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ELECTRIC ENGINEERING
DEPARTMENT

September 23, 1983

Director of Nuclear Reactor Regulation
Attention: Mr. J. R. Miller, Chief
Operating Reactors Branch #3
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Calvert Cliffs Nuclear Power Plant
Units Nos. 1 & 2; Dockets Nos. 50-317 and 50-318
Auxiliary Feedwater Pump Endurance Tests

- References:
- a) Letter from Eisenhut to Lundvall, NRC Requirements for Auxiliary Feedwater Systems at CCNPP 1 & 2, dated 11/7/79.
 - b) Letter from Clark to Lundvall, Issuance of Amendments Nos. 54 & 37 to Facility Operating License, dated 5/8/81.
 - c) Letter from Lundvall to Clark, NRC Requirements for Auxiliary Feedwater System, dated 3/9/81.
 - d) Letter from Ash to Clark, Auxiliary Feedwater Pump Endurance Tests, dated 6/23/81.
 - e) Letter from Ash to Clark, Auxiliary Feedwater Pump Endurance Tests, dated 1/21/83.

Gentlemen:

Additional Short Term Recommendation 2 of reference (a) required that a 72-hour endurance test be performed for each Auxiliary Feedwater (AFW) pump. Reference (b) changed the requirement to a 48-hour endurance test followed by a one-hour run after the pump had been cooled down. Reference (b) also acknowledged satisfactory completion of the test for AFW pump no. 11. Reference (c) was our commitment to test AFW pumps nos. 12, 21, 22 and the motor driven pumps when installed. Reference (d) forwarded the results of the testing on pumps 12, 21, and 22, while Reference (e) forwarded the results of the Unit 2 motor driven pump test.

During the Unit 1 Cycle 7 refueling outage, we completed the installation of No. 13 AFW pump. The required endurance testing was performed on this pump in mid July by using the newly installed recirculation piping. This letter forwards the results of our testing.

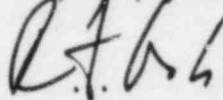
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The results are summarized as follows:

- (1) Enclosure (1) is a flow schematic of the test. The AFW pump was run at normal rated RPM (nominal value of 3560 RPM), taking suction from the condensate storage tank and returning the water via the recirculation line. A digital strobe was used to verify pump speed. Pump speed did not vary by more than 1.4% from the nominal value.
- (2) A vibro pac was used to measure pump and motor vibration. The results were satisfactory.
- (3) A psychrometer was used to measure the room humidity. It should be noted that No. 13 AFW pump is located in the Unit 1 Service Water Heater Exchanger Room. Enclosure (2) contains plots of the room's temperature and humidity. The ambient conditions in the room did not exceed the environmental qualification limits for safety related equipment in the room.
- (4) The pump flow and head was compared to curves supplied by the vendor with satisfactory results. The head did not vary by more than +2.5 percent of the pump curves.
- (5) Plots of bearing temperature vs. time for the pump and motor are included in Enclosure 2. Pump bearing oil temperature should not exceed a maximum of 180^oF and motor bearing temperature should remain below 194^oF. As can be seen from Enclosure 2, these limits were maintained. The pump bearings have an alarm setpoint of 170^oF. As can be seen from the attached plots the alarm setpoint was exceeded for short intervals of time on the pump thrust bearing. We are working with the pump vendor to remedy this situation.

