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September 11, 1998

Re: Indian Point Unit No. 2  
Docket No. 50-247

Document Control Desk  
US Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, DC 20555

SUBJECT: 10 CFR Part 21 Written Notification

On August 29, 1998 Con Edison submitted by facsimile, the initial notification of a condition at Indian Point Unit No. 2 that we determined to be reportable under the requirements of 10 CFR Part 21. The reported condition involved the failure to close of a Westinghouse DB-50 breaker used to operate the auxiliary feed-water pump motor. We believe that the failure to close was due to binding of the inertial latch. The binding of the latch prevented it from resetting to its normal position, which in turn prevented the operating mechanism from closing the breaker. The requirements of 10 CFR 21.21(d)(4) identify specific information to be included in this written notification. That information is provided in the attachment to this letter.

Should you have any questions regarding this matter, please contact Mr. Charles W. Jackson, Manager, Nuclear Safety and Licensing.

Very truly yours,



Attachment

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CC: Mr. Hubert J. Miller  
Regional Administrator - Region I  
US Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Mr. Jefferey F. Harold, Project Manager  
Project Directorate I-1  
Division of Reactor Projects I/II  
US Nuclear Regulatory Commission  
Mail Stop 14B-2  
Washington, DC 20555

Senior Resident Inspector  
US Nuclear Regulatory Commission  
PO Box 38  
Buchanan, NY 10511

ATTACHMENT

Indian Point Unit No. 2 Westinghouse DB-50 Breakers.

The following information is provided as required by 10 CFR 21.21(d)(4).

- (i) Name and address of individual informing the Commission.

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- (ii) Identification of the basic component which contains a defect.

Component: Westinghouse 480V Breaker DB-50  
Breaker used by the 21 Auxiliary Feed Pump Motor.

- (iii) Identification of the firm supplying the basic component which contains a defect.

Westinghouse Electric Company  
Repair & Replacement Services  
2000 Cheswick Avenue  
Cheswick, PA 15024-1358

- (iv) Nature of the defect and the safety hazard which could be created by such a defects.

After completion of surveillance test P-MT170 titled "AFP ACTUATION FUNCTIONAL TEST-LOW STEAM GENERATOR WATER LEVEL," the CCR operator made an attempt to start 21 AFP from the CCR. The breaker did not close. During step by step investigation and inspection, it was determined that:

- (1) The inertial latch failed to reset to its normal position to enable the operating mechanism to close the breaker. Visual inspection found the inertia latch to be in a position that precluded the operating mechanism from closing the breaker.
- (2) The inertial latch initially was binding. Manipulation of the latch restored it to condition where the movement was normal.

- (3) The cause of failure was due to spalling or breaking-away of surface coating on the pivot pin and possibly the bushing (pivot pin hole) of the inertia latch. The fragments of the coating accumulated on the surfaces of the pin and the bushing reducing the clearance between the pivot pin and the bushing. The reduction in clearance resulted in binding of the inertial latch. This inertial latch binding prevented the latch from resetting to its normal position and prevented the breaker from closing. The dimensions of the 21 auxiliary feedpump breaker inertial latch pivot pin and pivot pin hole (bushing) were found to be 0.375" and 0.376" respectively.

The immediate corrective action was to inspect all DB-50 breakers having the yellow zinc plated inertial latches. The coating was removed and the inertial latches were cleaned and adjusted for proper clearance between pivot pin hole and pivot pin. Testing of the breakers operation was also performed.

Altran Corporation was requested to determine the cause of failure. During breaker testing the week of August 9 the latch was observed to bind in the closed position. This latch is an inertial latch and is designed to revert to the open position after activation. Failure to fall to the open position results in an inoperable circuit breaker. The cause of failure was due to spalling or breaking-away of the surface coating on the shaft pin and possibly the bushing of the latch. The fragments of the coating accumulated on the surfaces of the pin and the bushing in discrete locations that reduced the clearance between the shaft and the bushing. The reduction in clearance resulted in binding of the latch during operation. Residue of lubricant (molybdenum disulfide) was observed on the surfaces of the shaft pin and the inside diameter of the bushing. The examination of the coating on the shaft pin clearly showed that the coating was breaking away from the surface. The damage may have been initiated during treatment with emery cloth as part of the custom fitting process. However, it appears that, during service, material was dislodged from the surfaces. Visual examination indicates that the quality of bonding of the coating on the shaft was inadequate.

The results obtained to date indicate that the coating on the inside diameter of the bushing and on the outside diameter of the shaft pin is spalling from the surface and causing improper operation of the inertial latch. Therefore, it is recommended that the coating be removed from the inside diameter surfaces of the bushing and on the outside surface of the shaft pin.

The Con Edison Procurement Quality Assurance visited the Westinghouse fabrication facility on 8/21/98 and verified what the proper design specifications were and that design and manufacturing controls were adhered to.

- (v) The date on which the information of such defect was obtained.

The information that led to the determination of a potential part 21 issue was obtained August 11, 1998.

- (vi) In the case of a basic component which contains a defect, the number and location of all such components in use at the facility subject to the regulations in this part.

Inspections of all breakers that had the yellow latch coating (an additional 38 DB-50 breakers) were performed.

- (vii) The corrective action which has been taken.

The zinc coating was removed and all the 39 breakers were readjusted to obtain proper clearance specified to be 0.002 to 0.003 inches radius.

- (viii) Any advice related to the defect that has been given to purchasers or licensees.

Altran Corporation performed an evaluation of the subject DB-50 breaker's failure to close. Their evaluation was documented in a preliminary report titled: "FAILURE ANALYSIS OF INERTIAL LATCH ON DB-50 CIRCUIT BREAKER." This report was provided to Westinghouse for their information and use. Its recommendation was to remove the coating from the inside diameter surfaces of the bushing and the outside diameter surface of the shaft pin.