LED TO INCREASED UNAVAILABILITY OF THE DIESEL.**

A finding of very low safety significance was identified through a self-revealing event when the licensee failed to adequately specify, in procurement documentation, the testing methods for determining total water concentration in oil samples taken from the 2B emergency diesel generator mechanical governor. The subsequent sample results incorrectly indicated a higher than actual water concentration in the governor oil, and led the licensee to take actions that resulted unnecessary unavailability time of the emergency diesel generator. The failure to adequately specify the appropriate test methodology was related to the cross-cutting area of human performance. Following identification of

this issue the licensee changed the sample requirements so that the appropriate test method is now specified for diesel generator governor oil samples.

This finding was more than minor because it impacted the mitigating system cornerstone objective causing the availability of a system that responds to initiating events to prevent undesirable consequence. This finding was of very low safety significance because there was no design deficiency, no actual loss of safety function, no single train loss of safety function for greater than the Technical Specification allowed outage time, and no risk due to external events. This issue was a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion IV, "Procurement Document Control."

Inspection Report# : [2003003\(pdf\)](#)



**Significance:** May 23, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

#### **DESIGN BASIS CALCULATIONS CONTAINED ERRORS OR DID NOT EXIST**

A finding of very low safety significance was identified associated with a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," that related to the coordination, content, and control of design basis engineering calculations. Specifically, the inspectors identified a number of concerns related to the coordination, content, and control of existing calculations (including the failure to coordinate calculation inputs and assumptions as existing design basis calculations are revised or as additional calculations are originated), the use of incorrect or unsupported inputs or assumptions in design basis calculations, the absence of calculations to support some aspects of the current design basis, the failure to appropriately supercede certain calculations or to denote other calculations as historical documents, and, in certain instances, errors in existing calculations. As a result of these issues, the current design basis calculations, as well as the existing calculation control processes, may not be adequate to ensure that the design basis will continue to be maintained. Although none of the specific deficiencies identified during the inspection resulted in immediate operability concerns, it was concluded that the auxiliary feedwater system design basis was not being adequately controlled by the existing calculations nor by the licensee's processes for coordination and control of the calculations.

This finding was more than minor based on the potential that the lack of adequate control and quality of design basis calculations could result in the ability of the auxiliary feedwater system to perform its safety functions to be degraded. Design basis calculations were routinely used in support of design changes, operating procedures, test acceptance criteria, and operability determinations. This finding is assessed as Green because it did not represent an actual loss of the auxiliary feedwater system's safety function.

Inspection Report# : [2003004\(pdf\)](#)



**Significance:** May 23, 2003

Identified By: NRC

Item Type: FIN Finding

#### **COMMITMENT TO HAVE PLACARDS ON THE MAIN CONTROL BOARD CONCERNING MINIMUM FLOW FOR THE AUXILIARY FEEDWATER PUMPS NOT MAINTAINED**

A finding of very low safety significance was identified involving not maintaining a commitment to the NRC to have placards on the main control board. The placards provided guidance to operators to ensure the auxiliary feedwater pumps had sufficient recirculation flow prior to reducing flow to the steam generators below 100 gpm [gallons per minute], such that the pumps remained protected from being run at shutoff conditions that would have resulted in pump damage.

This finding was more than minor because this lack of guidance could have affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because it did not represent an actual loss of a safety function.

Inspection Report# : [2003004\(pdf\)](#)



**Significance:** May 23, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO MAINTAIN AUXILIARY FEEDWATER INSTRUMENTATION PIPING WATER SOLID**

A finding of very low safety significance was identified involving a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," that related to the design basis requirement to maintain auxiliary feedwater instrumentation piping water solid, not being correctly translated into specifications, drawings, procedures, or instructions. This resulted in a void developing in the piping to the suction pressure transmitters 1(2)PT-AF055, which perform a safety-related function to sense low suction pressure and initiate a swap over to the essential service water system on loss of the condensate storage tank.

The finding was more than minor because a lack of coordination between design requirements and procedural guidance affected the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because it did not represent an actual loss of a safety function as the automatic switchover would still have occurred prior to the pumps losing suction pressure.

Inspection Report# : [2003004\(pdf\)](#)

## Barrier Integrity

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**Significance:** Mar 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

### **FAILURE TO FOLLOW RESULTS IN INOPERABLE CONTROL ROOM VENTILATION FILTRATION ACTUATION SYSTEM.**

A finding of very low safety significance and an associated NCV was self-revealed when a non-licensed operator (NLO) failed to follow written procedures during the restoration of control room ventilation after securing the 2B auxiliary feedwater pump. Specifically, the NLO started the control room office ventilation system prior to securing the control room ventilation system from the make-up mode. This resulted in the inoperability of the control room ventilation filtration actuation system. Upon identification that control room office ventilation system was started prematurely, it was secured. The primary cause of this violation was related to the cross-cutting area of Human Performance because the NLO failed to follow procedure.