Very truly yours,



Robert F. Ash
Supervising Engineer

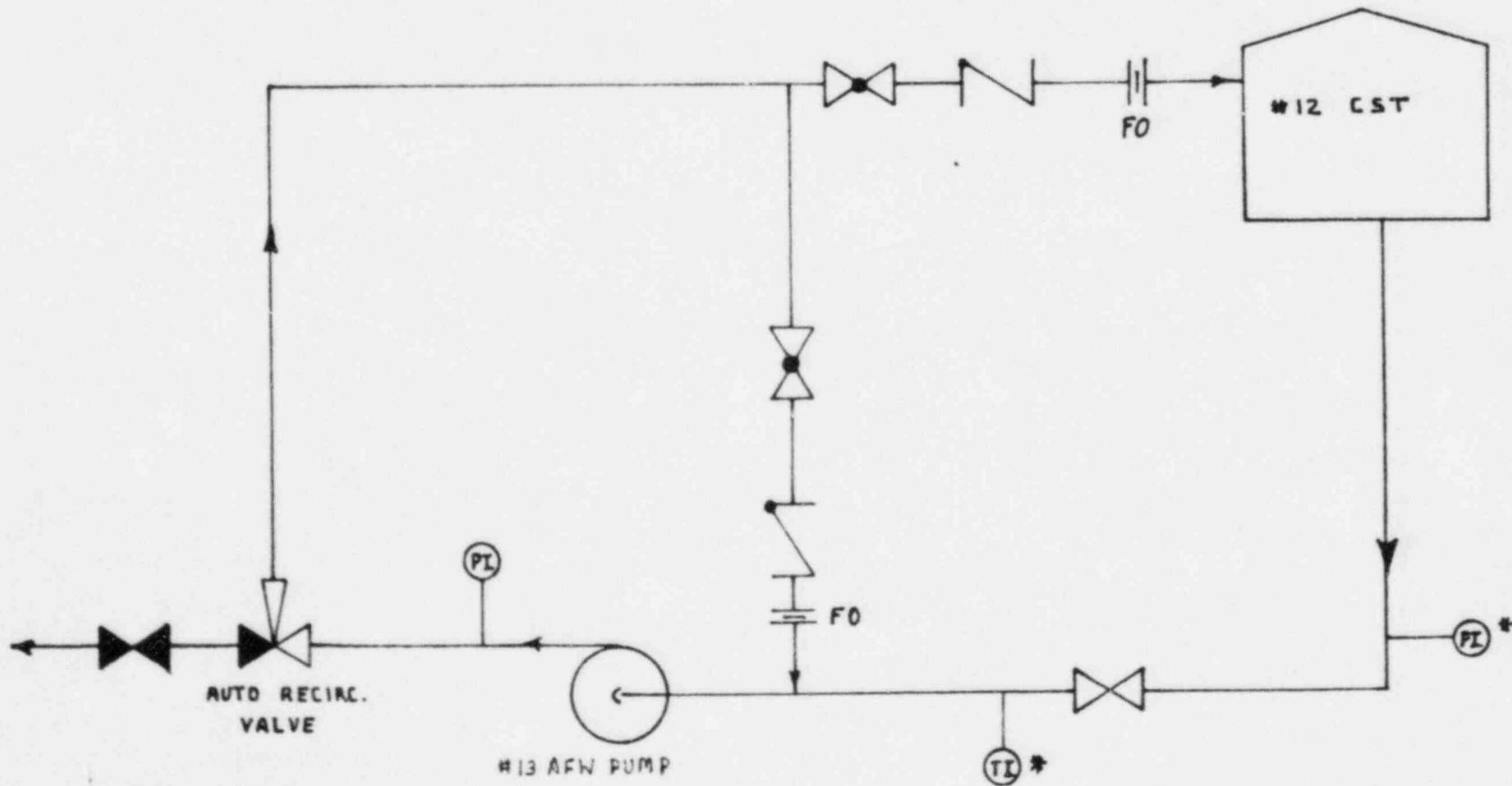
RFA/WCH/vf

cc: J. A. Biddison, Jr., Esq.
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Mr. R. E. Architzel, NRC
Mr. J. C. Ventura, Bechtel

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TEST LOOP 48 HOUR ENDURANCE RUN

ENCLOSURE (7)

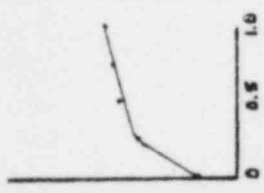
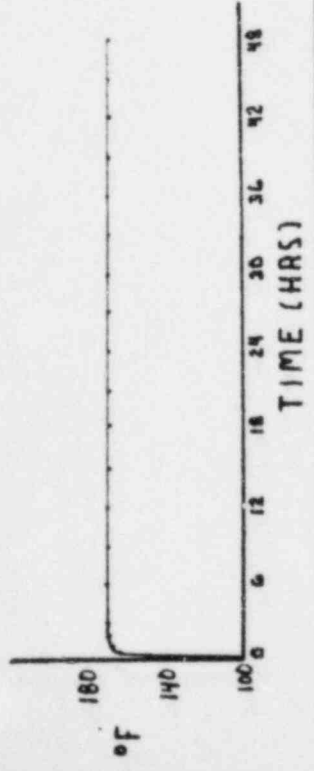


LEGEND:

