Southern California Edison Company

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ROSEMEAD, CALIFORNIA 91770

September 9, 1983

Director, Office of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, Branch Chief
Licensing Branch No. 3
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket No. 50-362
San Onofre Nuclear Generating Station
Unit 3

License Condition 2.C(17)f of the San Onofre Unit 3 Operating License requires SCE to conduct a 48-hour endurance test of all auxiliary feedwater pumps and to submit test results to the NRC staff prior to exceeding five (5) percent power.

Consistent with this requirement, SCE recently completed a successful 48-hour endurance run of all three auxiliary feedwater pumps and a summary of the 48-hour endurance run is enclosed.

SCE considers that the enclosed information satisfies the requirements of License Condition 2.C(17)f of the San Onofre Unit 3 Operating License.

If you have any question or comments, please let me know.

Very truly yours,

M. O. Medford

M. O. Medford
Supervising Engineer
San Onofre Units 2 and 3 Licensing

Enclosure

cc: Mr. J. B. Martin, Regional Administration
U.S. Nuclear Regulatory Commission, Region V
Mr. H. Rood, Project Manager (To be opened by addressee only)

A001
1/1

Enclosure

TEST SUMMARY

Auxiliary Feedwater Pump 48-Hour Endurance Run
San Onofre Unit 3

I. Test Objective

The objectives of this test were to perform 48-hour endurance runs on all three (3) Auxiliary Feedwater (AFW) System Pumps (two motor driven and one turbine driven pumps) for San Onofre Unit 3 and to demonstrate that the pumps remain within design limits with respect to bearing temperatures and vibration, and that the ambient conditions (temperature, humidity) do not exceed environmental qualification limits specified in Section 3.11 of the San Onofre Units 2 and 3 FSAR for safety related equipment in the auxiliary feedwater pump room.

The 48-hour endurance run is consistent with the recommendations of Item II.E.1.1 of NUREG-0737 and the requirements of License Condition 2.C(17)f of the San Onofre Unit 3 Operating License.

II. Test Method

1. All three AFW system pumps were run utilizing the recirculation flow path for the duration of the test.

2. Bearing temperatures were measured and recorded.

3. Vibration levels were measured and recorded.

4. AFW Pump Room ambient conditions were measured and recorded.

III. Test Results

The results of the tests demonstrated that all three AFW system pumps ran acceptably for a continuous 48 hour period. Specificially the test results for all three pumps which are provided as Attachments 1, 2 and 3 to this enclosure showed the following:

1. Bearing temperatures did not exceed the acceptance criterion of $210^{o}F$.

2. Vibration levels did not exceed the acceptance criteria of 1.0 mil for the pumps and 1.5 mils for the pump driver.

3. AFW pump room ambient conditions did not exceed environmental qualification limits specified in Section 3.11 of the San Onofre Units 2 and 3 FSAR for safety related equipment.

FRNandy:9198

ENCLOSURE I

Attachment 1

ATTACHMENT 1
TURBINE DRIVEN
AUXILIARY FEEDWATER PUMP P-140 ENDURANCE RUN
DATA RECORD

Time	Bearing Temperatures				Turbine Vibration						Pump Vibration						Initial/Date
	3TE-4721 Turbine Outboard 13 (1)	3TE-4722 Turbine Inboard 14 (1)	3TE-4723 Pump Inboard 12 (1)	3TE-4726 Pump Outboard 11 (1)	Outboard			Inboard			Inboard			Outboard			
					H	V	A	H	V	A	H	V	A	H	V	A	
0	148	146	132	168	.20	.14	.15	.09	.08	.12	.25	.16	.24	.25	.13	.36	ZC 8/11/83
1 hr	147	146	132	176	.24	.12	.18	.09	.07	.13	.24	.20	.22	.24	.16	.38	ZC 8/11/83
2 hr	148	146	135	178	.18	.24	.16	.20	.06	.19	.27	.22	.20	.23	.12	.50	ZC 8/11/83
3 hr	148	146	132	180	.18	.24	.16	.09	.08	.18	.26	.24	.44	.24	.18	.50	DAT 8/11/83
4 hr	148	144	134	180	.11	.14	.16	.10	.08	.18	.25	.22	.42	.25	.18	.50	DAT 8/11/83
6 hr	148	146	134	179	.16	.14	.16	.10	.08	.18	.26	.24	.44	.25	.18	.50	DAT 8/11/83
8 hr	149	148	133	177	.15	.14	.16	.12	.07	.17	.24	.22	.42	.24	.18	.51	DAT 8/11/83
10 hr	148	148	133	177	.15	.15	.11	.15	.08	.17	.22	.22	.30	.24	.20	.50	DAT 8/11/83
12 hr	151	151	133	175	.15	.16	.11	.14	.08	.17	.24	.23	.32	.25	.20	.50	DAT 8/11/83
15 hr	151	151	133	175	.11	.14	.18	.13	.07	.20	.22	.24	.36	.25	.20	.46	DAT 8/12/83
18 hr	150	150	132	174	.14	.16	.20	.12	.14	.22	.30	.24	.44	.23	.15	.54	DAT 8/12/83
21 hr	148	148	132	176	.12	.10	.22	.12	.09	.22	.26	.24	.40	.24	.22	.42	DAT 8/12/83
24 hr	148	150	134	180	.15	.13	.08	.18	.1	.24	.28	.22	.26	.22	.18	.52	DAT 8/12/83
27 hr	147	149	134	180	.20	.15	.14	.12	.08	.20	.22	.24	.42	.18	.14	.38	DAT 8/12/83
30 hr	151	151	135	180	.16	.10	.21	.10	.06	.17	.25	.27	.34	.24	.17	.42	DAT 8/12/83
33 hr	149	149	134	179	.15	.12	.20	.10	.06	.20	.25	.25	.36	.22	.16	.40	DAT 8/12/83
36 hr	149	149	134	179	.12	.09	.24	.12	.07	.22	.21	.22	.42	.23	.17	.50	DAT 8/13/83
39 hr	151	151	135	179	.14	.07	.21	.10	.07	.18	.22	.20	.39	.20	.16	.42	DAT 8/13/83
42 hr	150	150	134	178	.10	.13	.17	.18	.08	.22	.25	.24	.44	.20	.18	.50	DAT 8/13/83
45 hr	151	151	135	178	.14	.16	.12	.15	.09	.20	.22	.24	.44	.22	.20	.48	ZC 8/13/83
48 hr	150	151	138	178	.14	.10	.20	.05	.07	.17	.23	.25	.42	.20	.18	.52	ZC 8/13/83
Final	150	149	134	173	.14	.10	.17	.15	.08	.14	.27	.21	.46	.24	.20	.58	ZC 8/14/83

