

# Byron 1

## 3Q/2006 Plant Inspection Findings

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### Initiating Events

**Significance:**  Dec 31, 2005

Identified By: Self-Revealing

Item Type: FIN Finding

#### **FAILURE OF THE NEWLY INSTALLED DIGITAL ELECTROHYDRAULIC SYSTEM TO RESPOND TO OPERATOR'S INPUT TO INITIATE A TURBINE RUNBACK**

A finding having very low safety significance (Green) was self-revealed when the newly installed Digital Electrohydraulic System (DEH) failed to respond to operator input to initiate a turbine runback that subsequently resulted in a reactor trip. The inspectors determined that the algorithm required for turbine runback was deleted from the software database due to a compiler fault. Modification review and testing performed by the licensee failed to discover the software error. To correct the problem the licensee reinstalled the deleted software algorithm into the DEH system.

The finding was more than minor because it affected the design control attribute of the Initiating Events cornerstone objective. The attribute objective limits the likelihood of those events that upset plant stability and challenge critical safety functions during at-power operations. Specifically, the lack of turbine runback capability contributed to a reactor trip from a feedwater system transient. The finding was determined to be of very low safety significance (Green), since it only contributed to the likelihood of a reactor trip. No violation of NRC requirements occurred.

Inspection Report# : [2005011\(pdf\)](#)

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### Mitigating Systems

**Significance:**  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **FAILURE TO MAINTAIN FIRE BARRIERS IN ACCORDANCE WITH FIRE PROTECTION PROGRAM.**

The inspectors identified a Non-Cited Violation of Byron Facility Operating License Nos. NPF-37 and NPF-66, Condition 2.c.6, for failing to maintain the firewall separating the Auxiliary Building from the penetration area in accordance with the approved fire protection program. Fire seals were required to be provided in this firewall, except where an evaluation had been performed and approved to allow a deviation. Two sleeves containing fire seals had pulling ropes embedded in the fire seals in the firewall separating the Auxiliary Building General Area 401 from the Unit 1 piping penetration area; also, no evaluation or exemption existed to justify this configuration. The licensee entered the issue into its corrective action program for resolution and implemented compensatory measures that included hourly fire watches.

This finding was more than minor because it affected the Mitigating Systems Cornerstone objective to ensure that external factors (i.e., fire, flood, etc) do not impact the availability, reliability, and capability of systems that respond to initiating events. The finding was of very low safety significance because the fire seals were in small diameter sleeves that traveled a distance of 45 feet and had two 90 degree bends and the location of combustibles were positioned such that the piping penetration end of the fire seals would not be subject to direct flame impingement.

Inspection Report# : [2006004\(pdf\)](#)

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**Significance:**  Mar 24, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Translate Design Basis Into Procedures for Service Water Flow to the CC Heat Exchangers**

The inspectors identified a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance for the licensee's failure to correctly translate the design basis into procedures. Specifically, the licensee failed to update operator rounds to verify the revised design basis minimum value for essential service water flow to the component cooling water (CC) heat exchangers. In addition, because the operator rounds were not revised, the design basis minimum flow value was not bounded by the emergency operating procedure used for establishing initial cold leg recirculation in the event of a loss of coolant accident (LOCA). This issue was entered into the licensee's corrective action program to revise the operator rounds.

The issue was more than minor because it was associated with the Mitigating System cornerstone attribute of "Design Control," and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to have operator rounds verify the design basis minimum service water flow or to have the emergency operating procedures ensure the minimum flow prior to establishing initial cold leg recirculation in the event of a LOCA could potentially have allowed the service water flow to be less than the required value to maintain the design heat load during post LOCA conditions. This finding was of very low safety significance because it screened out as Green using the SDP Phase 1 worksheet. Even though the licensee did not control their bounding design basis service water flow procedurally, the flow to the CC heat exchangers has historically been well above the bounding design basis flow.

Inspection Report# : [2006006\(pdf\)](#)



**Significance:** Mar 24, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Reduction of Fire Suppression Capacity and Capability**

The inspectors identified a Non-Cited Violation of 10 CFR 50.48(a)(1) having very low safety significance for the licensee's failure to provide fire fighting systems of appropriate capacity and capability to minimize the adverse effects of fires on structures, systems, and components important to safety. Specifically, the licensee abandoned standpipes and manual hose stations located near safety-related equipment (essential service water makeup pumps) which reduced the fire suppression capacity and capability to protect such equipment. In addition, the site relied on a local fire department instead of the site fire brigade to manually suppress a fire that could have affected safety-related equipment. This issue was entered into the licensee's corrective action program, and compensatory measures were taken to place dry chemical fire extinguishers in the vicinity of the fire area to take the place of the abandoned manual fire hose stations.

