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ELECTRIC ENGINEERING
DEPARTMENT

June 23, 1981

Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attn: Mr. Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing



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

- References:
- a) Ltr from Eisenhut to Lundvall, NRC Requirements for Auxiliary Feedwater Systems at CCNPP 1 & 2, dated 11/7/79.
 - b) Ltr from Clark to Lundvall, Issuance of Amendments Nos. 34 & 37 to Facility Operating License, dated 5/8/81.
 - c) Ltr from Lundvall to Clark, NRC Requirements for Auxiliary Feedwater System, dated 3/9/81.

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) pointed out that this was changed 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, and 22.

This letter forwards the results of these tests as required by reference (b). It should be noted that upon installation of the third train pumps, a similar test will be performed and the results forwarded to the NRC.

The results are summarized as follows:

- (1) Enclosure (1) is a flow schematic of the test. The AFW pump was run at 2000 RPM, taking suction from the condensate storage tank and returning the water via the recirculation line. A strobetach was used to measure pump speed. A vibropac was used to measure pump vibration. A dewpoint meter was used to determine

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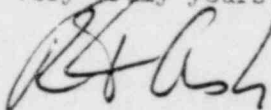
June 23, 1981

AFW pump room environmental conditions. The remainder of the instrumentation was normally installed plant monitoring equipment as shown in the flow schematic.

- (2) The pump flow, head, and speed was compared to curves supplied by the vendor with satisfactory results. The head did not vary by more than +3 to -5 percent of the pump curves.
- (3) Plots of bearing temperature vs time for the pump and turbine are included in Enclosure 2. Turbine bearing oil temperature should not exceed 210°F. Pump bearing temperature should not exceed 175°F. As can be seen from Enclosure 2, these limits were maintained.
- (4) Enclosure 2 also contains plots of ambient temperature and humidity. All equipment in the room was designed for a design temperature of 125°F. The highest temperature reached was 98°F. We have no limits on humidity, but the max attained was only 66%. Therefore, for these tests, the pump room ambient temperature did not exceed environmental qualification limits for safety-related equipment in the room.
- (5) The pump vibration did not exceed allowable limits during the 48-hour endurance test.

Should you have any questions, feel free to contact us.

Very truly yours,



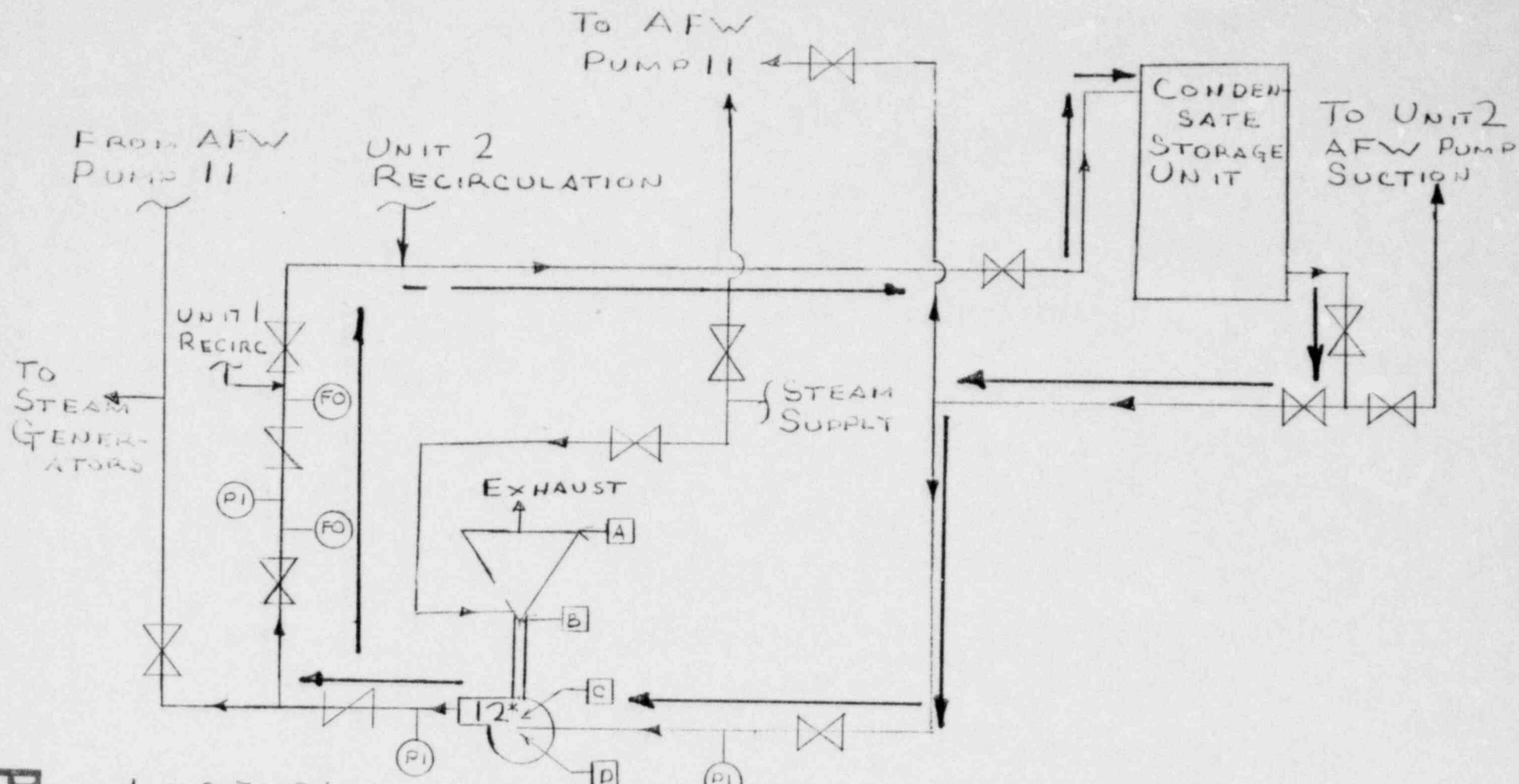
R. F. Ash
Chief Nuclear Engineer

RFA/NCH/smn

cc: J. A. Biddison, Esquire
G. F. Trowbridge, Esquire
Messrs. E. L. Conner, Jr. - NRC
R. E. Architzel - NRC
J. C. Ventura - Bechtel

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ENCLOSURE 1



LEGEND:

PI - PRESSURE INDICATOR

FO - FLOW ORIFICE

TEMPERATURE ELEMENTS:

PUMP	A	B	C	D
12	1-TE-4053	1-TE-4057	1-TE-4524	1-TE-4525
21	2-TE-4048	2-TE-4047	2-TE-4522	2-TE-4523
22	2-TE-4053	2-TE-4054	2-TE-4524	2-TE-4525

* UNIT 2 SIMILAR

SCHEMATIC
CCNPP AUX FEED
PUMP 48HR
ENDURANCE TEST
MAY, 1981

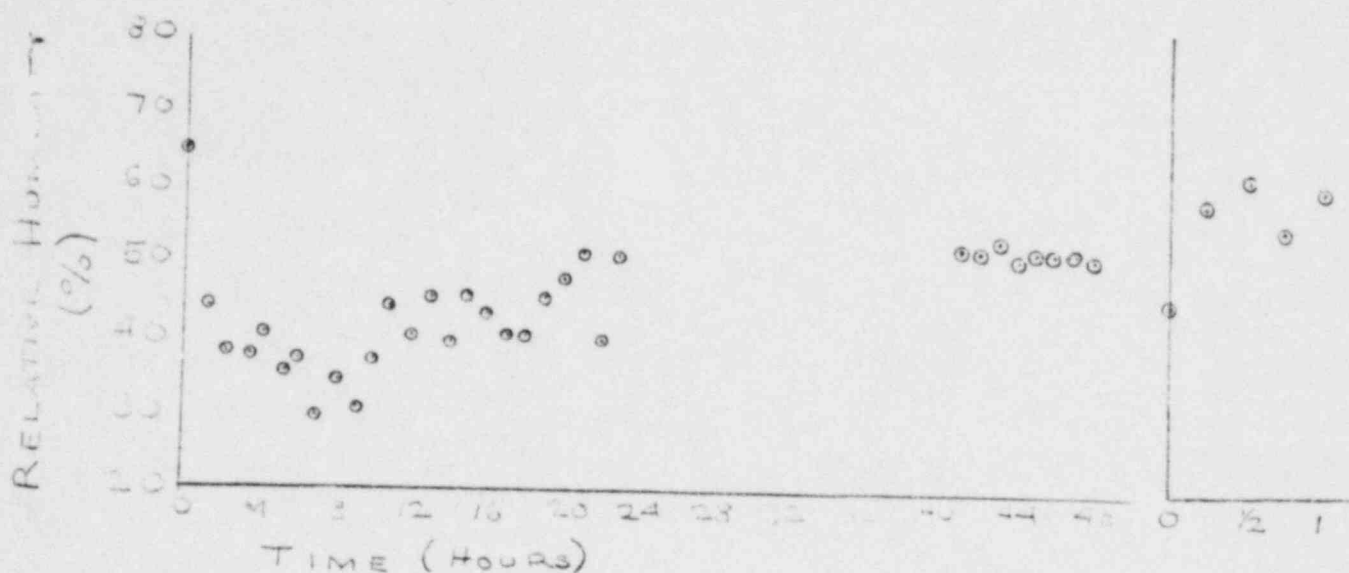
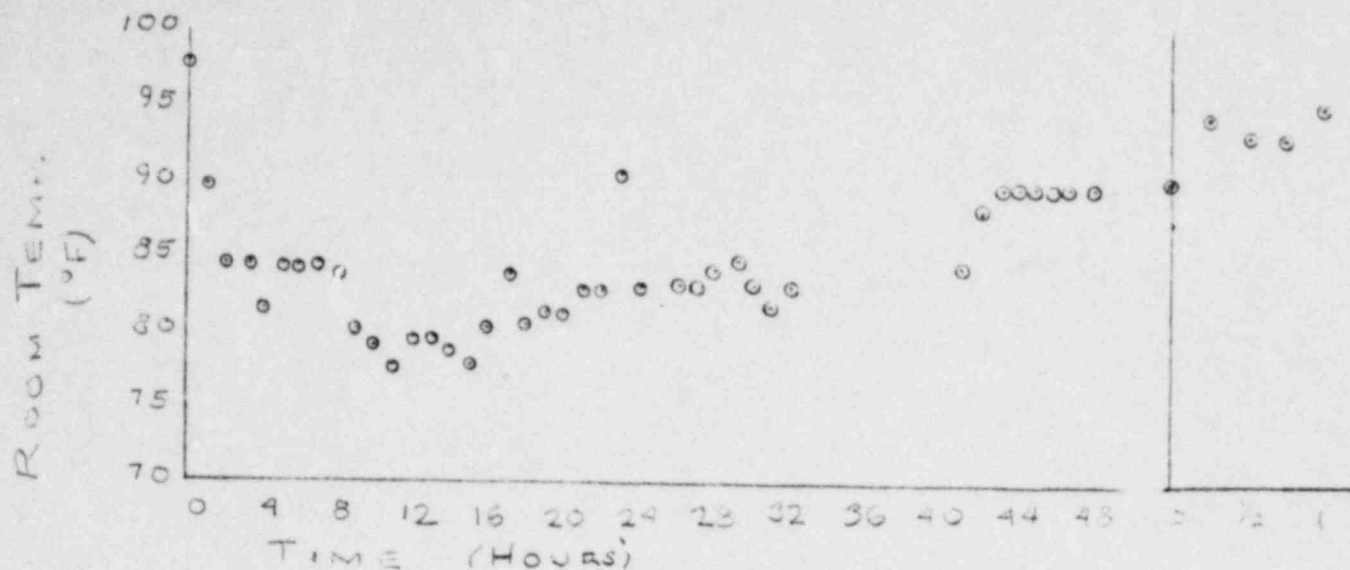
Enclosure 2

Containing:

Auxiliary Feedwater Pump Bearing Temperature,
Room Temperature, and Room Humidity for 48-hour Endurance
Test.