(1) Bearing temperatures may be taken using temporary local indication if any of the permanent instrumentation is out of service.

Permanent Instrument	Temporary Instrument ID Number	Next Calibration Due

ATTACHMENT 1
TURBINE DRIVEN
AUXILIARY FEEDWATER PUMP P-140 ENDURANCE RUN
DATA RECORD

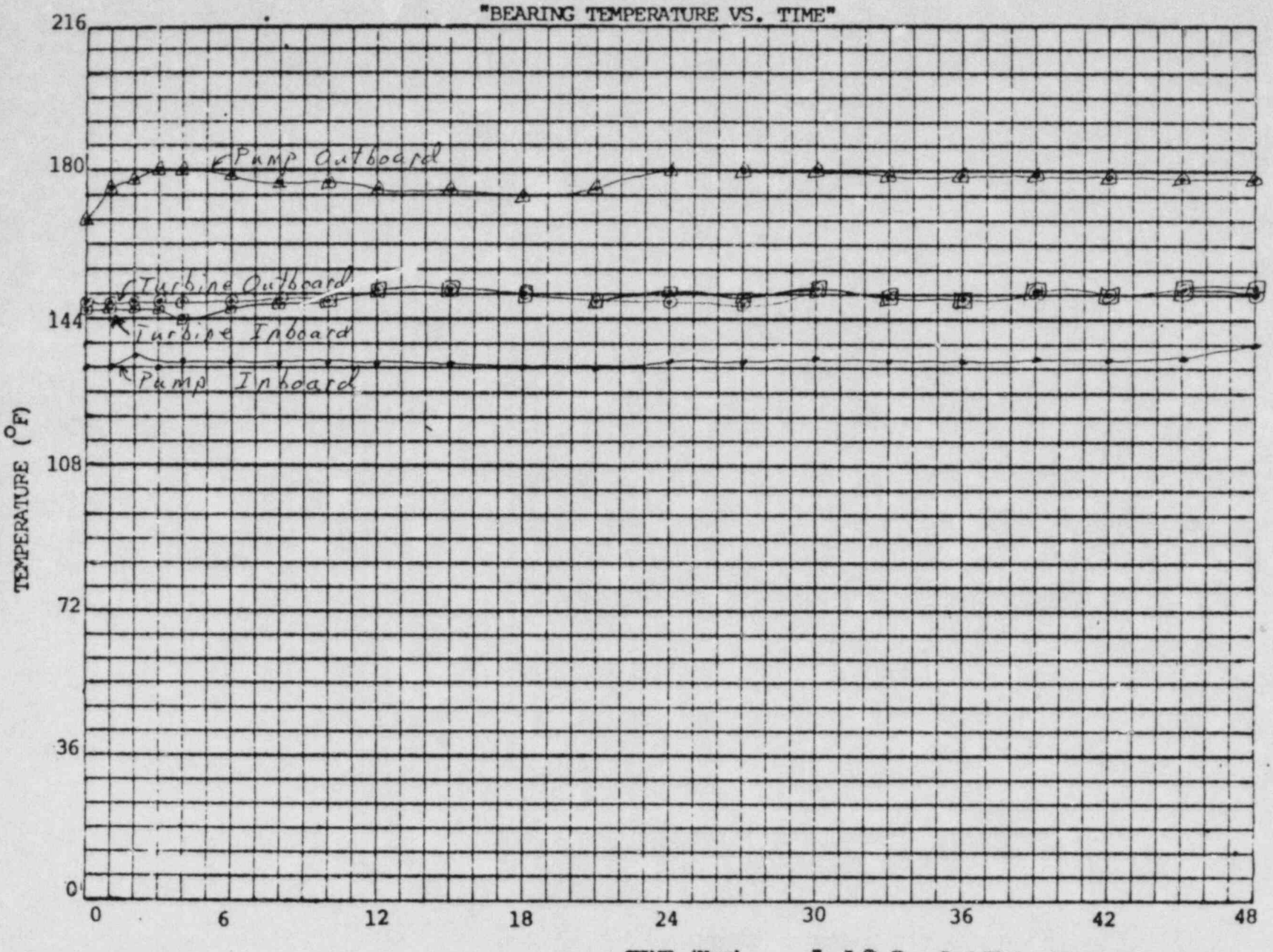
Time	Ambient Conditions		Pump Head (3)		Pump Speed (4)	Pump Flow	Steam Temp 7		Initial/Date
	3TIC-9506 Pump Room Temp (2)	Pump Room Humidity	3PI-4701 Suction Pressure	3PI-4703 Discharge Pressure			3TE-8237		
0	82°	50%	7.5	1420	3620	100 GPM	546		JC 8/11/83
1 hr	82°	49%	7.5	1420	3620	100 GPM	546		JC 8/11/83
2 hr	82°	49%	7.5	1420	3600	100	548		JC 8/11/83
3 hr	82°	52%	7.5	1410	3600	100	548		DB 8/11/83
4 hr	82°	52%	7.5	1410	3600	100	548		DB 8/11/83
6 hr	82°	52%	7.5	1410	3600	100 GPM	548		DEB 8/11/83
8 hr	82°	56%	7.5	1410	3600	100 GPM	548		DEB 8/11/83
10 hr	82°	56%	7.5	1410	3600	100 GPM	548		DEB 8/11/83