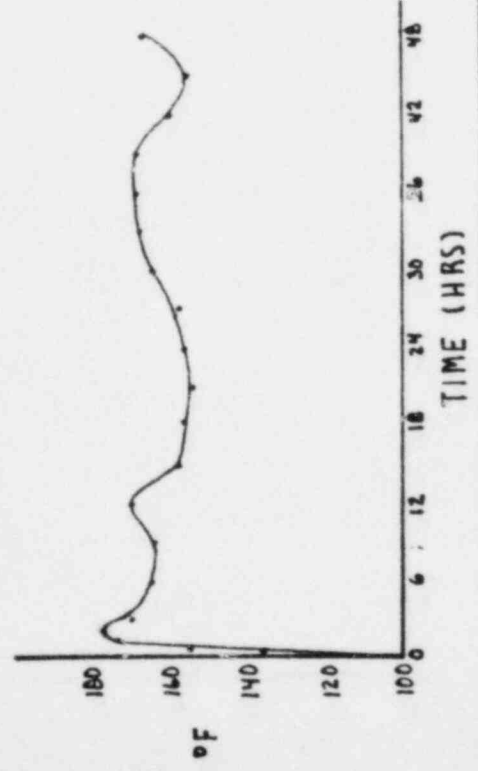
- FO: FLOW ORIFICE
- TI: TEMPERATURE
- PI: PRESSURE
- * TEST INST. ONLY

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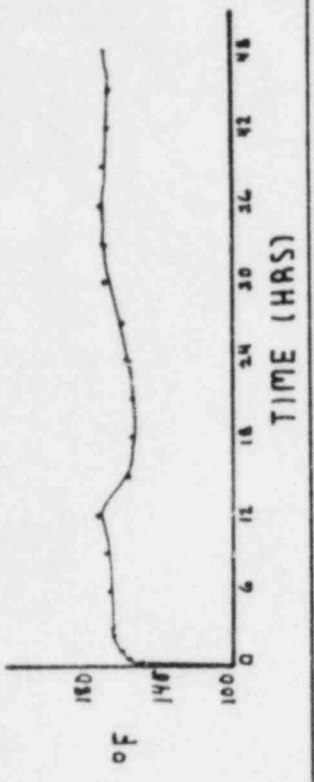
MTR. BRNG. OIL TEMP. THRUST



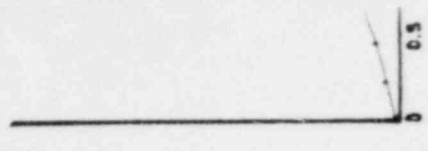
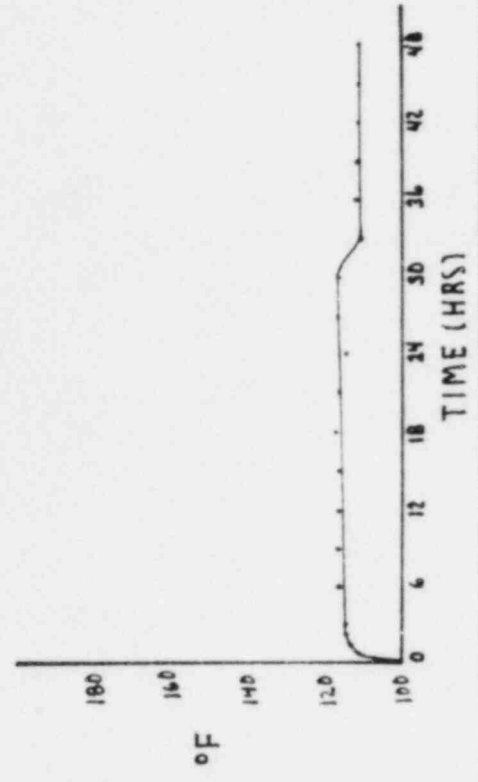
PUMP BRNG. OIL TEMP. THRUST



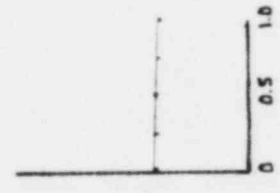
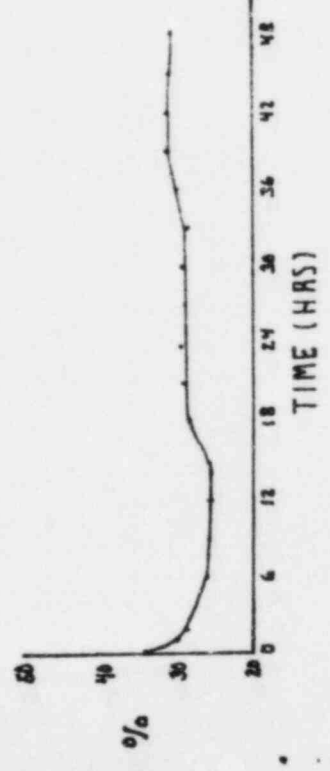
MTR. BRG OIL TEMP. RADIAL



PUMP BRNG. OIL TEMP. RADIAL



SRW HX ROOM HUMIDITY



SRW HX ROOM TEMP.

