# Columbia Generating Station
# 1Q/2006 Plant Inspection Findings

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## Initiating Events

**Significance:** G Jun 23, 2005
Identified By: Self-Revealing
Item Type: FIN Finding
**Loss of RFW-P-1B Due to Lack of Configuration Control and Subsequent Failure to Follow Procedure**
A self-revealing finding associated with maintenance technicians' failure to follow a system operating procedure occurred when the reactor feedwater pump 1B low suction pressure switch contact was inadvertently jumpered during a maintenance activity. This resulted in the loss of reactor feedwater pump 1B and an automatic reactor scram on low reactor vessel water level when feedwater flow was lost. The main steam isolation valves subsequently closed on low-low reactor water level which resulted in the additional loss of reactor feedwater pump 1A. This finding had crosscutting aspects in the area of human performance in that the technicians failed to ensure the configuration of the circuit and subsequently failed to meet the requirement of a procedure step during the maintenance activity.

The finding was of more than minor risk significance because it was a human performance issue which impacted the initiating events cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions. A Phase 2 evaluation was performed in accordance with Manual Chapter 0609, "Significance Determination Process," based on the finding contributing to both the likelihood of a reactor trip and that mitigation functions would not be available. The phase 2 review was performed using the Columbia Generating Station site specific worksheets. A senior reactor analyst reviewed the Phase 2 results and adjusted the results to account for the ability of the operators to bypass and open the main steam isolation valves and recover the reactor feedwater pumps following the scram and the low power at which the event occurred. The finding was determined to be of very low safety significance. Immediate corrective actions included senior management review and approval of all maintenance related activities for the remainder of the forced outage and following restart of the plant up to 90 percent power.
Inspection Report# : 2005003*(pdf)*

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## Mitigating Systems

**Significance:** G Dec 31, 2005
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Failure to Maintain Design of Reactor Core Isolation Cooling in accordance with Final Safety Analysis Report Design Requirements**
A Green self-revealing noncited violation of 10CFR50, Appendix B, Criterion III, "Design Control," was identified because Energy Northwest failed to maintain the design capability of the RCIC system in consistent with the FSAR specified design functions. Specifically, following the implementation of a design change in 2001, the RCIC system was not capable under all required plant conditions of initiating automatically upon reaching a predetermined low level in the reactor vessel or restarting automatically with no operator action.

This finding was more than minor in accordance with Manual Chapter 0612, Appendix B, in that it was a plant modification design issue which affected the mitigating systems cornerstone attribute of equipment performance and reliability which could impact the ability of the RCIC system to respond to an initiating event. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 worksheet, the inspectors determined that since an actual loss of system safety function occurred that a phase 2 evaluation was warranted. A subsequent Phase 2 and Phase 3 evaluation were performed. A senior reactor analyst conducted the phase 3 evaluation using a Standardized Plant Analysis Risk model simulation of the failure of the RCIC pump to automatically start and inject into the Reactor coolant system. The analyst concluded that the CDF associated with the event was 4.3 x 10-8 and that any increase in core risk due to external events was insignificant given the low CDF (< 1 x 10-6). The inspectors concluded that the finding was of very low risk significance.
Inspection Report# : 2005005*(pdf)*

**Significance:** G Sep 23, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to Identify and Correct 480 V Breaker Seismic Restraint Issues / Failure to Identify and Correct a Seismically Nonconforming Configuration Related to Safety Related 4160 V Breakers**
The inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI (Corrective Actions), with two examples, because the licensee failed to promptly identify and correct conditions adverse to quality associated with seismically nonconforming 480 VAC and 4160

VAC breakers. For the first example, the licensee failed to identify dis-engaged restraint latches on 9 breakers in Motor Control Center(MCC) E-MC-4A, despite earlier, but narrowly focused, inspections for seismic issues. In the second example, the licensee missed several opportunities to identify that the front wheels of several safety-related 4160 VAC breakers did not touch the floor due to breaker-cubicle fit-up problems. The failure to promptly identify and correct seismically nonconforming breakers, following a reasonable opportunity to do so, had cross-cutting aspects in the areas of problem identification.

The findings were more than minor because they impacted the Mitigating Systems Cornerstone objective of availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the Phase 1 Significance Determination Process Screening Worksheet in Inspection Manual Chapter 0609, Appendix A, the findings were of very low risk significance because they constituted design/qualification deficiencies that did not result in a loss of function per Generic Letter 91-18, “Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions,” Revision 1. The failure to promptly identify and correct seismically nonconforming breakers, following a reasonable opportunity to do so, had cross-cutting aspects in the areas of problem identification.
Inspection Report# : 2005004*(pdf)*

**Significance:** G Jun 22, 2005
Identified By: Self-Revealing
Item Type: FIN Finding
**Failure to Correctly Terminate Current Transformer Lead Results in Oil Leak**
A self-revealing finding associated with electricians’ failure to follow a maintenance procedure was identified following the discovery of an oil leak on the startup transformer. The oil leak occurred due to a damaged lead which had been incorrectly terminated during the maintenance activity. The finding had crosscutting aspects in the area of human performance because the electricians’ failed to follow a maintenance procedure.