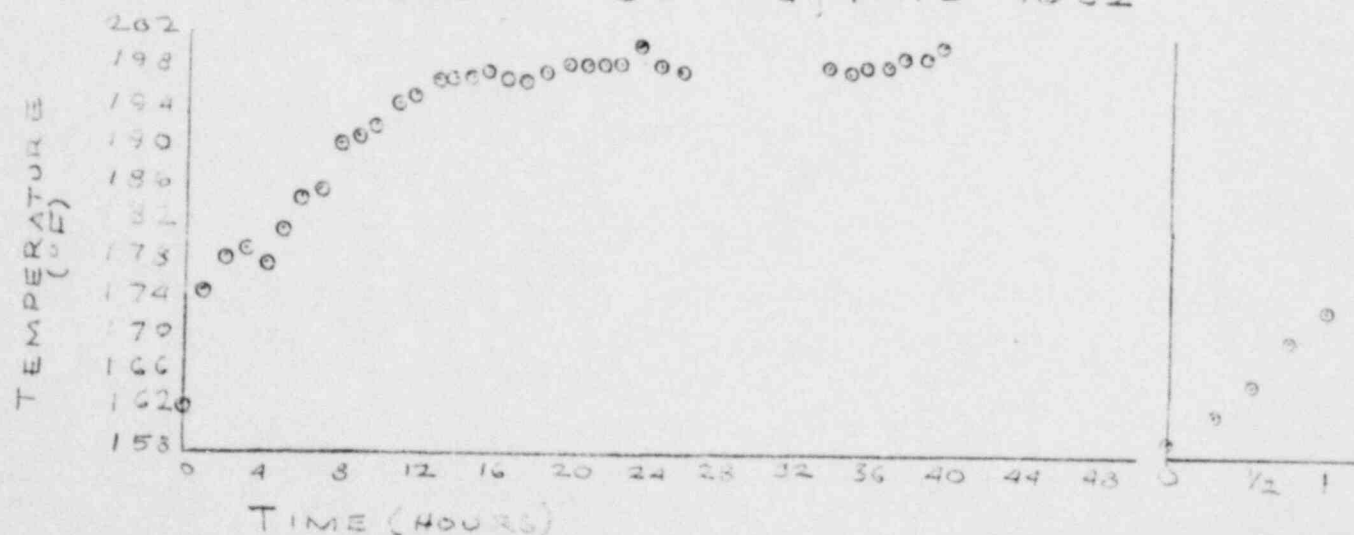
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AUXILIARY FEED WATER PUMP #12



TIME HISTORIES OF BEARING TEMPERATURES:

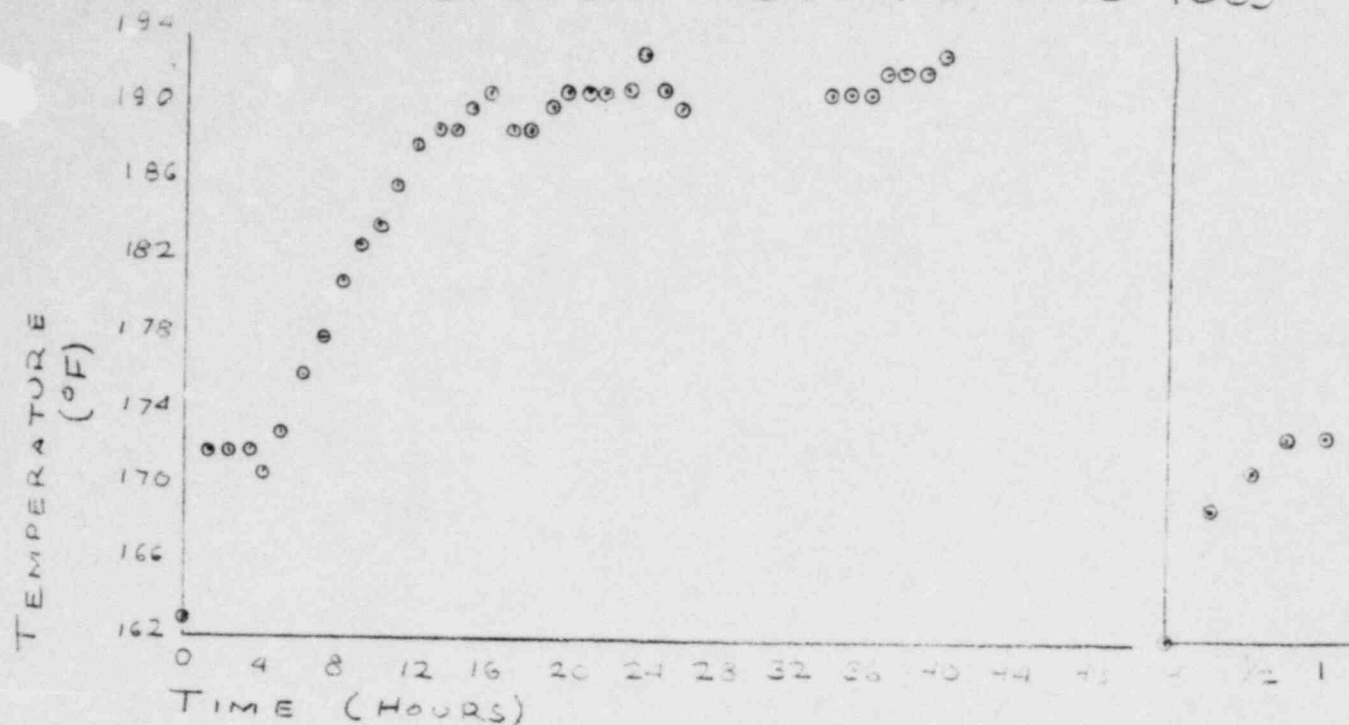
HIGH PRESSURE JOURNAL BEARING, 1-TE-4052



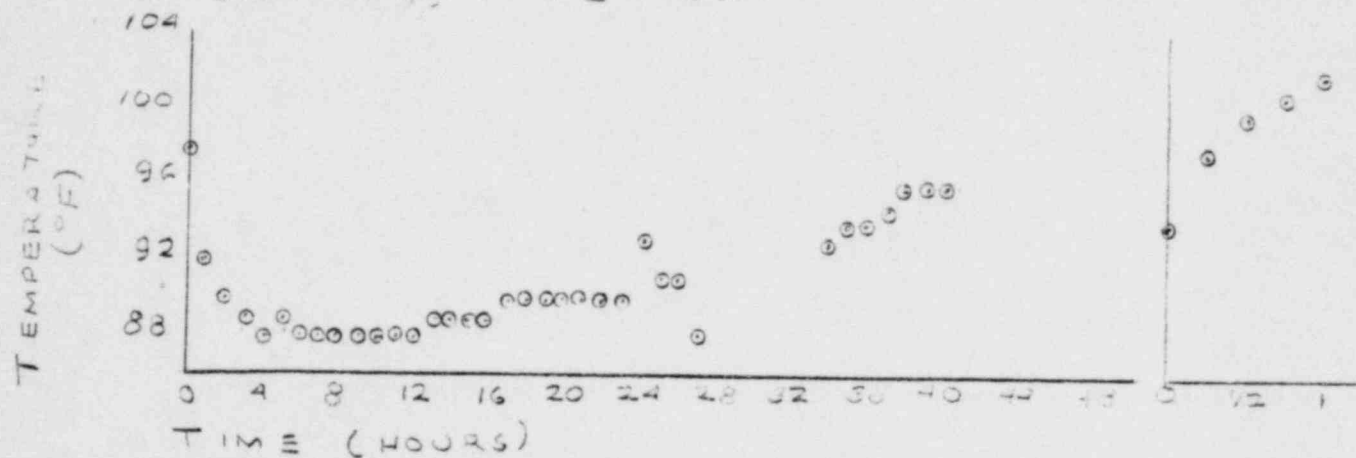
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AFW PUMP #12

