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Jersey Central Power & Light Company

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MEMBER OF THE General Public Utilities Corporation SYSTEM

February 27, 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. 50-219/74/13

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

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OYSTER CREEK NUCLEAR GENERATING STATION
FORKED RIVER, NEW JERSEY 08731

Abnormal Occurrence
Report No. 50-219/74/13

Report Date

February 27, 1974

Occurrence Date

February 18, 1974

Identification of Occurrence

Violation of the Technical Specifications, paragraph 3.5.A.1, when the cleanup system AC isolation valve V-16-1 became inoperable with the reactor critical and the coolant temperature above 212°F. In addition, violation of Technical Specification paragraph 3.5.A.1, when the cleanup system DC isolation valve V-16-14 failed to close. This event is considered to be an abnormal occurrence as defined in the Technical Specifications, paragraph 1.15B.

Conditions Prior to Occurrence

The plant was operating at steady-state power.

The major plant parameters at the time of the occurrence were:

Power:	Reactor, 1895 MWt
	Electric, 671 MWe
Flow:	Recirculation, 57.6 x 10^6 lb/hr
	Feedwater, 7.08 x 10^6 lb/hr
Stack Gas:	29,329 μCi/sec

Description of Occurrence

On Monday, February 18, 1974, at 1120, the breaker for the cleanup system automatic isolation valve V-16-1 was accidently tripped which consequently caused the cleanup recirculation pump ND02A to trip. During the sequence of events which followed, a close signal was applied to V-16-14 in order to achieve system isolation. Failure of this valve to close, as well as the events prior to this incident, are discussed in Attachment 1.

Apparent Cause of Occurrence

The cause of valve V-16-1 failing to isolate is attributable to the inadvertent opening of its associated breaker. The cause for V-16-14 failing to isolate is presently under investigation.

Analysis of Occurrence

Since both cleanup system isolation valves were inoperable or malfunctioned during this event, had a loss of coolant accident occurred generating a Lo-Lo reactor water level condition, the cleanup system would not have isolated. This is only significant if there is also a leak in the clean-up system loop in which case a non-isolable leak of reactor coolant into the secondary containment would have been created. It should be noted that after reclosing the breaker for V-16-1, isolation would have occurred.

Corrective Action

1. The breaker for valve V-16-1 was reenergized, thereby reenabling its isolating capabilities. No corrective action was taken for V-16-14 as it is presently functioning properly. The investigative program undertaken to discover the reason for the failure to isolate is also outlined in Attachment 1.

2. Painting contractor personnel involved in the plant cleanup effort have been reinstructed in the need for care and caution while working near any plant equipment and instrumentation.

3. Reconstruction of the events surrounding this incident continues to be difficult. However, it is judged that the checkout procedure discussed in Attachment 1 provides reasonable assurance that the valves will operate satisfactorily in the future.

Failure Data

Not applicable.

Attachment 1

Sequence of Events

A painting contractor employee involved in the plant cleanup effort accidently tripped the AC power supply from MCC 1AB2 to the cleanup system isolation valve V-16-1 failing it in the open position. This event caused the cleanup recirculation pump ND02A to trip, which resulted in a high pressure condition downstream of pressure regulating valve ND-11 for a brief period of time until this valve could be closed manually. The pressure increase was such that the cleanup system pressure relief valve (set at 140 psig) which is located downstream of ND-11 lifted. An attempt was made at this time to close the other cleanup system isolation valve V-16-14 by placing its control switch in the close position. The valve failed to respond and the control switch was returned to its open (automatic) position.

At this time, the shift foreman, while investigating the cause of the loss of power condition tc V-16-1, observed the supply breaker on MCC 1AB2 to be in the open position. He immediately reclosed the breaker and notified the control room. The control room operator responded by placing the selector switch for V-16-1 into the close position. (NOTE: It is believed that had an automatic isolation signal been present due to exceeding the 140 psig high pressure isolation trip point of sensor IJ04A, the control room operator would have noticed valve V-16-1 closing prior to repositioning the control switch into the close position. It should also be noted that the "cleanup system pump suction pressure" strip chart recorder indicated a pressure spike of approximately 142 psi which stabalized out to approximately 138 psig after closing ND-11 and the lifting of the relief valve.)

The shift foreman, after reclosing the breaker for V-16-1, proceeded to MCC DC-1 and reset the "overload" trips for the V-16-14 valve. The valve did not respond to this action further indicating an automatic isolation signal was not calling for valve closure.

While preparing to restart the cleanup system, approximately five minutes after the initial breaker trip, the "drywell isolation reset" button was actuated which is keyed into the isolation valve opening logic. Although the two are thought to be unrelated, valve V-16-14 went to the close position automatically with its selector in the open (automatic) position and the switch for V-16-1 in the close position. The cleanup system was restarted and an investigation began to determine the cause for V-16-14 failing to close when its selector switch was placed in the close position. It should be noted that all operations of V-16-14 while restarting the cleanup system were normal.