12 hr	82°	56%	7.5	1410	3600	100 GPM	548		DEB 8/12/83
15 hr	82°	56%	9.5	1410	3600	100 GPM	544		DEB 8/12/83
18 hr	82°	56%	8.0	1410	3580	100	548		DEB 8/12/83
21 hr	84°	58%	10.0	1410	3580	100	546		DEB 8/12/83
24 hr	83°	60%	9.0	1410	3590	100	547		DEB 8/12/83
27 hr	84°	58%	10.0	1400	3590	100	547		DEB 8/12/83
30 hr	84°	56%	9.0	1410	3600	100	545		DEB 8/12/83
33 hr	84°	56%	9.0	1410	3600	100	548		DEB 8/12/83
36 hr	84°	55%	9.0	1410	3600	100	546		DEB 8/13/83
39 hr	84°	55%	~~10~~ 11.0	1410	3600	100	543		DEB 8/13/83
42 hr	84°	54%	11.0	1410	3600	100	539		DEB 8/13/83
45 hr	87°	54%	9.5	1410	3590	100	540		JC 8/13/83
48 hr	85°	54%	10.0	1410	3590	100	542		JC 8/13/83
Final	85°	56%	10.0	1420	3620	100	542		JC 8/14/83

(2) If temperature exceeds range of 3TIC-9506, take measurements with digital thermometer of 6.2.

(3) Refer to Pump Curve attached.

(4) Nominal valve for Pump Speed is 3570 rpm.

