UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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April 26, 2006

J. V. Parrish (Mail Drop 1023)
Chief Executive Officer
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P.O. Box 968
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SUBJECT: COLUMBIA GENERATING STATION - NRC SUPPLEMENTAL INSPECTION REPORT 05000397/2006010

Dear Mr. Parrish:

On March 23, 2006, the U.S. Nuclear Regulatory Commission (NRC) completed a supplemental inspection pursuant to Inspection Procedure 95001 at your Columbia Generating Station. The enclosed inspection report documents the inspection findings, which were discussed at the exit meeting on March 23, 2006, with Mr. D. Atkinson, Vice-President Nuclear Generation, and other members of your staff. The licensee's readiness for supporting the supplemental inspection was completed February 28, 2006.

The NRC performed this supplemental inspection to assess your evaluation associated with events reported as safety system functional failures between May 2003 and April 2004. The events included two reports concerning shutdown cooling isolations which your staff withdrew. Had these reports remained in the SSFF Performance Indicator, it would have changed colors from Green to White.

The inspection concluded that the common cause evaluation addressed by Performance Evaluation Request (PER) 206-0119 adequately defined and understood root causes and corrective actions were appropriately addressed.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.gov/reading-rm/adams.html (The Public Electronic Reading Room).

Sincerely,

/RA/

Claude E. Johnson, Chief
Project Branch A
Division of Reactor Projects

Docket: 50-397
License: NPF-21

Enclosure:
NRC Inspection Report
05000397/2006010

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	50-397
License:	NPF-21
Report:	05000397/2006010
Licensee:	Energy Northwest
Facility:	Columbia Generating Station
Location:	Richland, Washington
Dates:	March 13-23, 2006
Inspectors:	T. O. McKernon, Senior Operations Engineer, Operations Branch, Division of Reactor Safety (DRS)
Approved By:	C. E. Johnson, Chief, Project Branch A, DRP
ATTACHMENT:	Supplemental Information

SUMMARY OF FINDINGS

IR 05000397/2006010; 03/13/2006 - 03/23/2006; Columbia Generating Station. Inspection Procedure 95001 Supplemental Inspection.

The report covered a 1-1/2 week period of inspection by a region-based inspector. No violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Cornerstone: Mitigating Systems

> The U.S. Nuclear Regulatory Commission performed this supplemental inspection to assess the licensee's evaluation associated with two shutdown cooling events that the license withdrew as reports from the safety system functional failure performance indicator tracking system and other events reported between May 2003 and April 2004. Had the two reports not been withdrawn, the performance indicator would have changed from Green to White. During this supplemental inspection, performed in accordance with Inspection Procedure 95001, the inspector determined that the licensee identified weak human performance as a common thread in their common cause analysis. For the eight events evaluated, the licensee adequately determined root and contributing causes and established corrective actions to prevent recurrence.

Report Details

01 **INSPECTION SCOPE**

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection to assess the licensee's evaluation associated with safety system functional failure performance indicator (PI) that, except for two retracted reports, would have crossed the Green-White threshold between May 2003 and April 2004.

The primary cause of the potential Green-White threshold PI crossing was due to two shutdown cooling system isolations during May and June 2003. The first shutdown cooling isolation event occurred as a result of maintenance workers disconnecting wiring from a wrong relay, which caused inboard isolation Valve RHR-V-9 to close. The second shutdown cooling isolation event occurred during performance of Surveillance Procedure TSPCONT/ISOL-B501, when operators depressed the manual pushbutton for the Train B nuclear steam supply shutoff system (NSSSS) inititation logic. A review of the subject PI indicated that, when these two events were considered along with five other SSFFs during the reporting period, the PI would have crossed the Green-White threshold. The licensee retracted the two shutdown system isolation reports and provided them as "info-only."

This supplemental inspection was focused on the events occurring between May 2003 and April 2004, whether root causes and contributing causes were understood, whether extent of conditions and extent of causes were identified, and whether sufficient corrective actions were taken to prevent recurrence.