Valve Test Description

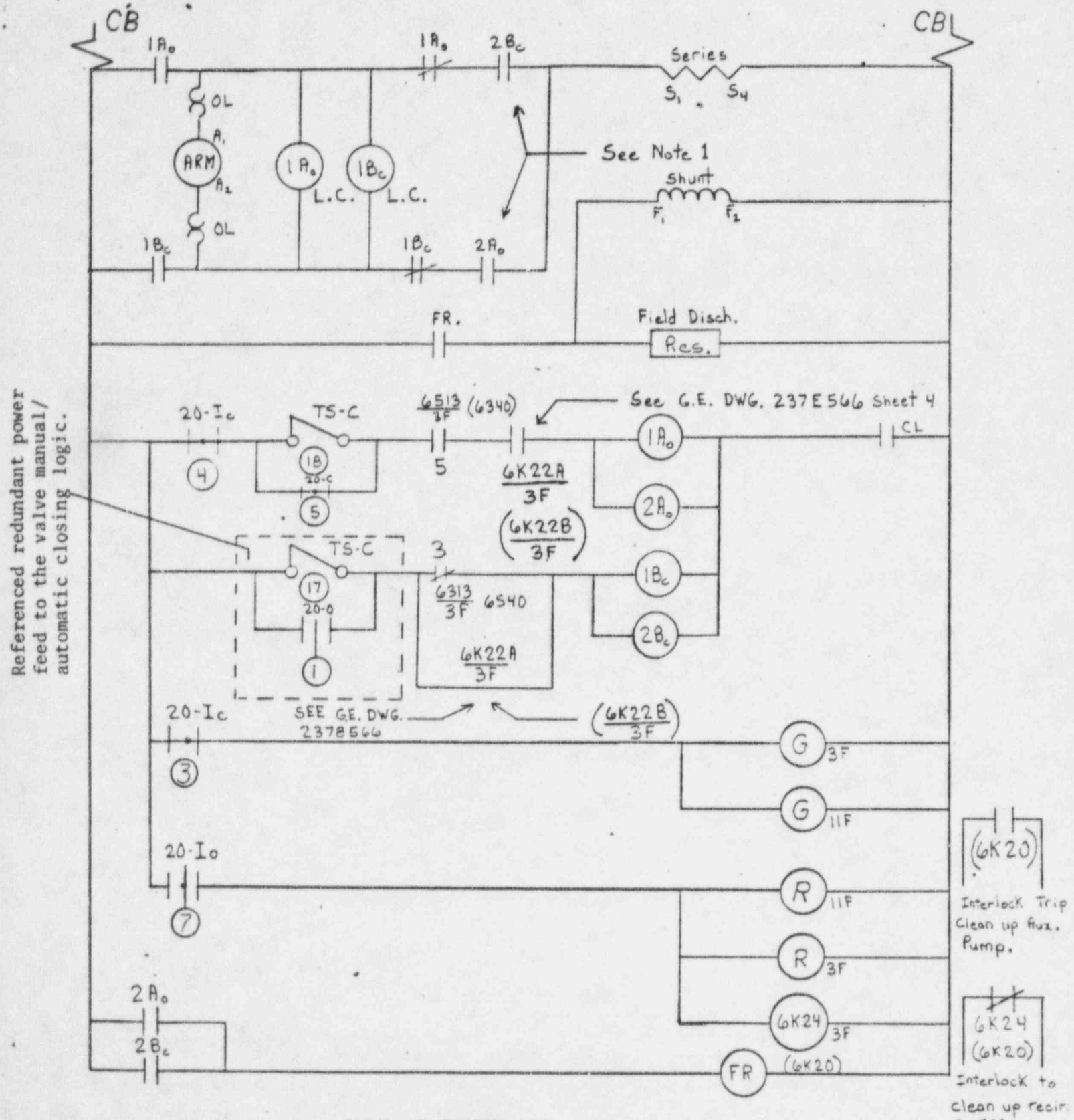
Because the valve (V-16-14) functioned properly after the occurrence was concluded, it was attempted to determine the cause of the original failure to close. Accordingly, a testing program was instituted designed to verify that all components of the valve control circuit were indeed operational and functioning properly.

The test consisted of verifying the circuit logic, closing the valve in both the automatic and manual modes, and a "hands on" check of the circuit wiring all of which showed that the control circuit was wired properly, there were no loose connections, and all relays and control switches were functioning properly. As part of this program, a high pressure signal was introduced into sensor IJ04A (137 psig) which caused, as intended, an automatic system isolation closing both V-16-14 and V-16-1. This was repeated for the high temperature isolation function of sensor IJ33 (>140°F downstream of the non-regenerative heat exchangers) with the same results. After reopening, a manual close signal was applied to V-16-14 which closed the valve.

A check was made of the running currents as well as the torque current for V-16-14 which were 3 and 9 amps, respectively, well within the maximum current limit of 15 amps.

It is postulated that the failure of V-16-14 to close may have been due to coincident improper actuation of the torque and limit switches on the valve operator or a malfunctioning overload switch. In deference to this possibility, the limit torque position and torque switches were inspected and found to be functioning properly. It should be pointed out that the same switch (different contacts) which are in the closing circuit for V-16-14 also actuate the "green" console position indicating light which comes on just after the valve begins to move. This also corresponds to the point at which the position switch opens up the parallel current path it forms with the torque switch (see attached Figure 1), which in turn feeds power into the valve automatic and manual initiation logic. Since the green indicator light never came on, this would indicate the valve never moved and at least one power feed existed to the actuation logic. This then indicates that the fault may have been in the manual/automatic actuation contacts or in the overloads. Accordingly, the overloads were removed, bench checked, and found to operate properly. (It is still possible for the overloads to have caused this incident since they were reset before an inspection could be made.)

Lastly, a check was made of the valve itself to assure free movement. This, together with the low running currents, virtually rules out the possibility the valve was mechanically "stuck" in the open position.



CLEAN-UP SYSTEM ISOLATION VALVES

6S13 - V-16-14 Inlet Valve as shown
6S40 - V-16-2 Aux. Inlet Valve as shown

(See Drawing 2378586, Sheet 4)

Figure 1