

General Information or Other (PAR)

Event # 39670

Rep Org: WESTINGHOUSE Supplier: ABB INC	Notification Date / Time: 03/14/2003 15:47 (EST) Event Date / Time: 03/14/2003 (EST) Last Modification: 03/14/2003
Region: 1 City: PITTSBURGH County: State: PA	Docket #: Agreement State: No License #:
NRC Notified by: HANK SEPP HQ Ops Officer: YAMIR DIAZ Emergency Class: NON EMERGENCY 10 CFR Section: 21.21                    UNSPECIFIED PARAGRAPH	Notifications: DAVID AYRES                    R2 MARK SHAFFER                    R4 JACK FOSTER                    NRR BRIAN MCDERMOTT                    R1 KENNETH O'BRIEN                    R3

10 CFR PART 21 REPORT REGARDING FAILURES OF ABB CIRCUIT BREAKERS

Circuit breakers manufactured by ABB Inc. and used for Class 1E applications by Westinghouse were shipped to the Calvert Cliffs Plant with model 5 operating mechanisms installed. Recently, Westinghouse had retrofitted the breakers with model 7 operating mechanisms manufactured by ABB Inc. Westinghouse validated that the original breaker qualifications (for Class 1E applications) are still applicable with the model 7 operating mechanism installed. Two of these breakers failed to close and latch during testing at Calvert Cliffs. The first breaker failed to close and latch during acceptance testing on January 18, 2003. The second breaker failed to close and latch during its installation acceptance test in the breaker cubicle on January 27, 2001.

\*\*\*\*\*

IE19



Westinghouse Electric Company  
Nuclear Services  
P.O. Box 355  
Pittsburgh, Pennsylvania 15230-0355  
USA

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555-0001

Direct tel: (412) 374-5282  
Direct fax: (412) 374-4011  
e-mail: [Sepp1ha@westinghouse.com](mailto:Sepp1ha@westinghouse.com)

Our ref: LTR-NRC-03-8

March 14, 2003

**Subject: Notification of the Potential Existence of Defects Pursuant to 10CFR21**

The following information is provided pursuant to the requirements to 10 CFR 21 to report the potential for the existence of a **SUBSTANTIAL SAFETY HAZARD**. This issue concerns failure of ABB medium voltage 4 KV circuit breakers to close and latch. Westinghouse supplied these breakers for safety-related applications at the Calvert Cliffs Nuclear Power Plant.

Background

Medium voltage (4 KV) 5VHKR/250 Model 80, 1200A circuit breakers were manufactured by ABB Inc. and commercially dedicated for Class 1E applications by Westinghouse and shipped to the Calvert Cliffs Nuclear Power Plant with model 5 operating mechanisms installed. Recently, Westinghouse had retrofitted the breakers with model 7 operating mechanisms manufactured by ABB Inc. Westinghouse validated that the original breaker qualifications (for Class 1E applications) are still applicable with the model 7 operating mechanism installed. Two of these breakers failed to close and latch during testing at Calvert Cliffs. The first breaker failed to close and latch during acceptance testing on January 18, 2003. The second breaker failed to close and latch during its installation acceptance test in the breaker cubicle on January 27, 2003.

Evaluation

It is Westinghouse understanding that the direct cause of the failures is the result of out of tolerance primary and secondary trip latches in the ABB model 7 operating mechanism. The root cause investigation is on-going to determine if manufacturing, inspection and test procedures could have contributed to these failures. While breakers failed to close and latch on demand, a failure to trip on demand has not been seen during subsequent testing of these breakers.

The extent of the out of tolerance parts has not been determined. ABB Inc. is currently investigating to determine if low voltage circuit breakers with the model 7 operating mechanism are affected by the out of tolerance parts.

Westinghouse has performed a seismic re-evaluation that documents that the breakers with the model 7 operating mechanisms installed will remain closed during a seismic event.

Page 2 of 3  
Our ref: LTR-NRC-03-8  
March 14, 2003

Failure of the circuit breaker to close could be detected by observation of the breaker or monitoring lights.

### Safety Impact

The out of tolerance parts could result in a common mode failure for redundant breakers in safety systems. Based upon testing of the failed breakers, the failure to close and latch condition is intermittent. In the case of Calvert Cliffs, if both breakers failed to close when containment spray is required, the plant could be in a condition outside the accident analysis. Based upon past testing at ABB Inc. with the model 7 operating mechanism, breakers that have been operated 300 times or more and have not exhibited the failure to close and latch condition are expected to continue to close and latch as intended.

### Corrective Action

Upon discovery of the breaker out-of-tolerance parts, Calvert Cliffs took corrective actions to remove the breakers that are required to close or re-close to provide a safety function

The extent of the out of tolerance parts has not been determined. ABB Inc. is currently investigating to determine if low voltage circuit breakers with the model 7 operating mechanism are affected by the out of tolerance parts.

### Plant Applicability

This notification is applicable to Calvert Cliffs. In addition, ABB Inc. is determining which utilities may have purchased or may have the model 7 operating mechanism installed in their circuit breakers.

### Communications

ABB Inc. and Calvert Cliffs are aware of the out of tolerance primary and secondary trip latches. A Westinghouse Nuclear Safety Advisory Letter will be sent to all Westinghouse and Combustion Engineering power plants by March 31, 2003.

Very truly yours,



H. A. Sepp, Manager  
Regulatory and Licensing Engineering

cc: G. Shukla

Page 3 of 3  
Our ref: LTR-NRC-03-8  
March 14, 2003

bcc: H. A. Sepp (ECE 4-7A) 1L, 1A  
R. Bastien, (Nivelles, Belgium) 1L, 1A  
L. Ulloa (Madrid, Spain) 1L, 1A  
C. Brinkman, 1L, 1A (Westinghouse Electric Co., 12300 Twinbrook Parkway, Suite 330, Rockville, MD 20852)  
RLE Administrative Aide (ECE 4-7A) 1L, 1A