ATTACHMENT 1 - TURBINE DRIVEN
AUXILIARY FEEDWATER PUMP P-140 ENDURANCE RUN
DATA RECORD



Sheet 3 of 4

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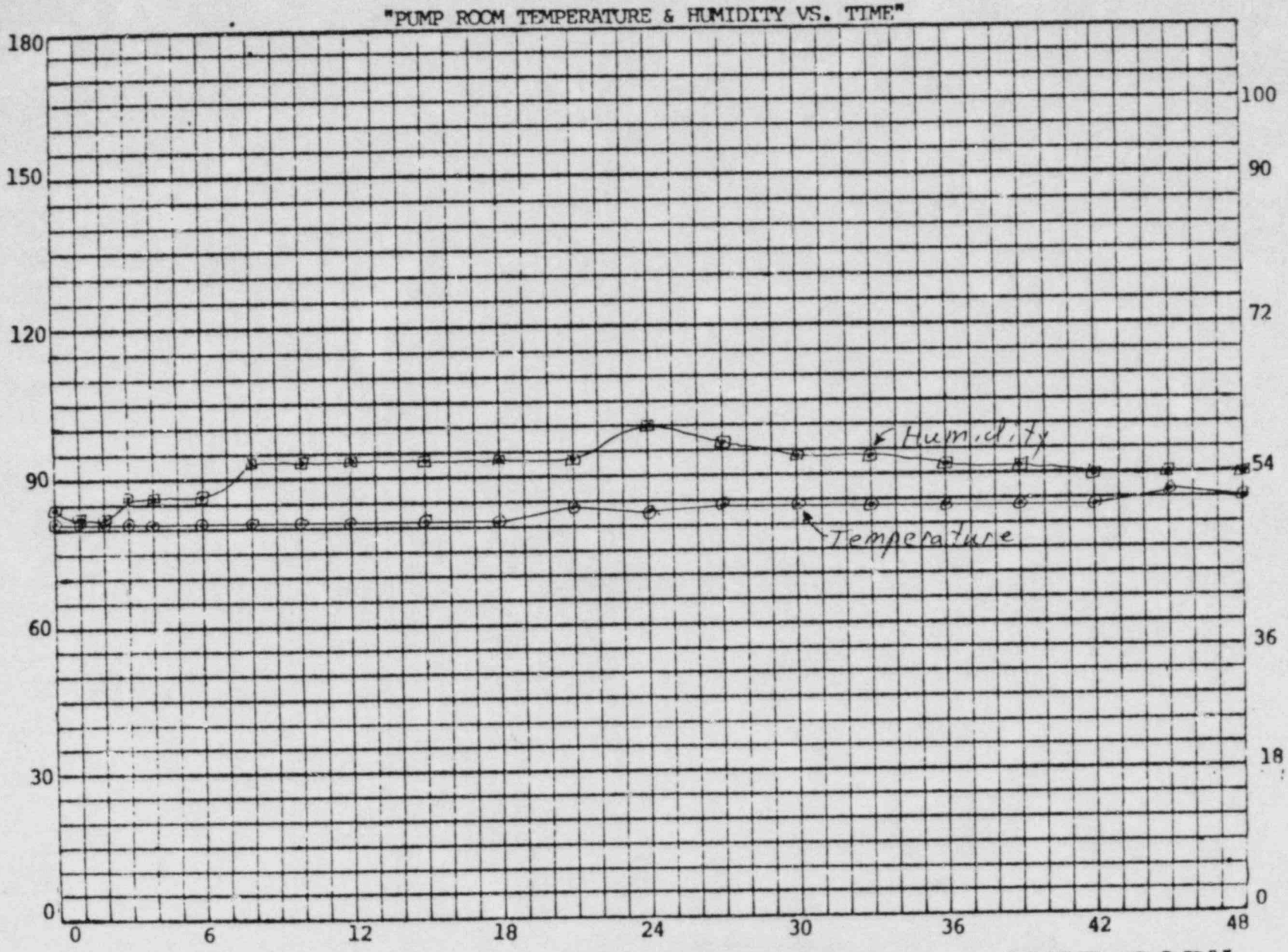
SO3-SPSU-1234
Page 8 of 5
3PE-240-01 TCN 0-3
TCN-03
Page 2 of 4

