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ARTHUR E. LUNDVALL, JR.
VICE PRESIDENT
SUPPLY

March 21, 1983

U. S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

ATTENTION: Mr. Ronald C. Haynes
Regional Administrator

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2, Docket Nos. 50-317 & 50-318
IE Bulletin 83-04: Failure of the Undervoltage Trip Function of Reactor
Trip Breakers

Gentlemen:

IE Bulletin 83-04 requested that all Licensees perform tests, verify procurement, classification, maintenance and operational awareness activities concerning the Reactor Protective System Trip Circuit Breaker Undervoltage Trip devices and provide a written response of these activities. Enclosure 1 is being provided in response to IE Bulletin 83-04 and includes a response to each licensee requested item listed in the subject bulletin.

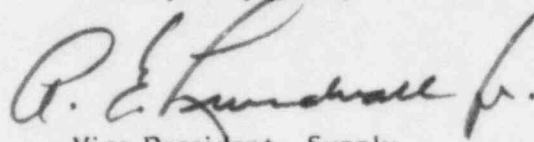
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Mr. Ronald C. Haynes
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Should you have further questions regarding our response, please do not hesitate to contact us.

Very truly yours,


Vice President - Supply

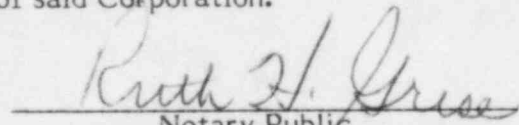
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Enclosures

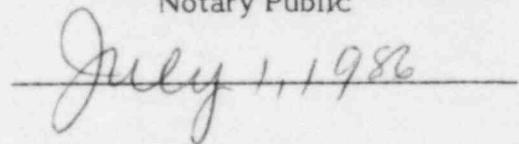
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: TO WIT:
CITY OF BALTIMORE :

Author E. Lundvall, Jr., being duly sworn states that he is Vice President of the Baltimore Gas and Electric Company, a corporation of the State of Maryland; that he provides the foregoing response for the purposes therein set forth; that the statements made are true and correct to the best of his knowledge, information, and belief; and that he was authorized to provide the response on behalf of said Corporation.

WITNESS my Hand and Notarial Seal:


Notary Public

My Commission Expires:



cc: J. A. Biddison, Esquire
G. F. Trowbridge, Esquire
D. H. Jaffe, NRC
R. E. Architzel, NRC

ENCLOSURE (1)

The following information concerns General Electric (GE) Type AK-2A-25 undervoltage trip mechanisms used in the Reactor Protective System for Unit Nos. 1 and 2 at Calvert Cliffs Nuclear Power Plant.

ITEM NO. 1

Provide a written reply identifying the results of testing performed to verify the operability of the undervoltage trip function independent of the shunt trip function.

RESPONSE

We have completed on-line surveillance testing of the shunt and undervoltage trip mechanisms, independently, to verify operability of each device for both units. The test consisted of manually initiating a trip and measuring the response time for each breaker to reach its protective system trip condition. In all cases, each breaker achieved the protective system trip condition and under actual Reactor Protective System (RPS) trip conditions a RPS trip would have resulted within the design response times assumed in the Final Safety Analysis Report (0.4 seconds for the most limiting RPS Trip).

Certain undervoltage (U/V) trip devices, measured individually, did not meet the response time criteria used during the test. Those individual U/V trip devices are listed below. Upon completion of repetitive test, corrective maintenance was performed on the out-of-specification U/V devices and each device was subsequently retested and determined to be within specification.

RESULTS OF TESTING (Maximum response time criteria \leq 0.400 sec.)

