

# **ENERGY NORTHWEST**

P.O. Box 968 ■ Richland, Washington 99352-0968

April 10, 2002  
GO2-02-063

Docket No. 50-397

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

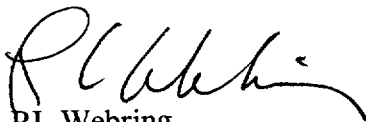
Gentlemen:

Subject: **COLUMBIA GENERATING STATION, OPERATING LICENSE NPF-21,  
LICENSEE EVENT REPORT NO. 2002-001-00**

Transmitted herewith is Licensee Event Report No. 2002-001-00 for Columbia Generating Station. This report is submitted pursuant to 10 CFR 50.73(a)(2)(i)(A). The enclosed report discusses items of reportability and corrective action taken.

Should you have any questions or desire additional information regarding this matter, please call Ms. CL Perino at (509) 377-2075.

Respectfully,



RL Webring,  
Vice President, Operations Support/PIO  
Mail Drop PE08

Attachment

cc: EW Merschhoff - NRC-RIV  
JS Cushing - NRC-NRR  
INPO Records Center  
NRC Sr. Resident Inspector - 988C (2)  
DL Williams - BPA/1399  
TC Poindexter - Winston & Strawn  
WB Jones - NRC RIV/fax

IE22

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington DC 20555-0001, or by internet e-mail to [bj51@nrc.gov](mailto:bj51@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

**FACILITY NAME (1)**

Columbia Generating Station

**DOCKET NUMBER (2)**

05000397

**PAGE (3)**

1 OF 3

**TITLE (4)**

Completion of Technical Specification required shutdown to comply with Technical Specification LCO 3.8.1 Required Actions of Condition F.

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
02	14	2002	2002	- 001	- 00	04	10	2002	FACILITY NAME	DOCKET NUMBER
<b>OPERATING MODE (9)</b>		3	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)</b>							
<b>POWER LEVEL (10)</b>		000	20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
			20.2201(d)			20.2203(a)(4)			50.73(a)(2)(iii)	50.73(a)(2)(x)
			20.2203(a)(1)			50.36(c)(1)(i)(A)			50.73(a)(2)(iv)(A)	73.71(a)(4)
			20.2203(a)(2)(i)			50.36(c)(1)(ii)(A)			50.73(a)(2)(v)(A)	73.71(a)(5)
			20.2203(a)(2)(ii)			50.36(c)(2)			50.73(a)(2)(v)(B)	Other
			20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)		X	50.73(a)(2)(i)(A)			50.73(a)(2)(v)(D)	
			20.2203(a)(2)(v)			50.73(a)(2)(i)(B)			50.73(a)(2)(vii)	
			20.2203(a)(2)(vi)			50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)	
			20.2203(a)(3)(i)			50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)	

**LICENSEE CONTACT FOR THIS LER (12)****NAME**

Patricia Campbell, Technical Specialist

**TELEPHONE NUMBER (Include Area Code)**

(509) 377-4664

**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
A	EB	SWGR	W120	Y					

**SUPPLEMENTAL REPORT EXPECTED (14)**

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**

On February 11, 2002 at 0314 with Columbia Generating Station (Columbia) operating at 100% power, planned online maintenance commenced on Emergency Diesel Generator (EDG) 2. Maintenance was completed as scheduled. Surveillance testing to demonstrate operability of the EDG-2, and exit from the Limiting Condition of Operation (LCO), was started on February 13. Immediately after the EDG-2 output breaker was closed, the control room received an annunciator alarm. Investigation and evaluation revealed that the circuit breaker had closed but the Mechanism Operated Cell (MOC) switch assembly had failed to change state as expected. Columbia was at 100% power, when it was decided to shutdown the plant within the 72 hour completion time of TS 3.8.1 Required Action B.4. On February 14, 2002 at 1257 the plant entered Mode 3 as required by TS 3.8.1.F.1. The failure of the MOC switches to not fully actuate was due to lack of preventive maintenance and a breaker replacement that produced less drive force to actuate the MOC assembly. The root cause was the failure to recognize the importance of MOC assembly maintenance. The corrective actions are to establish maintenance on all 4160 volt and 6900 volt cubicle switchgears, and to enhance an existing Circuit Breaker Program to provide guidance on breaker and cell maintenance.