ATTACHMENT 1 - TURBINE DRIVEN
AUXILIARY FEEDWATER PUMP P-140 ENDURANCE RUN
DATA RECORD



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K. Thomas 8-29-85

ENCLOSURE I

Attachment 2

ATTACHMENT 2
MOTOR DRIVEN
AUXILIARY FEEDWATER PUMP P-141 ENDURANCE RUN
DATA RECORD

Time	Bearing Temperatures				Motor Vibration						Pump Vibration						Initial/Date
	3TE-4730A Motor ~~Outboard~~ Inboard (1)	3TE-4730B Motor ~~Inboard~~ Outboard (1)	3TE-4717 Pump Inboard (1)	3TE-4719 Pump Outboard (1)	Outboard			Inboard			Inboard			Outboard			TCN 01
					H	V	A	H	V	A	H	V	A	H	V	A	
0	*105.0	*101.0	77.0	77.0	.15	.09	.16	.19	.07	.09	.44	.22	.60	.35	.21	.72	AS 7-30-83
1 hr	*170.0	*157.1	124.5	176.9	.13	.04	.06	.18	.09	.10	.48	.23	.56	.32	.20	.68	AS 7-30-83
2 hr	*173.9	*159.6	125.0	179.0	.13	.06	.08	.18	.09	.12	.48	.24	.54	.33	.19	.66	AS 7-30-83
3 hr	*175.1	*160.4	126.0	180.0	.14	.09	.06	.18	.11	.10	.48	.24	.55	.33	.21	.65	AS 7-30-83
4 hr	*174.6	*160.0	126.0	180.0	.14	.07	.13	.18	.09	.07	.50	.22	.55	.32	.21	.74	XC 7/30/83
6 hr	*175.4	*160.7	127.0	182.0	.14	.07	.15	.19	.11	.09	.52	.22	.54	.32	.19	.68	XC 7/30/83
8 hr	*176.6	*161.6	128.0	183.0	.14	.07	.10	.20	.10	.10	.52	.20	.54	.34	.18	.74	XC 7/30/83
10 hr	*176.8	*162.5	128.0	183.0	.13	.07	.13	.20	.10	.10	.50	.24	.54	.32	.16	.68	XC 7/30/83
12 hr	*176.7	*163.0	129.0	183.0	.14	.07	.12	.20	.09	.08	.50	.22	.56	.34	.21	.68	XC 7/30/83
15 hr	*177.0	*162.8	128.0	183.0	.14	.06	.11	.19	.09	.07	.50	.22	.54	.32	.20	.66	XC 7/30/83
18 hr	*178.1	*163.8	~~129.0~~ ~~124.0~~ 128.0 7-30-83	183.0	.14	.07	.19	.19	.08	.09	.50	.24	.54	.31	.18	.65	AS 7-30-83
1 hr	170.0	154.0	121.0	179.0	.16	.06	.12	.20	.09	.09	.48	.24	.54	.30	.19	.65	AS 7-31-83
24 hr	169.0	153.0	121.0	179.0	.14	.05	.12	.19	.10	.08	.48	.25	.55	.30	.16	.65	AS 7-31-83
27 hr	169.0	153.0	121.0	178.0	.14	.06	.12	.18	.09	.09	.47	.26	.55	.30	.19	.65	AS 7-31-83
30 hr	169.0	153.0	121.0	178.0	.15	.07	.12	.20	.10	.09	.50	.22	.54	.30	.20	.68	AS 7/31/83
33 hr	170.0	154.0	122.0	178.0	.15	.07	.16	.20	.09	.13	.50	.23	.51	.32	.22	.66	XC 7/31/83
36 hr	171.0	156.0	123.0	179.0	.16	.08	.13	.24	.11	.07	.52	.22	.48	.32	.20	.70	XC 7/31/83
39 hr	170.0	155.0	122.0	180.0	.15	.07	.10	.17	.10	.10	.54	.22	.54	.30	.22	.68	XC 7/31/83
42 hr	169.0	154.0	120.0	179.0	.15	.06	.09	.18	.09	.09	.48	.24	.55	.29	.19	.65	AS 7-31-83
45 hr	170.0	154.0	120.0	179.0	.15	.06	.12	.18	.08	.09	.50	.20	.55	.28	.17	.62	AS 8-1-83
48 hr	169.0	153.0	120.0	179.0	.15	.06	.12	.18	.09	.08	.49	.19	.54	.29	.17	.65	AS 8-1-83
Final	168.0	152.0	119.0	176.0	.12	.07	.12	.18	.07	.10	.52	.23	.56	.28	.07	.64	XC 8/1/83

(1) Bearing temperatures may be taken using temporary local indication if any of the permanent instrumentation is out of service.

Permanent Instrument	Temporary Instrument ID Number	Next Calibration Due
* 3TE-4730A;B	SU-2003	8/14/83

