Columbia Generating Station
4Q/2010 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Sep 25, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Risk Assessment Associated with Planned Surveillance Activities
Green. The inspectors identified a Green noncited violation of 10 CFR 50.65(a)(4) for the licensee's failure to perform an adequate risk assessment during surveillance testing. Specifically, licensee personnel failed to input the appropriate variable for the reactor core isolation cooling system being unavailable during surveillance testing. When the correct variable was used the risk profile for the day increased one level of significance. This violation has been placed in the licensee's corrective action program as Action Request 224294.

The performance deficiency was more than minor because it involved a failure to include all maintenance activities ongoing in the plant. The performance deficiency affected the equipment performance attribute of the Mitigating Systems Cornerstone objective to ensure the availability of systems that respond to an initiating event in that the risk profile did not adequately show system availability. The inspectors evaluated the performance deficiency using Manual Chapter 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process", and determined the performance deficiency to be of very low safety significance (Green) because the risk deficit during the time of the surveillance was calculated to be less than 1.0E-6. This performance deficiency has a crosscutting aspect in the area of human performance, resources, for the failure to provide an up to date work package with the correct input variable for assessing risk [H.2.c] (Section 1R13).
Inspection Report# : 2010004 *(pdf)*

Significance: G Jun 11, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Assessment of Emergency Diesel Generator Air Filters During an Ashfall Event
Green. The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which requires, in part, "measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures and instructions. Further required, in part, is that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program." Contrary to the above, the licensee failed to establish measures to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures and instructions. Specifically, prior to June 5, 2010, the licensee's measures established to assure that applicable regulatory requirements and the design basis, relative to the licensing basis duration for a volcanic ashfall generated loss of offsite power was not correctly translated into specifications, drawings, procedures and instructions. Also, the licensee's design control measures failed to verify or check the adequacy of design for the potential effects of volcanic ashfall loading on emergency diesel generator intake pre-filters and combustion air and room ventilation outside air supply filters, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. This finding was entered into the licensee's corrective action program as condition reports 219289, 219342, 219362, 219363, 219364, 219365, 219388, and 219394.

The team determined that failing to properly incorporate the licensing basis for an ashfall event and an inadequate

design analysis of emergency diesel generator intake combustion air and room cooling air filter loading during an ashfall event was a performance deficiency. This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Phase 1 screening, in accordance with Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in loss of operability or functionality. Specifically, the licensee's revised calculation demonstrated that the emergency diesel generators would remain functional during the licensing basis ashfall generated two-hour duration loss of offsite power. This finding did not have a cross-cutting aspect because the most significant contributor did not reflect current licensee performance (Section 1R21.2.5).

Inspection Report# : 2010006 *(pdf)*

Significance: G Jun 11, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Evaluation of Offsite Electrical Power Capability to Safety-Related Emergency Core Cooling System Equipment During a Design Basis Event with Offsite Power Available
Green. The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which requires, in part, "design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program." Contrary to the above, the licensee failed to provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. Specifically, as of July 30, 2010, the licensee's design control measures failed to verify or check the adequacy of design voltages to safety-related emergency core cooling system equipment powered from the 4160 Vac, 480 Vac, 120 Vac, and 125 Vdc distribution systems during a loss-of-coolant accident with offsite power available. This finding was entered into the licensee's corrective action program as condition reports 219208, 219122, 219267, 219277, 219335, 219122, 219328, 219170, 220268, 220317, and 222419.
The team determined that the failure to verify and assure adequate voltages to safety-related emergency core cooling system equipment powered from the 4160 Vac, 480 Vac, 120 Vac, and 125 Vdc distribution systems during a design basis loss-of-coolant accident with offsite power available was a performance deficiency.

This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Phase 1 screening, in accordance with Inspection Manual Chapter 0609.04, "Initial Screening and Characterization of Findings," determining that the finding was of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in loss of operability or functionality. Specifically, the licensee's interim calculation and operability determination demonstrated the operability of offsite power during a loss-of-coolant accident with offsite power available, in that the emergency core cooling system components would be operable and able to perform their safety function. This finding did not have a cross-cutting aspect because the most significant contributor did not reflect current licensee performance (Section 1R21.2.11).

Inspection Report# : 2010006 *(pdf)*

Significance: G Jun 11, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Inappropriate Extension of Qualified Service Life of Agastat Relays
Green. The team identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," which requires, in part, "design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. Where a test program is used to verify the adequacy of a specific design

feature in lieu of other verifying or checking processes, it shall include suitable qualifications testing of a prototype unit under the most adverse design conditions." Contrary to the above, the licensee failed to provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. Specifically, as of June 10, 2010, the licensee's design control measures failed to verify or check the adequacy of design for the extension of qualified life for safety-related Tyco/Agastat E7000-series timing relays from 10 years to 40 years, by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. The licensee did not perform suitable qualifications testing of a prototype unit under the most adverse design conditions. Specifically, the licensee did not follow their station procedures for extending the service life and changing preventive maintenance frequencies; did not account for some known modes of degradation; did not account for normal and abnormal operating conditions; and did not maintain a trending program to monitor for indication of impending end-of-life relay failures. This finding was entered into the licensee's corrective action program as condition reports 218559, 219436, and 218799.