This finding was considered more than minor because it was associated with the Mitigating System cornerstone attribute of "Protection Against External Factors," and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, removing the manual hose stations reduced the fire suppression capacity and capability for protecting the emergency service water cooling tower makeup pumps and their diesels in the event of a fire. This finding was determined to be of very low safety significance (Green) based on a Phase 3 SDP evaluation.

Inspection Report# : [2006006\(pdf\)](#)



**Significance:** Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

### **FAILED TO PERFORM VT-2 EXAMINATION AT NOMINAL OPERATING PRESSURE FOR SIX NEW RHR SYSTEM WELDS**

The inspectors identified a finding involving a Non-Cited Violation (NCV) of 10 CFR Part 50.55a(g)(4)ii having very low safety significance for failure to perform a VT-2 examination at nominal operating pressure for six new residual heat removal system welds that were returned to service. This finding was entered into the licensee's corrective action program.

This finding was more than minor significance because the licensee returned these six welds to service without completing the required pressure test and VT-2 examination, which placed this system at increased risk for undetected leakage and component failure. Operation of this system with improperly tested piping affected the mitigating systems cornerstone objective of equipment reliability. This finding was of very low safety significance because the required test and VT-2 examination were subsequently completed and all welds passed. The finding was not suitable for a significance

determination process evaluation. This finding has been reviewed by NRC Management and has been determined to be a Green finding of very low safety significance.

Inspection Report# : [2005011\(pdf\)](#)

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## Barrier Integrity

**Significance:**  Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **DEGRADED INCORRECT PLANT BARRIER IMPAIRMENT EVALUATION RESULTED IN AN AUXILIARY BUILDING INTEGRITY**

A finding of very low safety significance and associated Non-Cited Violation (NCV) of Technical Specification 5.4.1, regarding procedure adherence was inspector identified when the inspectors identified that ventilation barrier requirements were not being met during a routine assessment of work activities in the Unit 2 containment spray pump rooms. Upon identification, the licensee restored the barrier. The primary cause of this violation was related to the cross-cutting area of Human Performance.

This finding was more than minor because it affected the barrier integrity objective to provide reasonable assurance that the physical design barriers to protect the public from radionuclide releases caused by accidents or events. The finding was determined to be of very low safety significance because the issue only represented a degradation of the radiological barrier function provided for the auxiliary building.

Inspection Report# : [2006002\(pdf\)](#)

**Significance:**  Mar 31, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **FAILURE TO FOLLOW PROCEDURE RESULTED IN UNTIMELY COMPLETION OF OPERABILITY EVALUATION**

A finding of very low safety significance and associated NCV of Technical Specifications 5.4.1, "Procedures," was self-revealed. Specifically, licensee personnel conducted unauthorized troubleshooting activities after an abnormal flow condition was encountered during Reactor Coolant System sampling activities and did not report the condition to shift operations promptly. These troubleshooting activities were not allowed by the chemistry sampling, procedures use and adherence, and corrective action program procedures. Shift operations learned about the condition 2 days later and subsequently declared the pressurizer liquid sample containment isolation valves inoperable and completed the required Technical Specification actions. The primary cause of this violation was related to the cross-cutting area of Human Performance.

This finding was more than minor because it affected the human performance attribute of the barrier integrity cornerstone to provide reasonable assurance that physical barriers, specifically the reactor containment, protect the public from radionuclide releases caused by accidents or events. The finding was determined to be of very low safety significance because it did not represent an actual open pathway or involve an actual reduction in defense-in-depth for the pressure control or hydrogen control functions of the reactor containment.