ATTACHMENT 2
MOTOR DRIVEN
AUXILIARY FEEDWATER PUMP P-141 ENDURANCE RUN
DATA RECORD

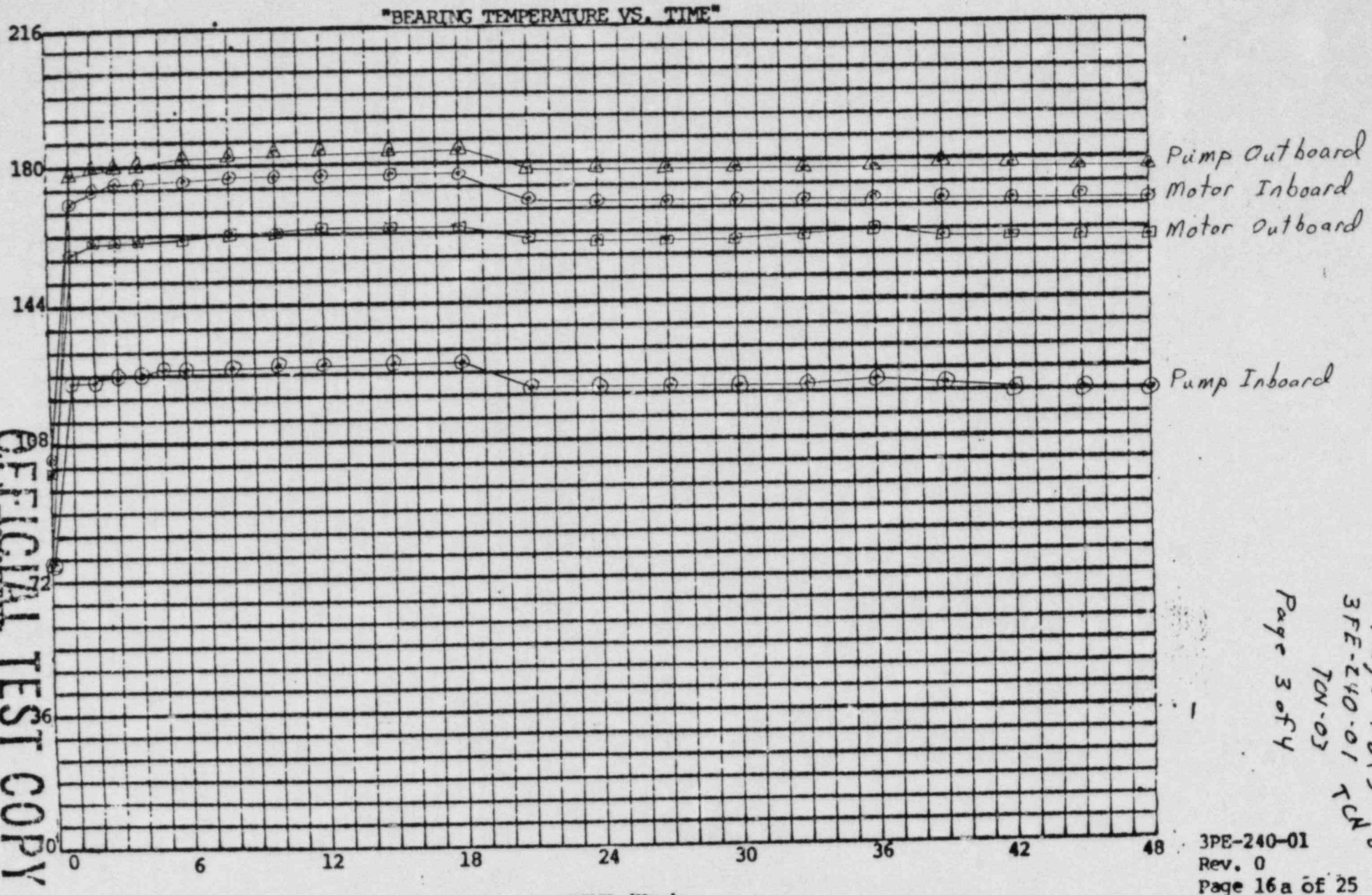
Time	Ambient Conditions		Pump Head (3)		Pump Speed (4)	Pump Flow			Initial/Date
	3TIC-9506 Pump Room Temp (2)	Pump Room Humidity	3PI-4708 Suction Pressure	3PI-4710 Discharge Pressure					
0	71°	60.5%	11.0	1380	3620 rpm	100 GPM			RS 7-30-83
1 hr	73°	60.5	11.0	1390	3620	100 GPM			RS 7-30-83
2 hr	74°	59.0	11.0	1390	3620	100 GPM			RS 7-30-83
3 hr	75°	54.0	11.0	1390	3620	100 GPM			RS 7-30-83
4 hr	75°	47.0	11.0	1390	3600	100			JC 7-30-83
6 hr	76°	50.0	11.0	1395	3600	100			JC 7/30/83
8 hr	77°	54.0	11.0	1395	3600	100			JC 7/30/83
10 hr	77°	44.0	11.0	1395	3600	100			JC 7/30/83
12 hr	78°	46.0	11.0	1395	3600	100			JC 7/30/83
15 hr	78°	50.0	11.0	1395	3600	100			JC 7/30/83
18 hr	80°	65.0	11.0	1390	3600	100			RS 7-30-83
21 hr	72°	85.0	11.0	1390	3600	100			RS 7-31-83 7-30-83 RS 7-31-83
hr	71°	85.0	11.0	1390	3600	100			RS 7-31-83
27 hr	71°	90.0	11.0	1390	3600	100			RS 7-31-83
30 hr	71°	85.0	11.0	1390	3600	100			JC 7/31/83
33 hr	71°	86.0	11.0	1390	3600	100			JC 7/31/83
36 hr	71°	86.0	11.0	1390	3600	100			JC 7/31/83
39 hr	71°	~~86.0~~ 54.0	11.0	1390	3600	100			JC 7/31/83
42 hr	71°	61.0	11.0	1380	3600	100			RS 7-31-83
45 hr	71°	61.0	11.0	1380	3600	100			RS 8-1-83
48 hr	71°	61.0	11.0	1380	3600	100			RS 8-1-83
Final	70°	57.0	11.0	1390	3600	100			JC 8/1/83

(2) If temperature exceeds range of 3TIC-9506, take measurements with digital thermometer of 6.2.

(3) Refer to Pump Curve attached.

(4) Nominal valve for Pump Speed is 3570 rpm.

ATTACHMENT 2 - MOTOR DRIVEN
AUXILIARY FEEDWATER PUMP P-141 ENDURANCE RUN
DATA RECORD



TEMPERATURE (°F)