This finding was greater than minor because it was a human error which affected the mitigating system cornerstone objective to ensure the availability of systems that respond to initiating events. The finding was determined to be of very low safety significance because there was no actual loss of safety function, the finding was not a design qualification issue, and the finding was not potentially risk significant due to external events. No violation of NRC requirements was identified.
Inspection Report# : 2005004*(pdf)*

**Significance:** G Apr 15, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to evaluate the extent of condition for 480 V breaker overcurrent knob settings**
Green. The team identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI (Corrective Actions) for the failure to identify nonconforming breaker settings (conditions adverse to quality). The licensee had identified that overcurrent settings were incorrect for General Electric Type TEC molded-case circuit breakers but did not evaluate the potential for the same problem to occur with other molded case circuit breakers. In response to NRC questions, additional problems were identified. Two safety-related breakers and one non-safety related breaker required recalibration to correctly establish the breaker trip points. The finding had crosscutting aspects associated with problem evaluation.

The failure to perform an adequate engineering evaluation of a condition adverse to quality was a performance deficiency. The finding was more than minor because it affected the mitigating system cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding had very low safety significance because it did not result in a loss of safety function, a loss of a safety-related train for greater than its Technical Specification allowed outage time, the loss of risk-significant non-Technical Specification trains for greater than 24 hours, or screen as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event.
Inspection Report# : 2005008*(pdf)*

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# Barrier Integrity

**Significance:** G Apr 29, 2005
Identified By: NRC
Item Type: FIN Finding
**Compensatory Action Prevented Implementation of Drywell Emergency Ventilation Procedure**
On April 29, 2005, an NRC identified finding was identified associated with an inadequate compensatory measure. The compensatory action, established in response to an inoperable primary containment isolation valve, prevented emergency ventilating the drywell during post accident conditions. This finding had crosscutting aspects of problem identification in that Energy Northwest did not identify that the compensatory action prevented implementation of the affected procedure. This finding was not subject to enforcement actions because it involved an equipment function which was not safety related.

The finding was more than minor because if left uncorrected the finding would become a more significant safety concern since primary containment integrity would be challenged due to the inability to emergency ventilate the drywell. Additionally, the finding was a configuration control issue which affected the barrier integrity cornerstone attribute to provide reasonable assurance that physical design barriers (containment) protect the public from radio nuclide releases caused by accidents or events. Using the Significance Determination Process, Phase 1 worksheet, the inspectors determined that the finding was of very low risk significance because the finding did not represent an actual open pathway in the physical integrity of the reactor containment. Corrective actions included evaluating alternate compensatory measures to address the inoperable containment isolation valve (Section 1R16).
Inspection Report# : 2005003*(pdf)*

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## Emergency Preparedness

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## Occupational Radiation Safety

**Significance:** G Nov 10, 2005
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
**Failure to Provide Adequate Instructions to Prevent an Unintended Uptake of Radioactive Material**
A Green self-revealing non-cited violation was identified for failure to have adequate procedures in accordance with Technical Specification 5.4.1.a to prevent the unintended uptake of radioactive material by three workers.

This finding was more than minor in that the replacement of a contaminated flange without the use of an adequate radiation work permit was associated with the occupational radiation safety's attribute of procedures for exposure control and affected the cornerstone objective to ensure the adequate protection of the worker's health and safety from exposure to radiation from radioactive material. Using the occupational radiation safety significance determination process, the finding was determined to be of very low risk significance because it did not represent an ALARA or work controls issue, did not involve an overexposure, did not constitute a substantial potential for an overexposure, and did not compromise the ability to assess dose.
Inspection Report# : 2005005*(pdf)*

**Significance:** G May 25, 2005
Identified By: NRC
Item Type: NCV NonCited Violation
**Failure to label a container of radioactive material**
On May 25, 2005, the inspector identified a non-cited violation of 10 CFR 20.1904 because the licensee failed to label a canister containing radioactive material. The canister in the equipment storage area of the refueling pool contained used filters from a pool filtering system. The canister was secured to the handrail with a rope and could be moved by hand. Dose rates were measured and found to be 17 rem per hour on contact with the canister. Neither the canister nor the rope were labeled to identify the contents and radiological hazards.

This finding is greater than minor because it is associated with an Occupational Radiation Safety cornerstone attribute (human performance) and affected the cornerstone objective in that the failure to warn individuals of radiological hazards diminished the licensee ability to ensure adequate protection of the worker health and safety from exposure to radiation. Using the Occupational Radiation Safety Significance Determination Process, the inspector 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. This finding also had crosscutting aspects associated with human performance. The failure of licensee personnel to follow the established program of controls for items stored in the refueling pool directly contributed to the finding. The licensee documented this event in Condition Report 2-05-04272.
Inspection Report# : 2005003*(pdf)*

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## Public Radiation Safety

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## Physical Protection

Physical Protection information not publicly available.

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# Miscellaneous

**Significance: N/A** Apr 15, 2005
Identified By: NRC
Item Type: FIN Finding
**Problem Identification and Resolution**
The team reviewed approximately 370 condition reports, apparent and root cause analyses, as well as other documents, to assess problem identification and resolution activities. While the licensee's processes were generally effective, the team observed that, for approximately the last four years, poor electrical engineering evaluations of breaker and switchgear problems resulted in a disproportionate number of NRC identified and self-revealing issues. In addition, several of the findings were related to inadequate consideration of seismic requirements. A similar performance concern was documented in the last problem identification and resolution assessment.

The team concluded that a safety-conscious work environment existed at the Columbia Generating Station. The team determined that employees and contractors felt free to enter issues into the corrective action program and raise safety concerns to their supervision, to the employees concern program, and to the NRC. All the interviewees believed that potential safety issues were being addressed. However, the team received an isolated comment regarding receptiveness of some supervisors to initiating condition reports. Energy Northwest management planned to take corrective measures to address this comment.

Inspection Report# : 2005008*(pdf)*

Last modified : May 25, 2006