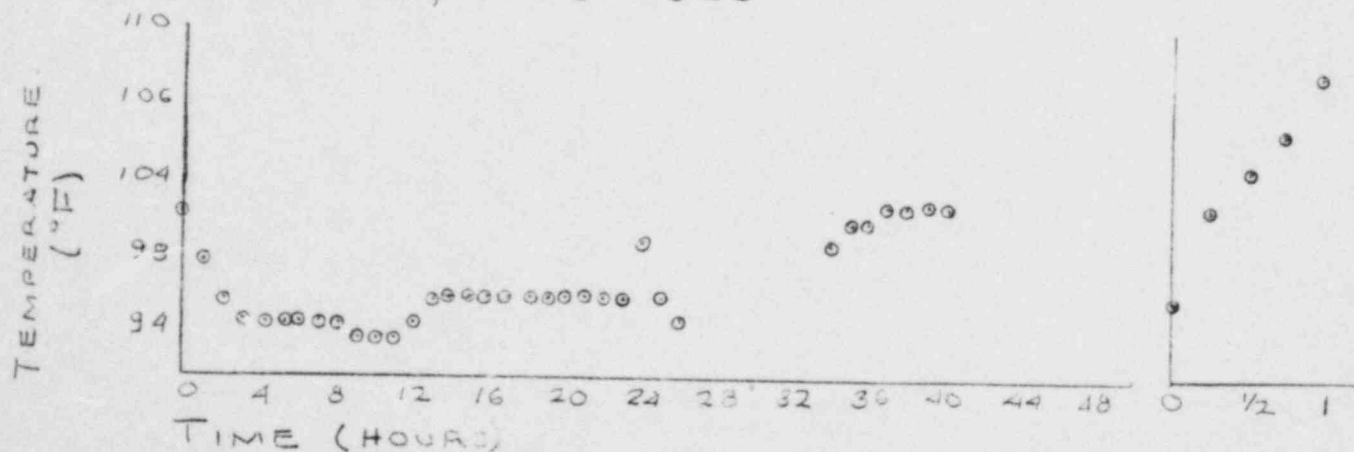
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PUMP BEARING, 1-TE-4524

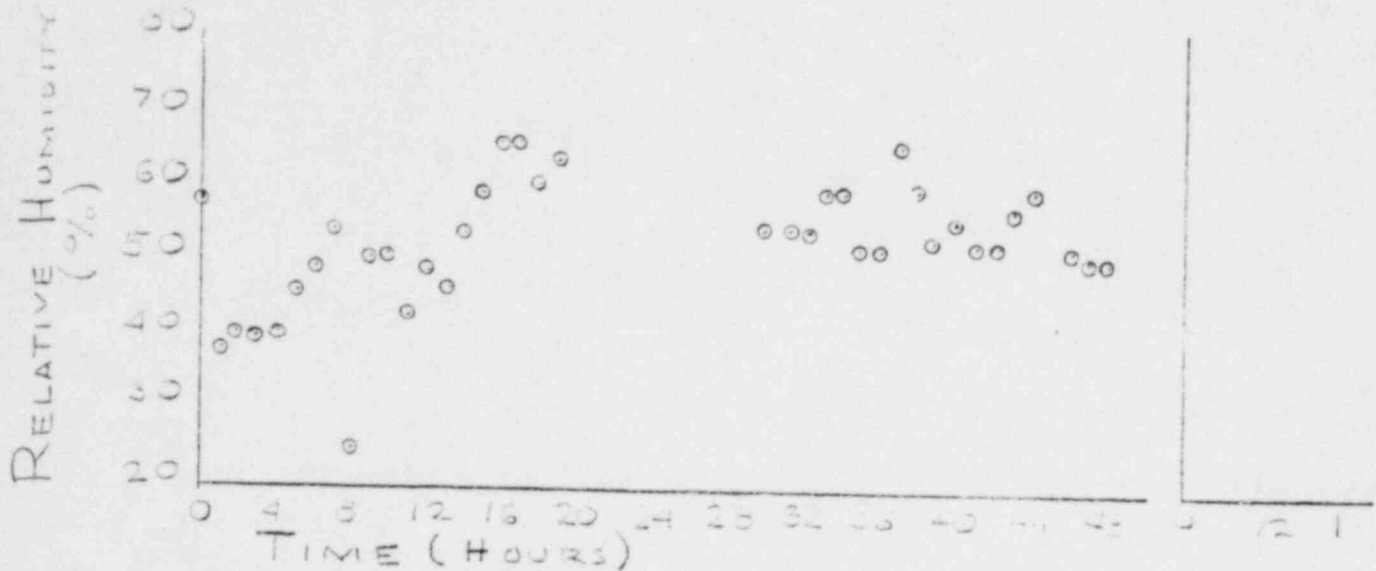
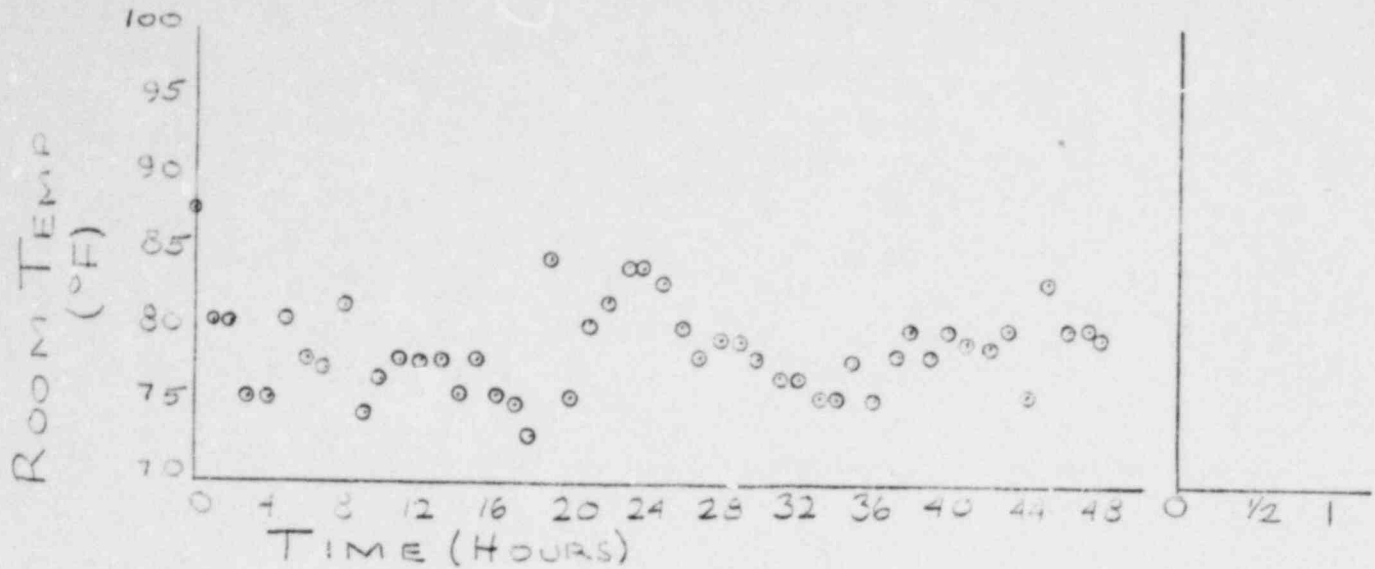