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**NARRATIVE** (If more space is required, use additional copies of NRC Form 366A) (17)

Description of Event

On February 11, 2002 at 0314 Columbia Generating Station (Columbia) began planned online maintenance on Emergency Diesel Generator (EDG) 2. Maintenance was completed as scheduled. Surveillance testing to demonstrate operability of the EDG-2, and exit from the Limiting Condition of Operation (LCO), was started on February 13. Immediately after the EDG-2 output breaker was closed, the control room received an annunciator alarm. As this was not an expected alarm, the System Engineer and the Electrical Supervisor were contacted for evaluation. Further investigation revealed that the circuit breaker had closed but the Mechanism Operated Cell (MOC) switch assembly had failed to change state as expected. The circuit breaker is a Westinghouse model DHP-VR, which was installed during an upgrade process in June 2001. Columbia was at 100% power when the decision was made to shutdown the plant, due to the inability to restore EDG-2 to an Operable status within the 72 hour completion time of TS 3.8.1 Required Action B.4. On February 14, 2002 at 1257 the plant entered Mode 3 as required by TS 3.8.1.F.1. On February 15, 2002 at 0242 the plant entered Mode 4 as required by TS 3.8.1.F.2.

A four hour event notification telephone call was made to the NRC Operations Center at 0418 EST on February 14, 2002 pursuant to 10 CFR 50.72(b)(2)(i) after the plant shutdown was initiated (Event Number 38694).

Immediate Corrective Actions

All Safety Related circuit breakers of the DHP-VR design and associated breaker cubicle, and other 4160 and 6900 volt breakers and their cubicles, that have an active safety function, have had preventive maintenance performed in accordance with the guidance developed by Columbia, Westinghouse, and Cutler Hammer staff. The MOC assemblies for these breaker cubicles were completely disassembled, inspected for wear, cleaned, re-greased, and worn parts were replaced as needed. The Vendor also helped to establish acceptable operating limits for the breaker applied MOC operating pin force and the MOC linkage resistance force to be used to assess the degradation rate of the breaker's MOC switch interface.

Cause of the Event

The failure of the MOC switches to fully actuate was excessive resistance in the pantograph assembly due to a lack of preventive maintenance. The root cause was the failure to recognize the sensitivity of the new breakers to the importance of MOC assembly maintenance. During the last refueling outage that ended July 2, 2001, 22 obsolete magnetic air DHP type breakers were replaced with vacuum element DHP-VR type breakers. The original DHP breakers

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provided such force as to overcome any MOC linkage resistance, whereas the new DHP-VR breakers did not provide the same force.

## Assessment of Safety Consequences

An evaluation was performed of the period of time from when the DHP-VR breakers were installed until the plant was shutdown as a result of this event. There was no time at which any of the affected systems were called upon where they were unable to perform their required safety functions; therefore there were no safety consequences. Actuation force analysis performed on the MOC switch assemblies subsequent to plant shutdown showed that the reduced breaker applied force would not have resulted in a loss of any safety function.

## Actions to Prevent Recurrence

Additional corrective actions include establishing the preventive maintenance frequency and scope of work for the MOC switches, MOC switch linkage, and pantograph channels of all the 4160 VAC and 6900 VAC cubicle switchgears. A plant procedure will be revised to include lubrication and maintenance instructions for the pantograph and MOC linkage assemblies. The Circuit Breaker Program will be enhanced to provide guidance on circuit breaker and cell maintenance.

## Previous Similar Events

Three previous similar events have been identified. Two cases were intermittent, could not be repeated, and both occurred in the same cubicle. In the first instance the cause was degradation in the MOC switch linkages. Corrective actions were to inspect all cubicles with the 22 DHP-VR type breakers installed and change the procedural guidance to lubricate the MOC switches that are in the DHP type switchgears.

In the second case, looseness with side-to-side movement in the pantograph was the cause. Generic MOC linkage maintenance was a concern and corrective action was initiated to evaluate the preventive maintenance program for all MOC linkages and pantograph assemblies. However this action was not scheduled to be complete on all 22 breakers until July 1, 2002.

The third case that occurred on January 17, 2002, was an unexpected alarm in the control room of a breaker trip that immediately cleared. The breaker functioned correctly and did not trip. The system engineer was concerned and a work order was initiated to address the failure, but the February 13, 2002 failure occurred before the work order was worked.