The team determined that extending the qualified life of safety-related Agastat E7000-series relays without having an adequate technical basis was a performance deficiency. This finding was more than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed a Phase 1 screening, in accordance with Inspection Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in loss of operability or functionality. Specifically, no relay failures had occurred beyond the recommended 10-year service life and this did not result in the failure of multiple redundant trains of safety-related equipment. This finding has a cross-cutting aspect in the area of problem identification and resolution because the licensee did not effectively incorporate pertinent industry operating experience into the preventive maintenance program for Agastat E7000-series relays. Specifically, Energy Northwest failed to incorporate industry operating experience and site guidance when they extended their relay replacement preventive maintenance tasks from 10 years to 40 years [P.2(b)] (Section 1R21.3.1).

Inspection Report# : 2010006 *(pdf)*

Significance: G Mar 27, 2010
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Maintain Reactor Core Isolation Cooling Turbine Bearing Oil Level in Accordance with the Applicable Operating Procedure Requirements
Green. The inspectors identified a noncited violation of Technical Specification 5.4.1.a for a failure to maintain reactor core isolation cooling turbine bearing oil level in the proper band in accordance with procedural requirements. Not documenting oil additions to the reactor core isolation cooling turbine per paragraph 8.0 of PPM 10.2.13, Approved Lubricants, caused a high oil level on the inboard and outboard bearing housings resulting in the reactor core isolation cooling system becoming inoperable on December 20, 2009. Corrective actions for this issue included restoring oil level in the green band and initiating interim actions at the prompting of the resident inspectors to maintain proper oil level.

This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and because it affects the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609, Phase 1 Initial Screening and Characterization of Findings," the inspectors determined that the finding was of very low risk significance (Green) because failure to maintain the reactor core isolation cooling system oil level in the proper band did not result in the loss of a safety function of a single train for greater than its technical specification allowed outage time. In addition, the finding would not have likely affected other mitigating systems resulting in a total loss of their safety function. This finding has a cross-cutting aspect in the area of human performance with a work practices component [H.4.b] (Section 1R12).
Inspection Report# : 2010002 *(pdf)*

Barrier Integrity

Significance: G Jun 26, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Translate Appropriate Acceptance Critereia
• Green. The inspectors reviewed a Green self-revealing noncited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings” for Energy Northwest’s failure to include acceptance criteria appropriate to the circumstances in surveillance testing Procedure TSP-CREF-Z801, “Control Room Envelope Unfiltered In-leakage Tracer Gas Test,” Revision 2. Specifically, Energy Northwest personnel incorrectly documented a design bases unfiltered air in-leakage value as an administrative limit in the surveillance testing procedure. This led to a delay in declaring the control room emergency filtration system inoperable and a delay in the implementation of mitigating actions to protect control room occupants in the event of an accident. The violation has been placed in the licensee’s corrective action program and corrective actions are being implemented.

The performance deficiency is more than minor because it affects the procedure quality attribute of the Barrier Integrity Cornerstone for maintaining the radiological barrier functionality of the control room. This performance deficiency was of very low safety significance (Green) because the finding represented a degradation of only the radiological barrier function provided for the control room. Also, if left uncorrected, incorrectly documenting design bases acceptance criteria could lead to a more significant safety concern. Specifically, incorrectly documenting design bases acceptance criteria could lead personnel to rely on equipment to perform a specified safety function when it is incapable of doing so. This finding has a crosscutting aspect in the area of problem identification and resolution, self and independent assessments, in that the licensee failed to conduct self assessments that are of sufficient depth. Specifically, Energy Northwest focused too narrowly on the affect of licensing changes, in a 2007 self assessment, on the licensing organization instead of the impact of licensing changes to the organization as a whole [P.3.a] (Section 1R15).

Inspection Report# : 2010003 *(pdf)*

Significance: G Mar 27, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Provide Adequate Acceptance Criteria
Green. The inspectors reviewed a self revealing non-cited violation of Technical Specification 5.4.1a for a failure to provide procedures appropriate to the circumstance for rebuilding hydraulic control unit directional control valves. The failure to provide adequate instructions resulted in multiple control rod mis-positions at Columbia Generating Station.

This finding is greater than minor because it is associated with the configuration control attribute of the Barrier Integrity cornerstone because it affects the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, failing to establish appropriate acceptance criteria for systems that control rod movement could lead to exceeding thermal safety limits. Using Inspection Manual Chapter 0609, “Phase 1 Initial Screening and Characterization of Findings,” this finding was determined to be of very low safety significance (Green) because it only affected the fuel barrier. The inspectors determined that since the inadequate procedure for evaluating the directional control valves had been in place more than 2 years in the past, the finding did not represent current plant performance. Therefore no cross cutting aspect was identified (Section 1R12).
Inspection Report# : 2010002 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

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 : March 03, 2011