CONNECTICUT YANKEE ATOMIC POWER COMPANY
HADDAM NECK PLANT
RR #1, BOX 127E, EAST HAMPTON, CONN. 06424

Regulatory File Cy.

January 22, 1973

CYH-2300

U. S. Atomic Energy Commission
Washington, D. C. 20545

ATTENTION: Director, Directorate of Licensing

REFERENCE: Provisional License No. DPR-14
Docket No. 50-213
Abnormal Occurrence 73-1

Dear Sir:

As defined by Technical Specifications for Connecticut Yankee Atomic Power Station, Section 5.3 paragraph (1), the following incident involving malfunction of one of three high pressurizer level reactor trip-alarm units is reported as Abnormal Occurrence No. 73-1.

In accordance with the surveillance requirements of Technical Specification 4.2, Connecticut Yankee tests pressurizer level set points and alarms every six weeks. The test involves injection of a simulated signal into the channel to verify its proper response, including alarms and trip initiating points. The required pressurizer level setpoint check was performed January 11, 1973 and the 86% pressurizer level trip point on one of three channels was found to be inoperative. The other two pressurizer high level trip point units were verified to be functioning as required. The protective instrumentation logic required for full power operation was satisfied by inserting a high level reactor trip signal and a low pressurizer level/core cooling trip signal, reducing the margin from a normal 2/3 logic to a 1/2 logic.

The thermovolt optical meter relay associated with the high pressurizer level/low pressurizer level-core cooling trip functions was removed and inspected. Both light sources were replaced resulting in normal operation of both tripping functions. All three channels were then returned to service in a normal 2/3 logic.

As described above, if pressurizer level exceeds 86 percent of full level, a trip signal is fed to a two of three coincidence matrix. The similtaneous existence of two high level trip signals will initiate a reactor trip at any power level. This reactor trip prevents discharging liquid through the pressurizer relief and safety valves. It has no protective function in any of the incidents analyzed in the FDSA,

651

therefore the safety of the reactor and the public was not compromised with the malfunction of one of three high pressurizer level reactor trip units.

Thermovolt optical meter relays are used in monitoring approximately eighty four plant parameters. The only component of the thermovolt unit having a failure history is the optical meter relay light source. Twenty six light source failures have been recorded in nearly five million service hours. All light source failures to date have been burned out bulbs. The failure described in this report is the first experienced. The bulb had not failed but had brightened causing the light sensitive photodiode to conduct, holding the relay energized. The reason for the excessive brightness is not known, however it is the only instance recorded in nearly five million service hours and is considered a random occurrence.

The Plant Operations Review Committee reviewed and concurred with the action taken and concluded that the most probable cause of the malfunction was a shorted light source. Replacement of these optical meter relays with relays of improved design is presently being undertaken on a systematic basis.

Due to the small number of failures of the light sources and the fact that repeat failures have not occurred in plant trip circuits, it is concluded that the frequency of testing is adequate to properly safeguard the plant.

Very truly yours,

F. W. Hartley
Plant Superintendent

RHG/bn

cc: Mr. James P. O'Reilly, Director
Region 1, Directorate of Regulatory Operations