PUMP BEARING, 1-TE-4525



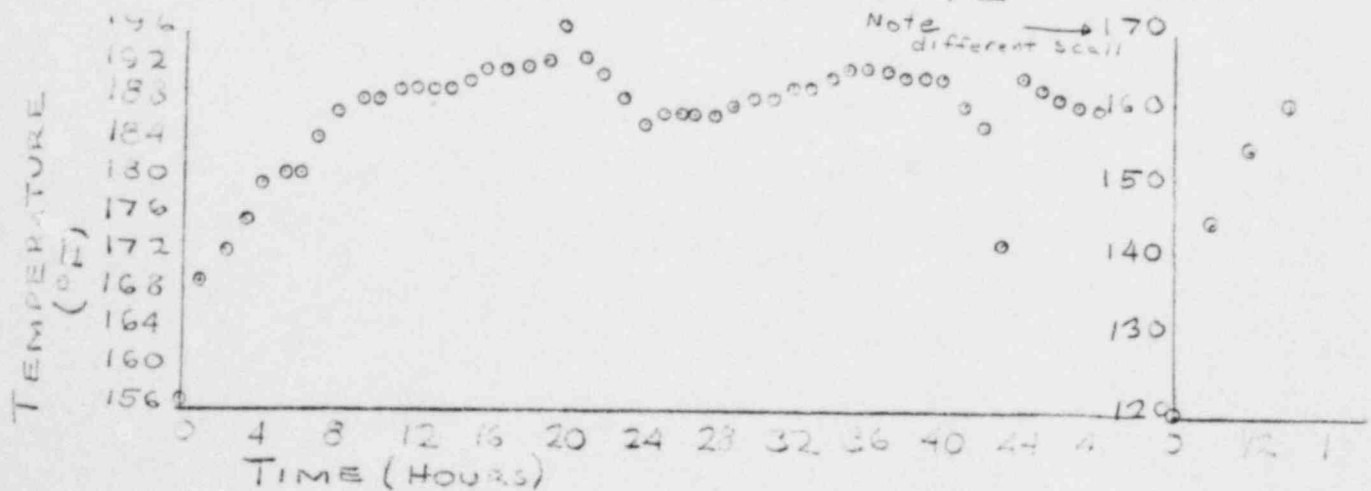
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AUXILIARY FEEDWATER PUMP #2



TIME HISTORIES OF BEARING TEMPERATURES

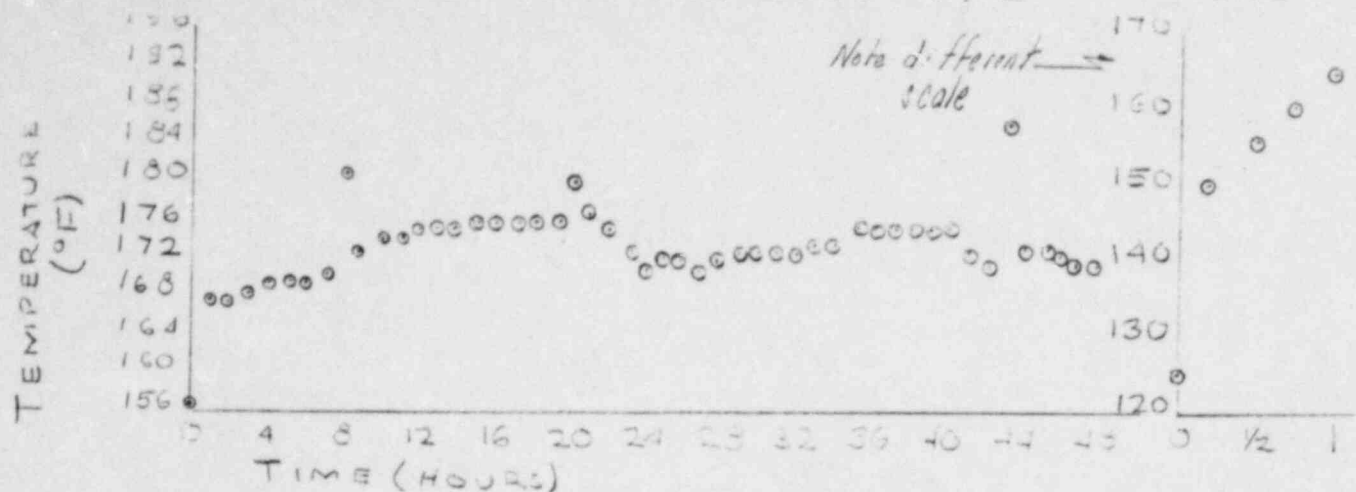
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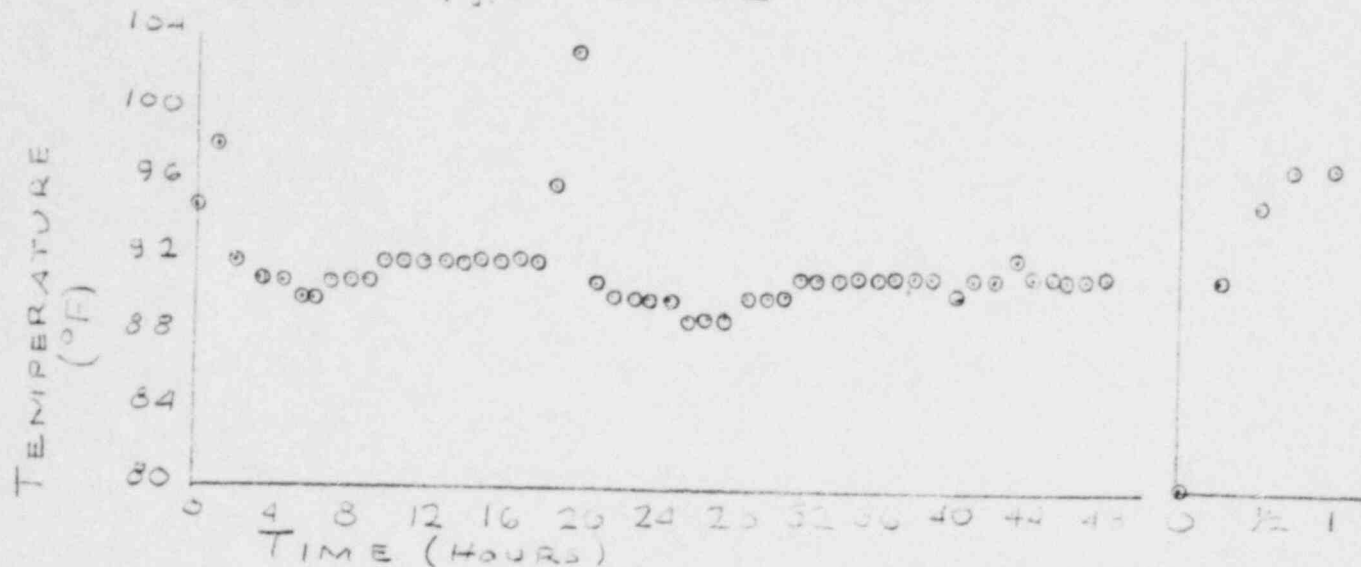
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AFW PUMP #21