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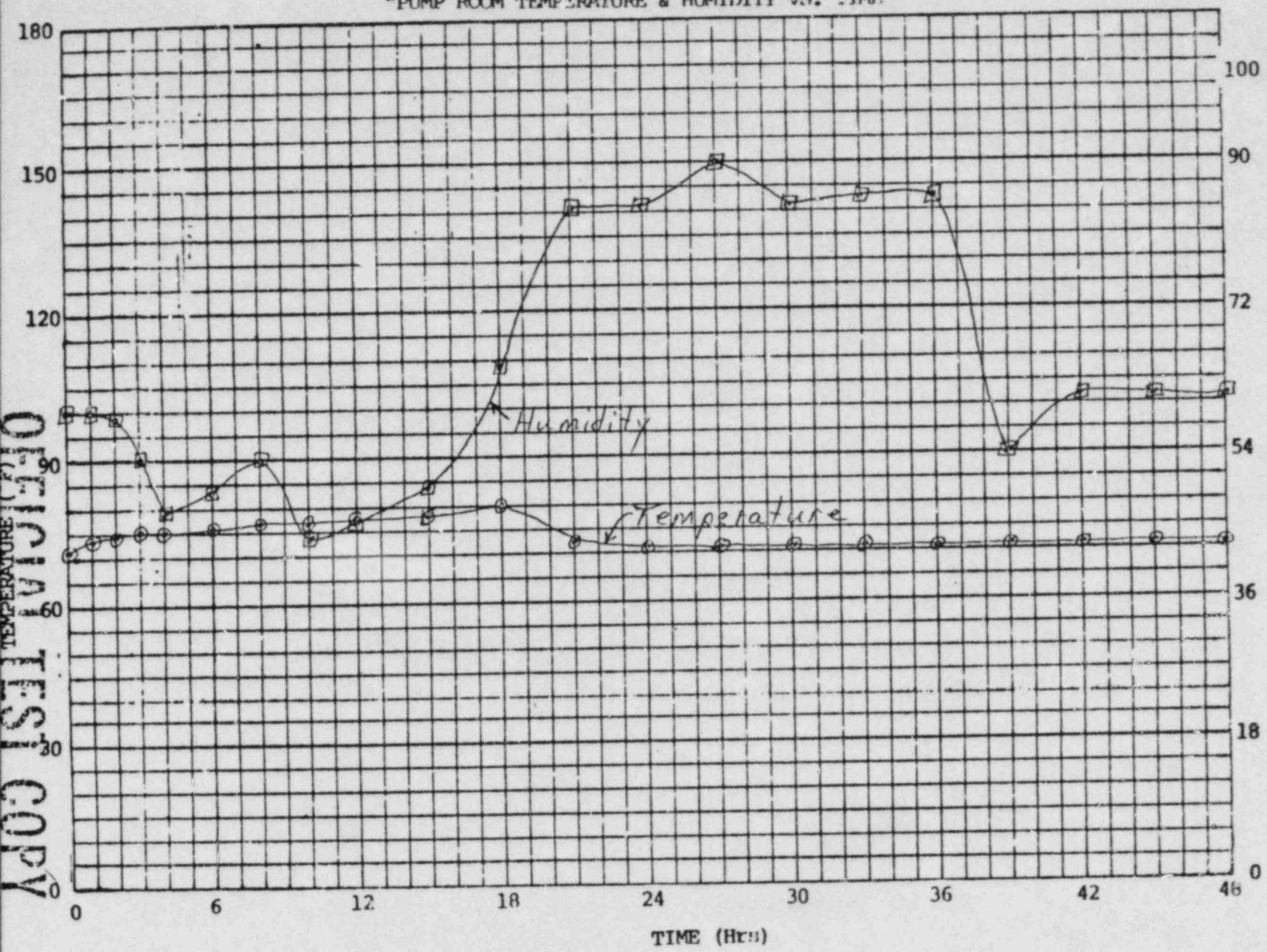
SOS-3PE54-1234
Page 4 of 5
3PE-240-01 TCN 0-3
Page 3 of 4

ATTACHMENT 2 - MOTOR DRIVEN
AUXILIARY FEEDWATER PUMP P-141 ENDURANCE RUN
DATA RECORD

"PUMP ROOM TEMPERATURE & HUMIDITY VS. TIME"



ENCLOSURE I

Attachment 3

RETEST ATTACHMENT 3 PER IER!