Inspection Report# : [2006002\(pdf\)](#)

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## Emergency Preparedness

**Significance:** SL-IV Dec 31, 2005

Identified By: NRC

Item Type: VIO Violation

### **FAILURE TO OBTAIN PRIOR NRC APPROVAL FOR CHANGE TO AN EAL THAT DECREASED THE**

## EFFECTIVENESS OF THE EMERGENCY PLAN

The inspectors identified that the licensee had changed its standard emergency action level (EAL) scheme by revising one EAL's criteria for an Unusual Event declaration that addressed an unplanned radiological release in excess of effluent radiation monitor readings unless the release could be determined to be below Offsite Dose Calculation Manual limits within 15 minutes for releases that could not be terminated in 60 minutes or less. The inspectors determined that this EAL change decreased the effectiveness of the emergency plan, and that the licensee did not obtain prior NRC approval for this change, contrary to the requirements of 10 CFR 50.54(q). The licensee is evaluating the options to correct the EAL.

Because the issue affected the NRC's ability to perform its regulatory function, it was evaluated with the traditional enforcement process as specified in Section IV.A.3 of the Enforcement Policy. According to Supplement VIII of the Enforcement Policy, this finding was determined to be a Severity Level IV because it involved a failure to meet a requirement not directly related to assessment and notification. Further, this problem was isolated to one EAL and was not indicative of a functional problem with the EAL scheme. Additionally, because the violation was a Severity Level IV and the licensee entered this issue into its corrective action program this finding is being treated as a Severity Level IV Non-Cited Violation of 10 CFR 50.54(q).

Inspection Report# : [2005011\(pdf\)](#)

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## Occupational Radiation Safety

**Significance:**  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **FAILURE TO POST AND CONTROL A HIGH RADIATION AREA.**

An inspector-identified finding of very low safety significance and two associated Non-Cited Violations of NRC requirements were identified for the failure to post and control access to High Radiation Areas, as required by 10 CFR Part 20, to notify individuals of the radiological hazard present and to prevent the unauthorized entry to such areas. Specifically, the entrance to the Unit 1 Filter Valve Aisle located on the 383' elevation of the Auxiliary Building, a high radiation area with a radiation dose rate of approximately 135 millirem in one hour, was not posted or controlled by any of the methods described in 10 CFR 20.1902, 10 CFR 20.1601, or Technical Specification 5.7.1.

The issue was more than minor because the issue was associated with the Program/Process attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective to ensure adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. The issue represents a finding of very low safety significance because the finding did not constitute an ALARA or work control issue, did not result in an overexposure or the substantial potential for an overexposure, and did not compromise the licensee's ability to assess dose. Non-Cited Violations of 10 CFR 20.1902 and 10 CFR 20.1601 were identified for the failure to post and control access to high radiation areas. Corrective actions taken by the licensee for this finding included establishing control through postings and barricades. The cause of this finding is related to the cross-cutting element of human performance.

Inspection Report# : [2006004\(pdf\)](#)

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## Public Radiation Safety

**Significance:**  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **FAILURE TO EVALUATE THE POTENTIAL RADIOLOGICAL HAZARD ASSOCIATED WITH THE LEAKAGE OF WATER FROM THE VACUUM BREAKER VALVE VAULT.**

An inspector-identified finding of very low safety significance and an associated Non-Cited Violation of NRC requirements were identified for the failure to perform surveys that are necessary to comply with the regulations in 10 CFR

Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present prior to pumping liquids from blowdown line vacuum breaker valve vaults to the environment. Specifically, the conditions found at 0CW276 (vault No. 6) on July 7, 2005, were outside the parameters of the original assessment, and the licensee did not evaluate the change of conditions for the potential radiological hazards to ensure compliance with 10 CFR 20.1301, which limits radiation exposure to a member of the public to 0.1 rem.

The issue was more than minor because the issue was associated with the Program/Process attribute of the Public Radiation Safety Cornerstone and affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Since the releases were limited to licensee owned property, the licensee has not measured any licensed material beyond its property line, and the licensee's REMP has a monitoring well in the vicinity of the blowdown lines, the finding did not represent a failure to assess dose nor a failure to assess the environmental impact. Consequently, the finding was determined to be of very low safety significance. A Non-Cited Violation of 10 CFR 20.1501 was identified for the failure to make surveys to ensure compliance with 10 CFR 20.1301, which limits radiation exposure to a member of the public to 0.1 rem. Corrective actions taken by the licensee for this finding included performing surveys of the soil surrounding the vacuum breaker vault for radionuclides, establishing additional groundwater monitoring wells, sealing the vacuum breaker vaults, and installing of an automated leak detection system. The cause of this finding is related to the cross-cutting element of problem identification and resolution.

Inspection Report# : [2006004\(pdf\)](#)

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## Physical Protection

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

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## Miscellaneous

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