

LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

P.O. BOX 618, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

August 22, 1978

SNRC-317

Mr. Boyce Grier, Director
Office of Inspection and Enforcement, Region 1
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19401

LONG ISLAND LIGHTING COMPANY
Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322

Dear Mr. Grier:

On April 22, 1978, in accordance with 10CFR50.55(e), we reported verbally to Region 1 a deficiency with the closing latch driving pawl associated with General Electric 4160 volt circuit breakers. This letter serves as our 90 day written report of this deficiency.

Description of Deficiency

The 4160 volt circuit breakers are General Electric type 1200 and 2000 ampere magne-blast breakers with ML-13 mechanisms, as manufactured by GE in their Philadelphia facilities.

During field checkout of the subject breakers, it was noted that an attempt to electrically close one of the breakers failed. A subsequent investigation revealed that the breaker closing latch had jammed and would not disengage from the breaker closing roller. This resulted in a failure to release the breaker closing springer and, therefore, the breaker would not close upon receiving a close signal.

This deficiency was noted on safety related circuit breakers. Failure of a breaker to close will prevent safety related equipment from being energized.

Corrective Action

General Electric has determined that the failure to close was caused by wearing of the driving pawl sleeve bearing. This

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bearing was a General Electric type Tuf-loc sleeve bearing, with a teflon coated fiberglass construction. In accordance with instructions from General Electric, all breaker mechanism Tuf-loc sleeve bearings shall be replaced with aluminum-bronze sleeve bearings. Final adjustments to the mechanism shall be made as required in accordance with recommended GE procedures.

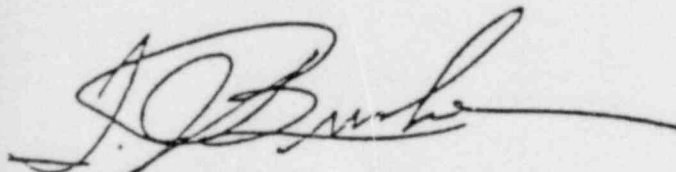
Corrective Action to Prevent Recurrence

General Electric factory engineering and Quality Assurance groups have been fully apprised of this problem.

Date of Full Compliance

We estimate that all adjustments to correct the driving pawls and the Tuf-loc sleeve bearings will be complete by February 28, 1979.

Very truly yours,



T. J. Burke
Project Manager
Shoreham Nuclear Power Station

MAG:jv

Attachment

ATTACHMENT

The breaker operating mechanism is of a spring-stored energy type, designed to give high speed opening and closing. The spring charging mechanism compresses the set of breaker closing springs through a high speed gear motor, eccentric, ratchet and driving pawl assembly. The rotary motion of the motor is converted to a straight stroke through the eccentric and a lever. The driving pawl is attached to the lever via a pin, and the pawl advances a ratchet wheel a few degrees with each stroke. Rotating the ratchet wheel approximately 180 degrees will fully compress the breaker closing springs. After a few more degrees of rotation, the closing roller will engage the closing latch and the compressed springs will be held by this latch until a closing operation is required.

During the last few degrees of ratchet wheel rotation, power to the spring charging motor will be interrupted and the motor and driving pawl assembly will coast to a natural stop, expending all residual energy. During this coast-down period, the driving pawl rides over the ratchet wheel (i.e.) it is disengaged from the ratchet wheel teeth by riding on a metal bar which bridges the ratchet wheel teeth.

The breaker is closed electrically by energizing the close coil (spring release solenoid). Energizing the coil will cause the closing latch to disengage from the closing roller. This will release the closing springs, whose energy will rotate a cam and close the breaker through the operating mechanism linkage.

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