2 EVALUATION OF INSPECTION REQUIREMENTS

02.01 Problem Identification

a. Determination of who (i.e., licensee, self-revealing, or NRC) identified the issue and under what conditions

This supplemental inspection focused on events which took place between May 2003 and April 2004. Two of the events were loss of shutdown cooling events, two events were related to inoperability of high pressure core spray system (HPCS), and two events were inoperability of the reactor core isolation cooling system (RCIC). All six events, reviewed and documented by the licensee in Performance Evaluation Request (PER) 206-0119, were self-revealing.

b. Determination of how long the issue existed and prior opportunities for identification

The two shutdown cooling isolation events were caused by human error and procedural inadequacy. In the first instance, maintenance workers erroneously lifted an electrical lead from the wrong relay which caused Valve RHR-V-9 to close, resulting in a trip of the running shutdown cooling pump. In the second instance, during performance of Surveillance Procedure TSP-CONT/ISOL-B501 operators depressed the manual Train B logic pushbutton for the NSSSS, which caused containment isolation Valve RHR-V-8 to

close, resulting in a trip of the 'A' shutdown cooling pump. The first inoperability event of HPCS occurred when operators through human performance error lost suction to the HPCS-P-1, resulting in tripping the pump. The second occurrence happened when the HPCS waterleg piping was inadvertently isolated during maintenance work. The first instance of RCIC system inoperability occurred in August 2003 when a battery cell in the Division 1 250 Vdc Battery E-B2-1 failed to meet its Technical Specification parameter requirements. The second instance occurred in February 2004, when control power was lost to reactor pressure vessel injection Valve RCIC-V-13. The loss of control power was caused by the failure of a normally energized relay coil.

In most of the instances discussed above the Licensee had no prior opportunities for identification of the issue. However, in the second occurrence of shutdown cooling isolation, the operators had the opportunity to identify potential plant impacts and make people aware during pre-job briefs. Further, this was not the first time the surveillance TSP-CONT/ISOL-B501 had been performed and any procedural weaknesses could have been resolved in the past.

c. Determination of the plant-specific risk consequences (as applicable) and compliance concerns associated with the events

The two loss of shutdown cooling events were considered of low risk significance in that shutdown cooling was returned to service within a short time (10-12 minutes). The two events were documented in NRC Inspection Report 05000397/2003005 and a noncited violation was issued with very low safety significance (Green). The two RCIC inoperability events were documented in NRC Inspection Reports 05000397/2003006 and 05000397/2004002. One of the events was classified as noncited violation for failure to follow procedures, which had very low safety significance (Green). The HPCS inoperability event occurred in October 2003, was documented in NRC Inspection Report 05000397/2004004, and identified no compliance issues.

02.02 Root Cause and Extent of Condition Evaluations

a. Evaluation of method(s) used to identify root causes and contributing causes

The licensee used a common cause analysis approach to evaluating all events documented in PER 206-0119. Since, at the time of the events, the corrective action program Procedure SWP-CAP-02 allowed for resolving extent of condition reviews by means of the apparent cause process, extent of condition reviews were generally weak. The inspector determined that the licensee followed it's procedural guidance.

b. Level of detail of the Common Cause Evaluation

The Licensee's common cause evaluation was thorough and identified a common thread of weak human performance as a root cause to a majority of the events reviewed in PER 206-0119. The evaluation indicated that the licensee understood the root causes and contributing causes of risk significant performance issues of events between May 2003 and April 2004.

c. Consideration of prior occurrences of the problem and knowledge of prior operating experience

The licensee's evaluation included a review to ascertain if similar problems related to the loss of shutdown cooling had been reported. The licensee determined that a similar event occurred in 2001 but was not reported. The inspector's review of historical information (i.e., licensee event reports, inspection reports, PERs, condition reports) indicated that the licensee was consistent in not reporting the loss of shutdown cooling occurrences as long as the Technical Specification action requirements (compliance standards) were satisfied.

d. Consideration of potential common causes and extent of condition reviews

The licensee evaluated their prior reviews and root cause analyses for the events contained in PER 206-0119 and determined that their extent of condition reviews were generally weak. Further, extent of cause reviews were not completed because the corrective action program procedure guidance, at the time, did not require the reviews for resolution of problems through the apparent cause process. In January 2004, the licensee revised the corrective action program Procedure SWP-CAP-02 to require root cause analyses for all reported events. The inspector reviewed the PER 206-0119 associated reports, evaluations, and subsequent common cause evaluation and determined that the licensee had determined that, during the time period, human performance errors were the major contributor to risk significant performance issues. In many instances, the licensee identified weak procedural guidance, poor pre-job briefings, or inadequate operator's understanding of plant impact from surveillance procedure performance as root or contributing causes. The inspector concluded that the licensee's evaluations of events during the period were more comprehensive for equipment related events than human performance related events.