<u>TRIP DEVICE NO.</u>	<u>U/V TRIP DEVICE TEST TRIALS (SECONDS)</u>				<u>POST MAINTENANCE RESPONSE TIME (SECONDS)</u>		
	<u>1ST</u>	<u>2ND</u>	<u>3RD</u>	<u>AVG.</u>	<u>HIGH</u>	<u>LOW</u>	<u>AVG**</u>
<u>UNIT 1</u>							
TCB-1	1.280	4.040	8.600	4.640	0.072	0.048	0.058
TCB-3	0.112	2.300	0.064	0.830	0.048	0.048	0.048
TCB-4	8.470	5.320	0.360	4.720	0.052	0.048	0.050
<u>UNIT 2</u>							
TCB-3	24.640	0.064	0.072	8.300	0.048	0.048	0.048
TCB-7*	0.200	0.160	0.680	0.350	0.088	0.052	0.062
TCB-8	0.712	0.600	1.248	0.850	0.392	0.100	0.235

* Selected for corrective maintenance to improve response time.

** Average of at least five (5) test trials.

ITEM NO. 2

Provide a written reply identifying conformance of the maintenance program to manufacturer's recommendations and describe results of maintenance performed directly as a result of this Bulletin.

RESPONSE

All Electrical and Controls testing and maintenance procedures associated with corrective and preventive maintenance activities performed on RPS trip devices have been verified for conformance to manufacturer's recommendations.

As a result of testing the following maintenance actions have been performed on RPS equipment; 1) lubrication inspection, 2) tolerance check of trip shaft rotary tongue, 3) tolerance check of latch engagement, and 4) adjustment of positive trip setting for the U/V trip mechanism.

ITEM NO. 3

Provide a written statement that provisions are in place to notify licensed operators of the Salem and San Onofre events and bring to their attention appropriate failure-to-trip emergency procedures upon their arrival on-shift.

RESPONSE

Immediately following receipt of IE Bulletin 83-04 an entry was placed in the General Supervisor-Operations Notes & Instructions describing the Salem and San Onofre events and distributed to on-shift licensed Operations personnel. In addition to the above, a precautionary note was added to the Emergency Operating Procedure (EOP) for Reactor Trip to instruct the operator to manually trip the reactor in the event an automatic signal fails to function. This precautionary note is listed among the immediate actions of the EOP and provides the operator with specific instructions on how to achieve a manual trip from several locations within the control room.

ITEM NO. 4

Provide a written response of all RPS breaker malfunctions not previously reported to the NRC.

RESPONSE

We have completed a review of our plant history data base to determine previously unreported RPS breaker malfunctions. Our review of this data base indicates that four individual events have occurred involving U/V trip devices over a combined 14 year operating lifetime of our units. Each event was identified while performing preventive maintenance (PM) during refueling conditions with the respective unit in a shutdown mode. Two of these events involved a case where an individual U/V device failed to promptly trip the breaker but did achieve the protective system trip condition. The two other events (one for each unit) involved failure of the U/V device to achieve the trip condition. Corrective maintenance was performed on each device and subsequently, each

device was tested and returned to service. The following provides a description of each event.

On 3/1/78 the Unit 1 (TCB-2) U/V device failed to trip the breaker during performance of a PM. Adjustment of the device, per the GE Technical Manual, corrected the problem and the device was tested satisfactorily and returned to service.

On 12/20/82 the Unit 2 (TCB-7) U/V device failed to trip the breaker during performance of a PM. The U/V device was replaced with a safety related spare, tested satisfactorily and returned to service.

On 12/20/82 Unit 2 (TCB-1 and TCB-4) U/V devices exhibited sluggish operation during performance of a PM. Both devices were adjusted in accordance with General Electric Service Advice Letter No. 175, tested satisfactorily and returned to service.

ITEM NO. 5

Provide a written response to verify that procurement, testing and maintenance activities treat the RPS breakers and U/V devices as safety related.

RESPONSE

Original procurement of the RPS breakers and U/V devices was performed under an approved Quality Assurance Program implemented by the NSSS supplier, Combustion Engineering, Inc. Subsequent procurement records for replacement parts indicate that all parts purchased for corrective maintenance activities have been procured as safety related material. Equipment Classification Sheets currently list the Reactor Protective System as a safety related system, therefore, all procurement of spare parts is conducted under the Quality Assurance Program. All Electrical and Controls Testing and maintenance procedures controlling activities associated with the RPS U/V devices and circuit breakers have been reviewed. All procedures controlling maintenance and testing activities are identified as safety related and are performed under the Quality Assurance Program.