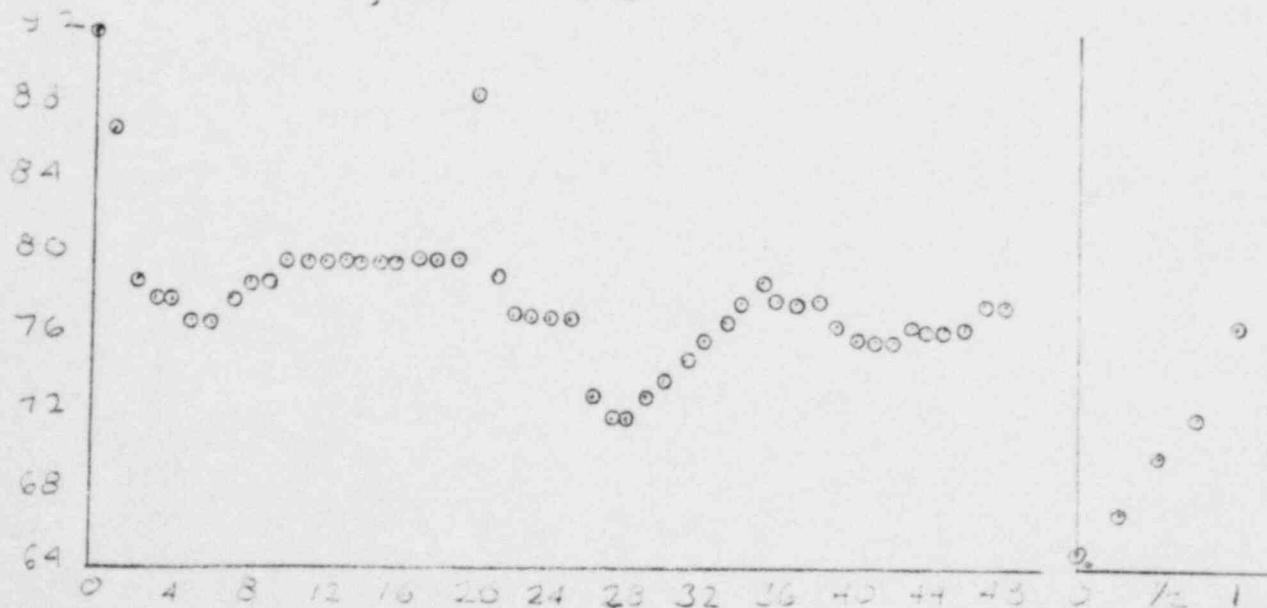
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PUMP BEARING, 2-TE-4522