02.03 Corrective Actions

a. Appropriateness of corrective action(s)

The licensee's corrective actions were sufficient to address the events' root and contributing causes and to prevent recurrence. Since January 2004, no additional examples of performance issues were reported via PIs that resulted in crossing a new PI threshold, nor were there any new or additional examples of performance issues identified during this inspection which were safety significant.

In addition, the inspector reviewed other licensee event reports since January 2004 and sampled fifty condition reports from a total population of 1500. The inspector agreed with the licensee's evaluations and disposition of the related corrective actions. As part of the licensee's corrective actions, Energy Northwest had industry experts and industry organizations review the shutdown cooling isolation events and bench marked other plants. These reviews supported Energy Northwest's position that the shutdown cooling isolation events were nonreportable. The licensee communicated this information and reiterated their nonreportable position in letter G02-04-102, dated May 26, 2004.

Since May 2004 the licensee and NRC has had a number of meetings and communications regarding the difference of professional opinion related to reporting loss of shutdown cooling events.

Energy Northwest maintains the position that loss of shutdown cooling events are nonreportable as safety system functional failures (SSFFs) as long as the Technical Specification action times can be met. The NRC contends that such events should be reported under the SSFF performance indicators.

The NRC will pursue potential clarification to NUREG-1022 to clarify the reporting criteria in FY 07.

b. Prioritization of corrective actions

The inspector did not identify any specific methods utilized to prioritize the specified corrective actions based on risk significance or regulatory compliance. However, no examples of inappropriate prioritization were noted. The inspector considered the prioritization of the established corrective actions to be consistent with risk consequences.

c. Establishment of schedule for implementing and completing the corrective actions

The licensee established adequate schedules for completion of the specified corrective actions. As appropriate, some corrective actions were scheduled in conjunction with refueling outages while others were more short term, such as procedure revisions or training updates. The inspector did not identify any specific concerns with the scheduling of completion for corrective actions.

d. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence

The licensee established effectiveness reviews for each of the evaluations reviewed. For example, effectiveness reviews for the evaluation associated with the February 2004 loss of control power to the RCIC system and subsequent inoperability. Corrective actions included replacement of the failed relay, thermography on 43 other installed normally-energized relays, long-term actions to replace normally-energized relays in dc control circuity, development of preventive maintenance tasks to replace relays in dc switchgear, and periodic reviews of existing and collection and submittal of operating experiences. The inspector interviewed station personnel involved in this effort and determined that progress was being made implementing the corrective actions. The evaluation specified the method, attributes, success criteria, and timing of actions in specific terms. The inspector identified no concerns in this area.

3 MANAGEMENT MEETINGS

Exit Meeting Summary

On March 23, 2006, the inspector (T. McKernon) presented the inspection results to Mr. D. Atkinson, Vice President, Nuclear Generation, and members of his staff who acknowledged the findings. The inspector confirmed that proprietary information was provided or examined during the inspection and returned at the conclusion of the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

ATTACHMENTS

Persons Contacted

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D. Coleman, Manager, Regulatory Affairs
G. Cullen, Licensing Supervisor
K. Engbarth, Corrective Action Program Manager
C. King, Manager, Chemistry
T. Lynch, Plant General Manager
R. Torres, Manager, Quality and Corrective Action

Documents Reviewed

Licensee Event Reports

1996-002-00	2004-004-00
2003-006-00	2004-005-00
2003-007-00	2004-008-00
2003-008-00	2005-001-00
2003-009-00	2005-002-00
2003-010-00	2005-003-00
2003-012-00	2005-004-00
2004-001-00	2005-005-00
2004-002-00	

PERS

299-0871	203-2645
299-1162	203-3111
299-1021	203-3684
299-0882	203-3975
299-1336	203-4124
200-1051	204-0570
200-1078	205-0424
201-1171	205-0428
203-1861	205-0429
203-2411	206-0119

Action Request

7153

Procedures

SWP-CAP-02, Corrective Action Program, Revision 3, 3/31/05

Condition Reports

2-04-00094
2-04-00174
2-04-00285
2-04-00350
2-04-00738
2-04-01006
2-04-01355
2-04-01458
2-04-01717
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2-06-00144