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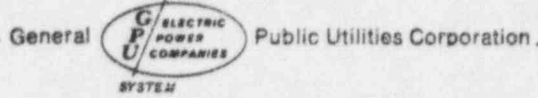
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Jersey Central Power & Light Company



MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N. J. 07960 • 201-539-6111

MEMBER OF THE



January 25, 1974

Mr. A. Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
United States Atomic Energy Commission
Washington, D. C. 20545



Dear Mr. Giambusso:

Subject: Oyster Creek Station
Docket No. 50-219
Abnormal Occurrence Report No. 50-219/74/4

The purpose of this letter is to forward to you the attached Abnormal Occurrence Report in compliance with paragraph 6.6.2.a of the Technical Specifications.

Enclosed are forty copies of this submittal.

Very truly yours,

Donald A. Ross

Donald A. Ross
Manager, Nuclear Generating Stations

cs
Enclosures

cc: Mr. J. P. O'Reilly, Director
Directorate of Regulatory Operations, Region I

31654

OYSTER CREEK NUCLEAR GENERATING STATION
FORKED RIVER, NEW JERSEY 08731

Abnormal Occurrence
Report No. 50-219/74/4

Report Date:

January 25, 1974

Occurrence Date:

January 16, 1974

Identification of Occurrence:

Failure of Main Steam Isolation Valve NS03B to close upon receiving a manual signal to close. This event is considered to be an abnormal occurrence as defined in the Technical Specifications, paragraphs 1.15D & E.

Conditions Prior to Occurrence:

The reactor was in the shutdown condition with the mode switch in "Refuel". Reactor coolant temperature was less than 212°F with the reactor head vented.

Description of Occurrence:

In order to minimize airborne radioactivity in the drywell during the plant shutdown while maintenance work was in progress on several relief valves, a negative pressure had been impressed on the reactor vessel via the mechanical vacuum pump through Main Steam Isolation Valves NS03B and NS04B. At that time, a complete inspection and cleaning of the "spool" valves used in the control scheme for Main Steam Isolation Valves NS03A and NS04A was in progress which necessitated these valves being closed. After the inspection/cleaning was completed, steps were taken to open these valves and close valves NS03B and NS04B so that the same preventive maintenance steps could be performed on their associated spool valves. When the close signal was impressed on NS03B, the valve did not respond. Subsequent attempts were made to close the valve and on the third try the valve closed. An operator located in the drywell noted that the solenoid valves which operate the power valve appeared to be functioning properly.

It should be noted that this valve had previously been cycled properly on January 12, 1974 during the plant shutdown at approximately 270 MWe during the full closure test and again later in preparation for a MSIV leak rate test. In both of these cases, valve operation was satisfactory.

Apparent Cause of Occurrence:

Pilot valve design is a major factor contributing to the cause of this event. During operation, the operators for both MSIV NS03A and NS03B are supplied by the nitrogen system. However, when shut down, the valve operators are supplied by the station air system due to the drywell being purged and open for access. Prior failures have been experienced with the outside MSIVs which are continuously supplied by the station air system. Past inspections have revealed an oxide/powder film or residue on the valve spools and sleeves. Inspection of this valve revealed the same conditions.

Analysis of Occurrence:

The Main Steam Isolation Valves are intended to provide a means of minimizing fission product release under design bases conditions. Since the redundant valve NS04B closed in the proper manner, this function would have been performed. This consideration is only important had the valve failed to close during power operation. Since the plant was shut down, the safety significance of this particular event is minimal.

Since the first instance of valve maloperation in December 1972, all of the pneumatic pilot valves have been inspected and cleaned when plant availability has been such that inspection and cleaning has been possible. This practice will be continued until such time that the pilot operated valves can be replaced with ones of a different design. It should be recognized that this pilot valve failure was the first of its type for a valve operator normally supplied by N₂. It is presumed, therefore, that the nitrogen environment is superior to that supplied by the station air system.

Corrective Action:

The spool valve was disassembled, inspected and cleaned. The valve spool assembly was observed to operate freely both before and after reassembly.

It was concluded that, based upon valve history of operation and use of N₂ as an operating medium on the inside valves, there was no safety significance with regard to returning the plant to power. The General Office Review Board (GORB) concurred with this conclusion provided the following steps were taken:

1. Ensure that nitrogen is up to the main pilot valves of the inner MSIV and ensure the spools are free and operable on nitrogen. Before startup, ensure all valves cycle properly.
2. During the six-week cycling test of valves, carefully observe control room response with respect to timing, pressure control, and other pertinent parameters. Consider corrective action and inform GORB should any abnormal conditions occur in testing.

3. GORB also recommended that Jersey Central Power & Light Company continue to proceed with design, procurement of equipment, engineering, and safety evaluation necessary to make system modifications before the end of the Spring refueling outage. These modifications are:

- (a) Change the valves in the control system.
- (b) Change the outside valves from air to nitrogen (unless change of control system obviates need for nitrogen instead of air.

Failure Data:

Manufacturer: Numatics Inc. - Valve Division
Type: Pilot Operated Power Valve
Model: Print Reference No. 917470 and modified by
General Electric Company FDI #322/91700.

See Attachment 1.

NEUMATIC PILOT VALVES

Date	NS03A		NS03B		NS04A		NS04B	
	Cleaned & Inspected	Failure Occurred	Cleaned & Inspected	Failure Occurred	Cleaned & Inspected	Failure Occurred	Cleaned & Inspected	Failure Occurred
12/30/72	X	N/A	X	N/A	X	N/A	X	Failed to Close - 12/29/72 Cause: Main Pilot Valve
4/28/73	X	N/A	X	N/A	X	N/A	X	N/A
5/31/73	X	N/A	X	N/A	X	Failed to Open - 5/31/73 Cause: Main Pilot Valve	X	N/A
9/11/73	X	N/A	-	-	X	N/A	X	N/A
9/30/73	X	N/A	X	N/A	-	-	-	-
12/18/73 reduced load <45% for maintenance	-	-	-	-	X Replaced	Overtravel during slow speed closure test. Cause: Test Pilot Valve	-	-
1/15-16/74	X Test Pilot Required Cleaning	N/A	X	Failed to Close 1/15/74*	X	N/A	X	N/A

* Found both main and test pilot valve spools free to move in their respective sleeves. NS03B was not inspected in a failed condition, however, because subsequent attempts to close NS03B succeeded; therefore, above results of inspection may be misleading.