The issue was more than minor because the failure to follow written procedures resulted in the inoperability of the control room ventilation filtration actuation system was similar to the greater than minor examples of Section 2 of Inspection Manual Chapter 0612. The finding was of very low safety significance because it only represented a degradation of the radiological function provided for the control room. The failure to follow procedures was a non-cited violation of Technical Specification 5.4.1(a).

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

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**Significance:** Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

### **FAILURE TO IDENTIFY AND CORRECT A CONDITION ADVERSE TO QUALITY WITH REGARD TO NON-CONSERVATIVE ERROR IN PR11J SETPOINT ANALYSIS.**

A finding of very low safety significance and associated NCV was identified by the inspectors for the licensee's failure to identify and correct a condition adverse to quality. Specifically, the licensee failed to recognize that the containment atmosphere radiation gaseous monitors were inoperable when it was determined that the monitors were not capable of detecting reactor coolant leakage in a reasonable period of time. The finding also affected the cross-cutting area of Problem Identification and Resolution because although the issue was discovered by the licensee's staff, they failed to recognize the significance of the issue until questioned by the NRC inspectors.

The findings was greater than minor because the finding was associated with the barrier integrity cornerstone and, if left uncorrected, could result in an undetected reactor coolant system leak. The finding was determined to be of very low safety significance by management review because alternate methods of detecting small reactor coolant system leaks were available. To correct the immediate issue, the licensee declared the monitor inoperable and submitted a Technical Specification change. This issue was a NCV of 10 CFR 50 Appendix B Criteria XVI, "Corrective Action."

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

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**Significance:** Jun 30, 2003

Identified By: Self Disclosing

Item Type: FIN Finding

### **FAILURE OF SUPERVISORS AND WORKERS TO UPHOLD THE FOREIGN MATERIAL EXCLUSION STANDARDS RESULTED IN A STEAM GENERATOR TUBE LEAK.**

A finding of very low safety significance was identified through a self-revealing event when supervisors and workers did not uphold the foreign material exclusion standards during previous maintenance activities which resulted in a steam generator tube leak. The finding was not considered a violation of regulatory requirements. The failure to adequately control foreign material was related to the cross-cutting area of human performance.

This finding was more than minor because it involved the human performance attribute that affected the reactor coolant system portion of the barrier integrity cornerstone objective. This finding was of very low safety significance because (1) the plant did not operate at-power with one or more tubes that should have been but were not repaired or plugged based on previous tube inspection results; (2) the tubes in question were found to meet required performance criterion for pressure, as demonstrated by the in-situ testing; and (3) the leakage rate of the tubes was below the 150 gallons per day Technical Specification criteria and below the calculated "accident leakage" rate. No violations of NRC requirements occurred.

Inspection Report# : [2003003\(pdf\)](#)

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## Emergency Preparedness

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## Occupational Radiation Safety



**Significance:** Jul 14, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

### **FAILURE TO COMPLY WITH RADIOLOGICAL POSTING RESULTING IN UNAUTHORIZED ENTRY INTO THE RADIOLOGICALLY CONTROLLED AREA**

A finding of very low safety significance and an associated Non-Cited Violation (NCV) were identified through a self-revealing event, when a station laborer failed to comply with a radiological posting controlling access into the Radiologically Controlled Area (RCA) of the station while delivering a food order intended for the Technical Support Center. The laborer's failure to read and comply with the radiological posting resulted in his unauthorized entry into the RCA without the appropriate additional radiological controls (Radiation Worker Training, Radiation Work Permit, and primary and secondary dosimetry).

The issue was associated with the "Human Performance" attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective in ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material. The cornerstone objective was affected because the RCA boundary posting violated by the labor represents the final radiation exposure barrier in the field for those workers who are not normally authorized to enter the RCA. Although the laborer entered the RCA without the appropriate radiological controls, the radiological conditions the laborer could have encountered were not sufficient to produce a substantial potential for an exposure in excess of regulatory limits. Therefore, the finding was of very low safety significance. One Non-Cited Violation for the failure to meet the requirements of the licensee's procedure controlling access to the RCA was identified.

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

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## Public Radiation Safety

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## Physical Protection

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## Miscellaneous

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