The

BOSTON EDISON COMPANY GENERAL OFFICES BOD BOYLSTON STREET BOSTON, MASSACHUSETTS 02199

G. CARL ANDOBNINI SUPERINTENDENT NUCLEAR OPERATIONS DEPARTMENT

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August 1, 1980 BECo Ltr. #80-168

Mr. Boyce H. Grier, Director Office of Inspection and Enforcement Region I U.S. Nuclear Regulatory Commission 631 Park Avenue King of Prussia, PA. 19406

License No. DPR-35 Docket No. 50-293

Response (III) to IE Bulletin 80-17

Dear Mr. Grier:

This letter provides you with Boston Edison Company's response to item #2 of IE Bulletin 80-17 "Failure of 76 of 185 Control Rods to Fully Insert During a Scram at & BWR". The following information was generated as a result of manual and automat . scrams conducted on July 25 and 26, 1980.

Item #2

Within the next 20 days, perform one manual and one automatic scram in that order at normal operating temperature and pressure and with more than 50 percent of the rods fully withdrawn, and obtain the following information on each scram:

 All rod insert times and as many individual rod scram times as practicable.

Response

PNPS capability for measuring rods scram times is limited to 50 CRD's at any one time, 20 recorded on the station computer and 30 on a branch recorder. For the testing conducted, 50 CRD's were selected for the manual scram and another 50 CPD's were selected for the automatic scram. The scram times were reviewed to determine the fastest, slowest, and average scram times for each scram. This information is tabulated below:

	Manual	Scram	Autor	natic	Scram
Min.	2.39	sec	Min.	2.35	sec.
Max.	3.84	sec	Max.	4.04	sec
Avg.	2.71	sec	Avg.	2.79	sec

Note: A loose connection on one of the jack plugs caused one rod scram time not to be generated, the figures above are for 49 rods for each scram.

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	Open to Close (sec).	Close to Open (sec)
Drain	1.9 sec	.6
Vent A	4.3 sec	.1
Vent B	1.5 sec	.3

f) "Measure the delay time from scram initiation to closure of the SDV vent and drain valves utilizing the stem mounted position switches."

Response

A Brush Recorder was used to monitor delay times utilizing the stem mounted position switches on each of the valves. The times measured for each scram were:

	Scram Signal to Closure of (sec)			
	Drain Valve	Vent Valve (A)	Vent Valve (B)	
Manual Scram	2.7	3.1	4.7	
Auto Scram	7.2	9.2	16.7	

g) "Sample water from the instrument volume discharge after each scram for particulates."

Response

Particulates in the SDV were measured from samples taken after each scram. The sample taken after the manual scram was analyzed using a glass fiber filter paper and the sample taken after the automatic scram was analyzed by evaporation in a planchet. The evaporation method for the second sample was used because of the clarity of the water.

	Particulates (PPN	1)
Manual Scram	1173 PPM	
Automatic Scram	< 5 PPM	

h) "Measure the time to drain the SDV down to a repeatable reference level."

Response

After a suitable delay time (to reach system stability), the scram was rest and the time was measured to drain the SDV from scram reset to the point where the not drained alarm cleared. Times for each scram were:

	Scram	Reset	to	SDV	Hi	Level	Reset
Manual Scram		8.0	07 1	ninut	tes		
Automatic Scram		8.	17 1	ninut	tes		

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Item #2

b) Voltage at the scram solenoid valve buses to verify that these solenoids are de-energized upon receipt of scram signal.

Response

This parameter was monitored by a Brush Recorder through optical isolation devices off the SAK-14 relays which provide voltage to the scram solenoid valve buses. The presence of voltage was recorded prior to each scram, verified to go to zero during the scram, and return to normal after the reset.

c) Verify that scram value air is relieved through the backup values and that the backup values are fully open and remain open during the presence of a scram signal.

Response

Prior to each scram, air pressure to the scram solenoid was verified to be approximately 100 psig by observation of pressure indicator 302-80. Upon initiation of each scram PI 302-80 was observed to decrease to 0 psig and remain there during the' period the scram signal was inserted. Upon reset of the scram signal, PI 302-80 returned to approximately 100 psig. In addition, backup scram solenoid valves were verified to open and remain open by local observation of air blowing out the bleed ports, and increased temperature of the valve cover.

d) Measure fill time of the instrument volume from scram initiation to closure of the scram instrument volume high level alarm switch, to closure of the rod withdraw block switch on the instrument volume and to the closure of the scram instrument volume reactor scram switch.

Response

Time to fill the instrument volume from scram initiation were recorded on Brush Recorders. These records were reviewed and provided the following times.

	Manual Scram	Automatic Scram
Hi Level (sec)	33.4	32.4
Rod Block (sec)	69.0	92.0
Scram (sec)	84.0	96.0

e) Measure vent and drain valves opening and closing times utilizing the valve stem mounted switches. This measurement may be made independent of the scrams.

Response

SDV vent and drain valve opening and closing times were verified with a stop watch, independent of the scrams.

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i) "Monitor the SDV and associated piping for residue' water."

Response

The SDV and associated piping was monitored for residual water and sediment blockage after each scram. No water or sediment blockage was detected subsequent to each reset. In addition the UT monitoring was utilized to confirm time to drain each 6" header. The east header took 8 minutes to drain and the west header took 16 minutes to drain.

j) "Verify that the ten (10) second delay on scram reset is functioning properly to prevent resets of momentary scram signals".

Response

The ten (10) second dela, on scram reset was verified to be functioning properly and to reset after 11.5 seconds.

k) "Compare the results of the two sets of data taken above with each other and with any previously obtained data."

Response

Comparison of the data from the two scraus shows little, if any, significant differences in the results, scram times were consistent with previous data.

Very truly yours,

Glark Chalogning

G. Carl Andognini Superintendent Nuclear Operations Department

My Commission expires: January 17, 1986

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