



The

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July 31, 1979

Mr. Boyce H. Grier, Director
Office of Inspection and Enforcement
United States Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. Grier:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Item of Information - Containment Spray System and
Electrical Distribution

As part of the continuing surveillance and upgrading program at the Oyster Creek Station, two situations have been discovered which required corrective action. The first situation concerns a problem in the automatic actuation of the containment spray system, and the second concerns a switch in the fast start logic of the Emergency Diesel Generators.

While performing diesel generator automatic actuation surveillance testing, it was discovered that automatic containment spray system actuation may not occur should the system be called upon in conjunction with a loss of offsite power. Containment Spray Automatic Actuation requires coincident high drywell pressure and reactor low-low water level signals. Upon receipt of an initiation signal, a time delay relay is energized which starts the containment spray pump in 40+ 6 seconds. In the event of a loss of power on the 4160 volt emergency buses (1C and 1D) the 40+ 6 second time delay would be reinitiated upon restoration of power. Coincident with this start signal another time delay in the failure detection logic of the containment spray system is actuated which will cause a cancellation of the auto start signal 57 seconds after it is received. The 57 second timer continues to time out after the loss of power since an undervoltage on the emergency bus does not cause a termination of its timing sequence. Therefore the auto start signal may be cancelled prior to the starting of the containment spray pump.

The attached diagram shows the events described above. The first bar on the diagram represents time elapsed from the initiation signal (low-low reactor water level with high drywell pressure). The dotted line on the right represents cancellation of the containment spray auto start signal. As can be seen on the diagram, with no loss of power on the emergency bus (case 1) the containment spray pump starts automatically. However, if there is a loss of power on the emergency bus coincident with a containment spray initiation signal (case 2), the containment spray pump may not start automatically due to the additional time required to restore power on the bus. This situation would apply

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only during the first three minutes after receipt of the containment spray initiation signal.

A modification proposal to correct this discrepancy was approved by the Plant Operations Review Committee (PORC) and installed during a recent shutdown of the Oyster Creek Station. In order to correct this situation prior to the recent modification, a jumper was installed in the containment spray failure logic which prevented a cancellation of the auto start signal after the 57 second time delay. The actuation of the alarm system associated with the 57 second time delay was operable and a standing order was issued to plant operators specifying the operator action required during containment spray operation.

The purpose of the containment spray system is to remove heat energy from the containment in the event of a loss of coolant accident. Amendment 5 to the Oyster Creek FDSAR presents an analysis of the containment pressure/temperature response after a LOCA event assuming containment spray is inoperable. The analysis shows that considerable time (order of hours) is available before containment spray would be required. Although automatic start of the containment spray system is desirable, it is not essential since the operator has a significant amount of time available to manually start the system. This action can be accomplished from the control room when required. Existing emergency procedures instruct the operator to monitor safety system operation when required and to manually initiate systems which fail to operate. In view of the time available for operator action, this situation did not represent a significant safety concern.

The second situation was discovered while reviewing documentation in response to an Engineering Request. It was discovered that the emergency diesel generators share a common switch in their fast start logic. Contacts on this switch are associated with the emergency bus (1C & 1D) crosstie breaker designated ED on the electrical distribution diagrams. The purpose of these contacts (ED) is to prevent paralleling the diesel generators on the emergency bus. The ED contacts prevent closure of either diesel generator output breaker when the ED breaker is in the closed position; therefore, should power from a diesel generator be required while breaker ED is closed, it would be unavailable until the ED breaker was opened.

This deficiency was discussed by the Plant Operations Review Committee and the decision was made to make the ED breaker inoperative by removing the fuses in the control circuit supplying power to the closing coil and also discharging the breaker closing springs. This action prevents closure of the ED breaker thus assuring that the ED breaker remains in the open position so as not to inhibit closure of the diesel generator output breaker. In addition, an engineering evaluation was performed resulting in a modification proposal to

Mr. Grier

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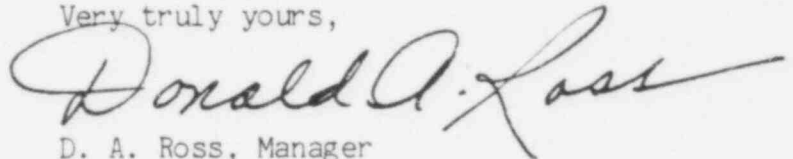
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correct this discrepancy.

The purpose of the emergency power buses and associated diesel generators is to supply onsite electrical power to emergency equipment in the event of a loss of offsite AC power. There are no automatic functions which result in a closure of the ED breaker and due to the actions described above, a manual closure of the ED breaker is prevented. This assures that the ED breaker will remain in the open position so that onsite AC power from the diesel generators is readily available.

Further documentation concerning the above deficiencies, the PORC discussions, and the modification proposals is filed at the Oyster Creek Station should you require additional information.

Very truly yours,

A handwritten signature in dark ink, reading "Donald A. Ross". The signature is fluid and cursive, with a long horizontal stroke at the end.

D. A. Ross, Manager
Generating Stations Nuclear

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0 10 20 30 40 50 60 70

LOCA START SIGNAL
ACTIVE CANCELLED

57 SECONDS

TIME
(SECONDS)

CASE 1
(NO POWER
LOSS ON
EMERGENCY
BUS)

(TIME DELAY 40^{+6} SECONDS)

CONTAINMENT SPRAY PUMP
BREAKER CLOSURE SIGNAL

CASE 2
(LOSS OF
POWER ON
EMERGENCY
BUS)

UNDERVOLTAGE TRIP & TRANSFER

START EMERGENCY
DIESEL

POWER RESTORED (17.5-20 sec)

UNDERVOLTAGE RESET (3-5 SEC)

(TIME DELAY 40^{+6} SECONDS)

CONTAINMENT SPRAY PUMP
BREAKER CLOSURE SIGNAL

START NO START

CONTAINMENT SPRAY
PUMP

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