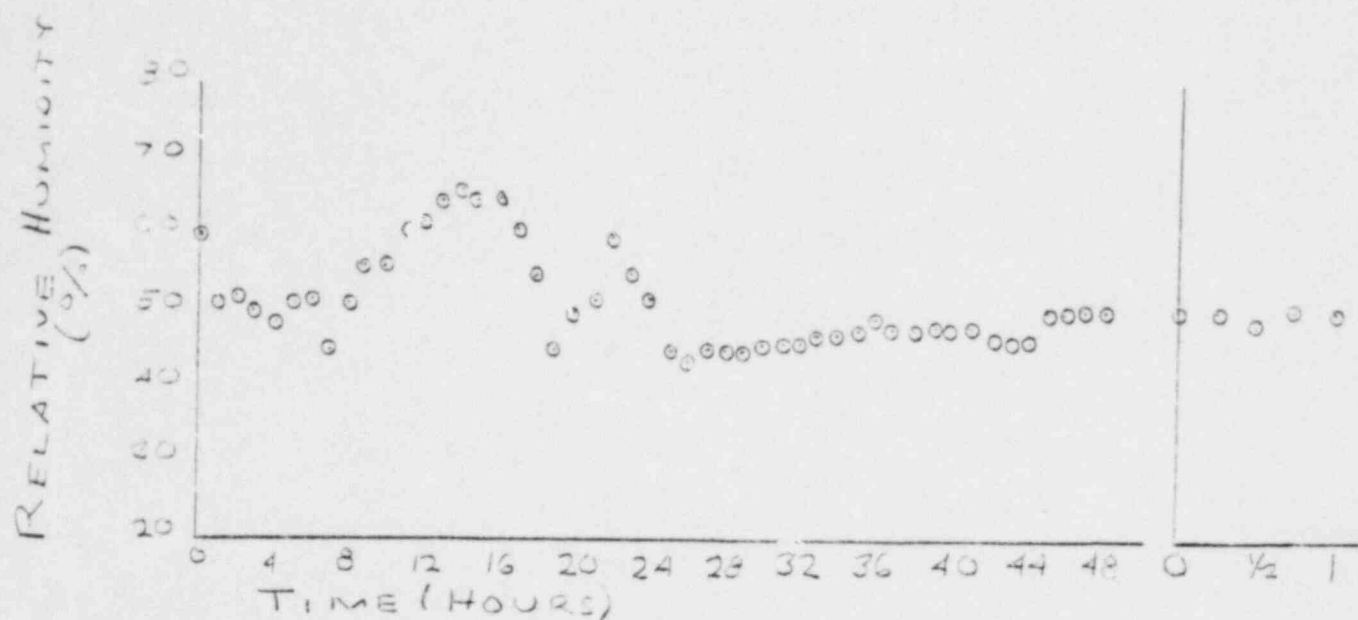
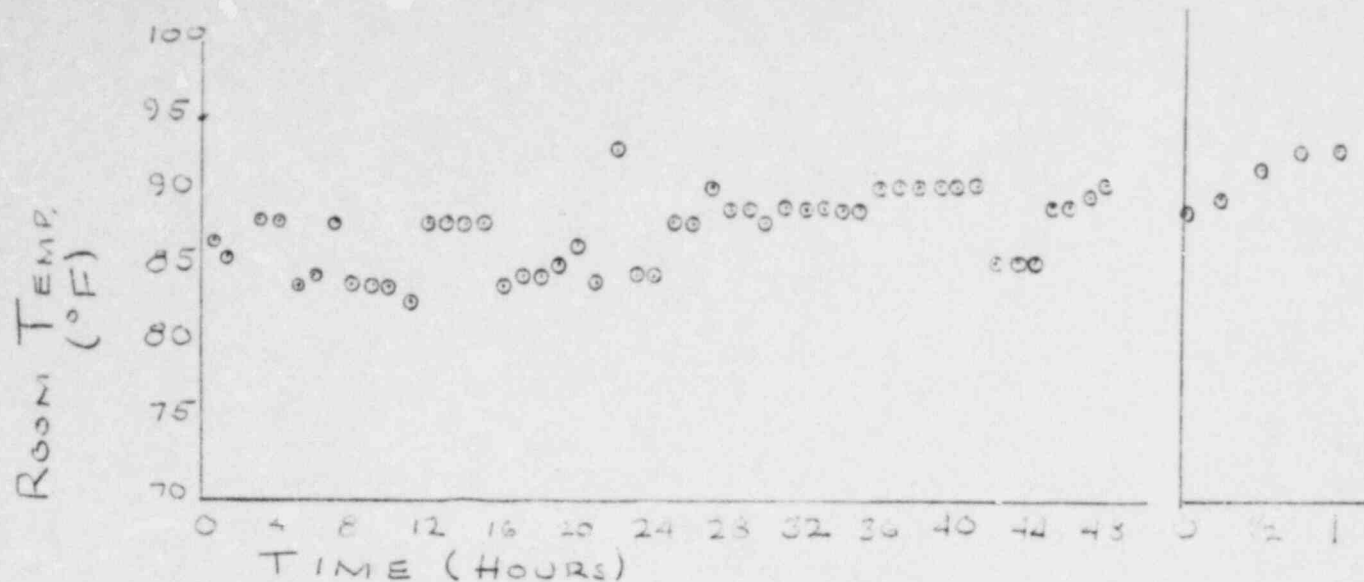


PUMP BEARING, 2-TE-4523



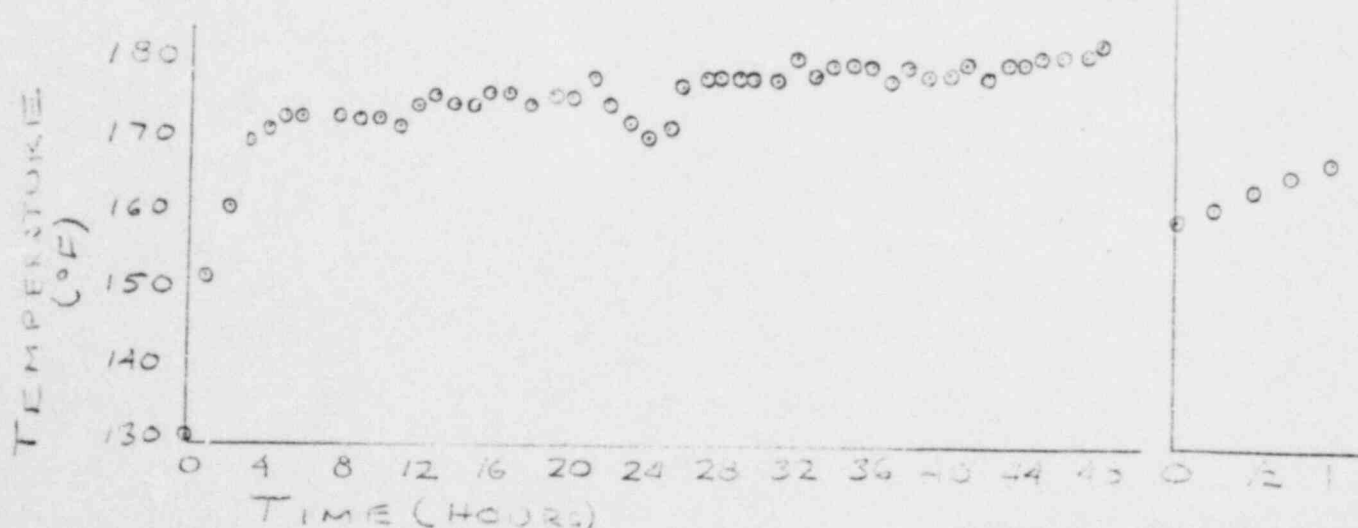
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AUXILIARY FEEDWATER PUMP #22



