

NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
ALBANY WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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January 11, 1991

Docket No. 50-245

B13709

Re: EOPs

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Gentlemen:

Millstone Nuclear Power Station, Unit No. 1
Isolation Condenser Operation

During a telephone conversation with the Millstone Unit No. 1 Project Manager on December 28, 1990, Northeast Nuclear Energy Company (NNECO) was requested to provide information to the Staff regarding Isolation Condenser (IC) operation. Specifically, the NRC Project Manager requested that NNECO describe the indication that is available to operations personnel to determine that the IC is fulfilling its intended function. It is our understanding that this information will be used by the Staff in preparation of its Safety Evaluation for the Millstone Unit No. 1 Emergency Operation Procedures (EOPs).

The IC provides a heat sink for the reactor without a loss of RPV inventory. It automatically initiates if reactor pressure vessel (RPV) pressure exceeds 1085 psig for greater than 15 seconds or if RPV water level drops to low-low level (-48 inches). The IC can also be placed in service manually from the control room or locally from the Reactor Building.

The IC removes decay heat by condensing steam that is being generated in the core and returning the condensate back to the RPV. The system can be throttled to control RPV pressure and cooldown rate. The heat removal capacity of the IC exceeds the decay heat generated at 5 minutes after scram from rated power. The IC could depressurize the RPV even in the scenarios where no other system is available for decay heat removal. As discussed below, a number of indications are available to the operator to assist him in verifying that the IC is operating and fulfilling its intended function.

o Temperature Indication

Both the condensate return temperature and the shell side temperature are indicated in the control room. An increase in these temperatures would indicate to the operator that the IC is in service and performing its function.

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o Valve Position Indication

Initiating the IC requires opening of one DC-powered valve (IC-3) in the condensate return line. The valve position is indicated in the control room. Make-up to the IC shell side would also be initiated automatically. Both the shell side water level and the position of the valve (IC-10) in the make-up line are indicated in the control room. Changes in the valves' positions would indicate to the operator that the IC is in service. Also, changes in shell side water level would indicate that the IC is in service and performing its function.

o SRV Status

After the RPV is depressurized below the safety/relief valve (SRV) lift pressure, the SRVs would close and remain closed. The SRV position is indicated in the control room. Therefore, for the scenario where the SRVs are cycling, initiating the IC would result in a sufficient pressure reduction to allow the SRVs to go closed. If the SRVs remain closed, then the operator can conclude that the IC is performing its function.

o RPV Pressure Response

RPV pressure response is a clear indication of IC operation. RPV pressure would begin to decrease after the IC is placed in service. The operator can control the rate of depressurization by reducing the condensate flow rate. Therefore, if the RPV pressure is decreasing or the operator can control pressure, then the operator can conclude that the IC is performing its function.

o Visual Observation

Plant personnel can readily observe steam exhaust to the atmosphere during IC operation. This provides a high degree of confidence that the IC is performing its function.


We believe the information provided above is responsive to your request. If you have any questions, please contact us.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: E. J. Mroczka
Senior Vice President

BY:



C. F. Sears
Vice President

cc: attached page

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cc: T. T. Martin, Region I Administrator
M. L. Boyle, NRC Project Manager, Millstone Unit No. 1
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2,
and 3