CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT

RR#1 • BOX 127E • EAST HAMPTON, CT 06424-9341

December 12, 1990

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Reference: Docket No. 50-213

Haddam Neck Plant
Electrical Power Systems
Inoperable Emergency Diesel Generator

Gentlemen:

In accordance with the Special Reporting requirements of Technical Specification 4.8.1.1.3 Reports, Connecticut Yankee Atomic Power Company (CYAPCo) is providing the NRC staff with the following information:

Technical Specification 4.8.1.1.2 contains operability requirements for the two independent emergency diesel generators which includes verifying the diesel starts from ambient conditions and accelerates to at least 900 rpm in less than or equal to 10 seconds.

On November 13, 1990, at 1430 hours with the plant in Mode 4 (hot shutdown) and on November 27, 1990, at 0745 hours with the plant in Mode 1 at 100 percent power the EG-2A emergency diesel generator (EDG) failed to reach idle speed of 450 rpm within 10 seconds from normal standby conditions. The EDG started within 11.5 seconds and 10.5 seconds, respectively.

It should be noted that a similar failure occurred on August 7, 1990. A Special Report, dated September 4, 1990, was submitted to the NRC in accordance with Technical Specification 4.8.1.1.3.

The November 13 and 27 tests were performed using the monthly surveillance procedure which starts the EDG to idle speed of 450 rpm and gradually accelerates it to 900 rpm to minimize mechanical stress and wear. It is conservatively assumed that the failure to attain 450 rpm within 10 seconds during the monthly test is a start failure in accordance with Technical Specification 4.8.1.1.2.a.4 which requires the EDG to fast start and attain 900 rpm within 10 seconds.

Subsequent to the November 13 failure, diagnostic tests were performed. It was noted when the EDG was initially started that the governor fuel rack responded abnormally by moving to about two thirds open rather than the required full open position. The vendor representative present suspected either a governor malfunction, governor booster pump malfunction, governor oil system air entrapment, and/or governor oil line obstruction. The EDG was taken out of service on November 16 for troubleshooting and

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maintenance. Both governor booster pumps including the oil lines were verified to be functioning properly. The governor and governor booster pumps were bled prior to retesting the EDG. The EDG performed satisfactorily during several retests and the fuel rack was observed to open fully. The cause for the start failure was attributed to air entrapment or blockage in the governor oil system. The EDG was declared operable and returned to service on November 16. The total hours the EDG was unavailable due to the November 13 event was 10.25 hours.

Surveillance testing resumed on an increased frequency in accordance with Technical Specification 4.8.1.1.2.a, Table 4.8-1. The first weekly surveillance test was successfully performed on November 20, however, during the next weekly surveillance test performed on November 27 the EDG failed to attain 450 rpm within 10 seconds. The EDG started within 10.5 seconds. Subsequent to the November 27 failure, diagnostic test runs were performed. Observations revealed that the governor fuel rack again responded abnormally by opening approximately two thirds rather than full open. The EDG was removed from service on November 29 to replace the Woodward EGB-13C style governor. Both governor booster pumps and both air start solenoid valves were also replaced as a precautionary measure. Post maintenance testing was satisfactorily completed and the EDG was declared operable on November 30 at 0200 hours. The total hours the EDG was unavailable due to the November 27 event was 22.5 hours.

Two subsequent surveillance tests were performed satisfactorily on December 3 and December 11. The weekly surveillance schedule has been resumed.

The November 13 and November 27 events represent the 2nd and 3rd failures in the last 20 valid tests.

The suspect governor has been sent to Woodward Governor Company to determine the root cause of the governor's malfunction. The Licensee contact for this Special Report is John Calderone who may be contacted at (203) 267-3645.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER CO.

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