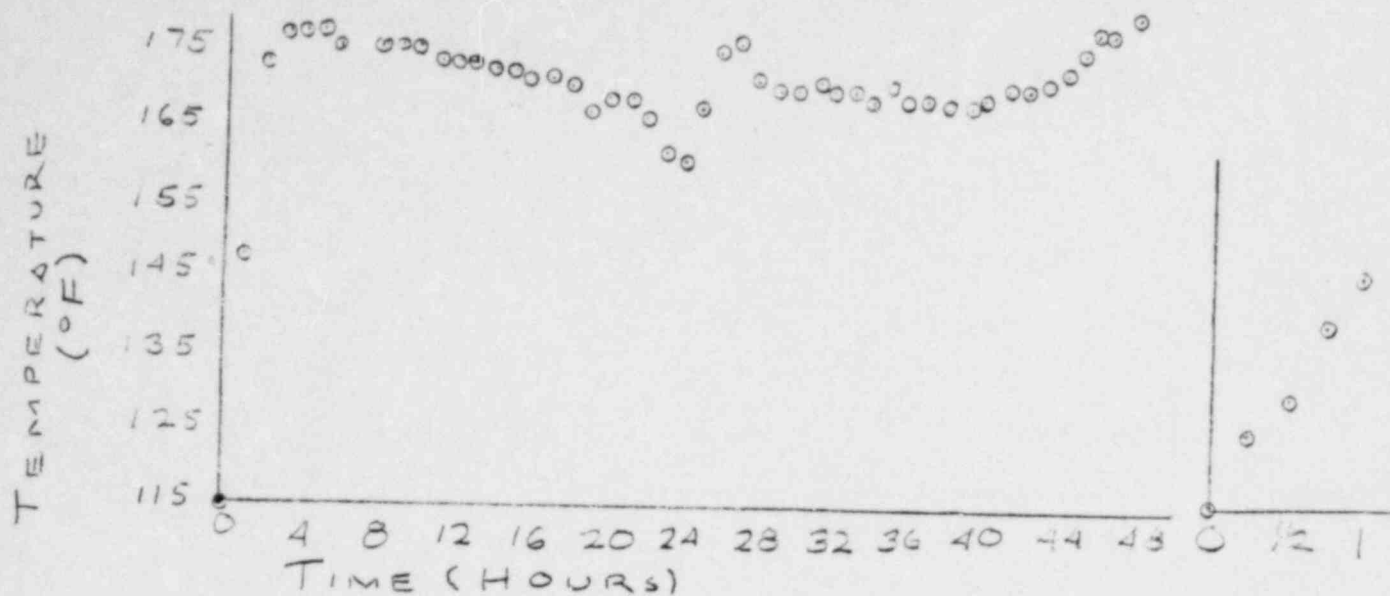
TIME HISTORIES OF BEARING TEMPERATURES

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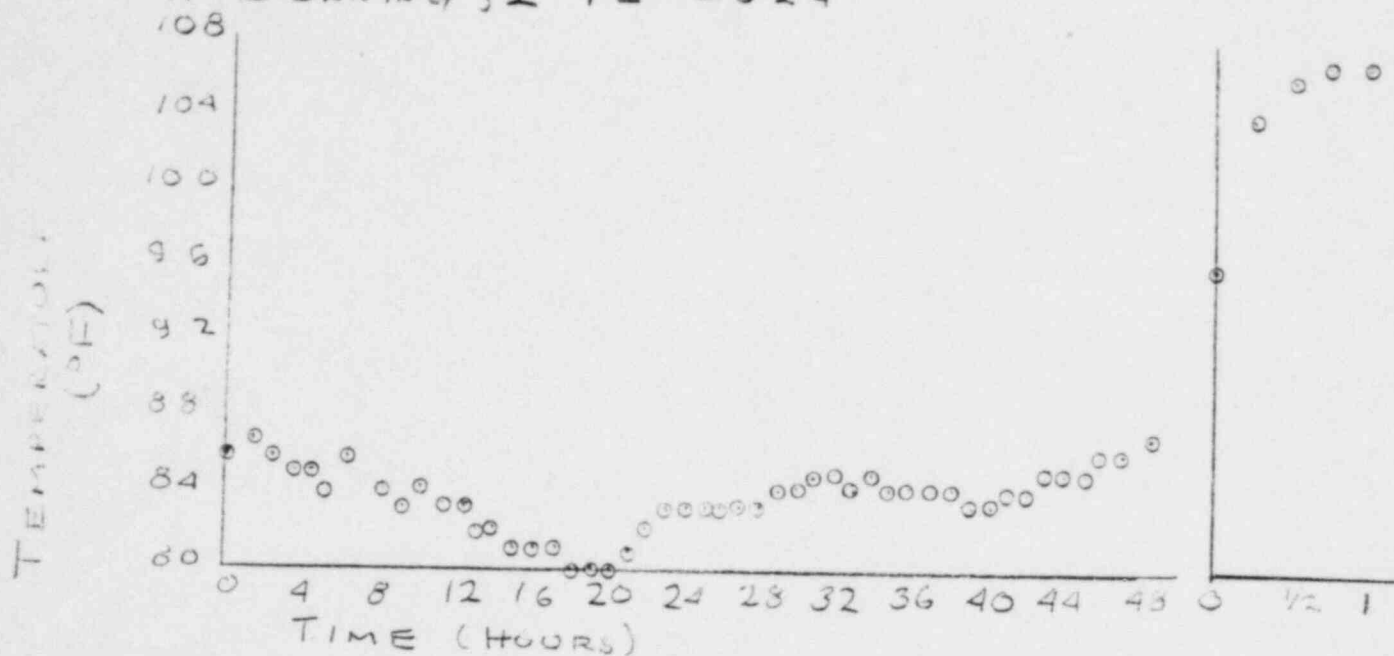


AFW PUMP=22

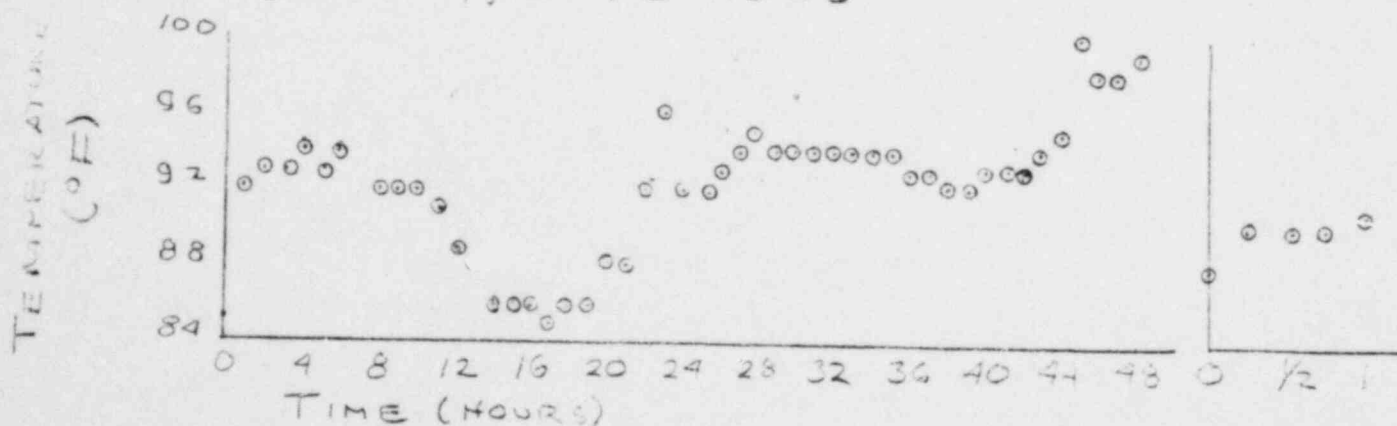
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PUMP BEARING, 2-TE-4524



PUMP BEARING, 2-TE-4525



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