MOTOR DRIVEN
AUXILIARY FEEDWATER PUMP P-504 ENDURANCE RUN
DATA RECORD

Time	Bearing Temperatures				Motor Vibration						Pump Vibration						Initial/Date
	3TE-4746A Motor ~~Outboard~~ Inboard (1)	3TE-4746B Motor ~~Inboard~~ Outboard (1)	3TE-4735 Pump Inboard (1)	3TE-4735 Pump Outboard (1)	Outboard			Inboard			Inboard			Outboard			TCN 01
					H	V	A	H	V	A	H	V	A	H	V	A	
0	115.4	113.6	101.0	113.0	.35	.06	.25	.40	.30	.18	.28	.20	.35	.28	.13	.36	DB 8/25/83
1 hr	179.0	176.0	158.0	172.0	.35	.05	.25	.40	.32	.20	.28	.15	.36	.30	.14	.38	DB 8/25/83
2 hr	181.0	178.0	158.0	175.0	.32	.10	.23	.50	.34	.22	.25	.18	.36	.29	.15	.38	DB 8/25/83
3 hr	182.0	179.0	158.0	177.0	.33	.08	.25	.50	.30	.20	.25	.15	.36	.29	.15	.35	DB 8/26/83
4 hr	182.0	178.4	158.0	177.0	.34	.08	.27	.50	.34	.15	.28	.15	.36	.28	.17	.35	DB 8/26/83
6 hr	181.9	178.9	158.0	177.0	.34	.10	.25	.50	.32	.20	.26	.15	.36	.30	.17	.38	DB 8/26/83
8 hr	181.9	178.9	156.1	175.2	.35	.10	.26	.50	.34	.20	.26	.15	.36	.30	.15	.35	DB 8/26/83
10 hr	181.8	178.9	158	178	.35	.06	.25	.48	.32	.20	.25	.12	.48	.34	.16	.62	ZC 8/26/83
12 hr	184	181	159	178	.38	.06	.25	.48	.32	.20	.27	.15	.44	.32	.16	.60	ZC 8/26/83
15 hr	186	182	160	180	.38	.05	.22	.48	.32	.20	.26	.14	.46	.34	.18	.58	ZC 8/26/83
18 hr	187	182	161	179	.38	.05	.24	.48	.32	.16	.24	.14	.50	.32	.18	.60	ZC 8/26/83
21 hr	185	182	159	178	.38	.05	.25	.48	.32	.18	.24	.15	.50	.34	.18	.60	DB 8/26/83
24 hr	185	181	160	178	.38	.06	.24	.48	.32	.18	.24	.15	.50	.34	.18	.60	DB 8/26/83
27 hr	186	181	159	178	.38	.08	.20	.55	.32	.18	.24	.15	.45	.32	.15	.56	DB 8/27/83
30 hr	185.7	180.4	157.4	176.8	.38	.08	.22	.56	.32	.16	.24	.15	.45	.30	.18	.56	DB 8/27/83
33 hr	186	180	158	178	.38	.06	.24	.48	.30	.16	.24	.15	.40	.30	.18	.58	ZC 8/27/83
36 hr	187	182	160	179	.38	.08	.24	.48	.32	.18	.20	.14	.42	.28	.18	.60	ZC 8/27/83
39 hr	189	183	161	180	.36	.06	.22	.48	.30	.16	.24	.14	.46	.28	.18	.62	ZC 8/27/83
42 hr	189	184	162	180	.34	.05	.22	.48	.32	.16	.20	.14	.42	.30	.16	.62	ZC 8/27/83
45 hr	188.8	183.8	159.3	178.8	.34	.07	.24	.48	.32	.17	.24	.14	.42	.30	.18	.60	DB 8/27/83
48 hr	188.6	183.1	158.8	179.3	.34	.06	.25	.46	.32	.20	.24	.15	.40	.30	.18	.58	DB 8/27/83
Final	188	184	162	178	.34	.07	.24	.44	.31	.22	.24	.12	.44	.30	.16	.58	ZC 8/30/83

(1) Bearing temperatures may be taken using temporary local indication if any of the permanent instrumentation is out of service.

Permanent Instrument	Temporary Instrument ID Number	Next Calibration Due

DETEST #1 ATTACHMENT 3 PER IER 1

MOTOR DRIVEN

AUXILIARY FEEDWATER PUMP P-504 ENDURANCE RUN

DATA RECORD

Time	Ambient Conditions		Pump Head (3)		Pump Speed (4)	Pump Flow			Initial/Date
	3TIC-9506 Pump Room Temp (2)	Pump Room Humidity	3PI-4734 Suction Pressure	3PI-4736 Discharge Pressure					
0	80	62%	10.5	1350	~~3000~~ 3600	100 GPM			DCB 8/25/83
1 hr	80	62%	10.5	1375	3600	100 GPM			DCB 8/25/83
2 hr	80	62%	10.5	1375	3600	100 GPM			DCB 8/25/83
3 hr	80	62%	10.5	1375	3600	100 GPM			DCB 8/26/83
4 hr	80	62%	10.5	1375	3600	100 GPM			DCB 8/26/83
6 hr	80	62%	9.5	1375	3590	100 GPM			DCB 8/26/83
8 hr	80	62%	9.5	1375	3590	100 GPM			DCB 8/26/83
10 hr	81	62%	9.5	1375	3590	100 GPM			LC 8/26/83
12 hr	81	55%	10.5	1380	3590	100			LC 8/26/83
15 hr	81	52%	11.0	1400	3590	100			LC 8/26/83
18 hr	82	58%	9.0	1400	3600	100			LC 8/26/83
21 hr	82	58%	10.5	1400	3600	100			DCB 8/26/83
hr	82	58%	10.0	1400	3600	100			DCB 8/26/83
27 hr	82	57%	10.0	1375	3600	100			DCB 8/27/83
30 hr	82	56%	10.5	1375	3600	100			DCB 8/27/83
33 hr	80	60%	10.5	1375	3600	100			LC 8/27/83
36 hr	81	50%	8.5	1390	3600	100			LC 8/27/83
39 hr	82	46%	9.0	1400	3600	100			LC 8/27/83
42 hr	83	50%	9.5	1400	3610	100			LC 8/27/83
45 hr	83	72%	9.5	1400	3590	100			DCB 8/27/83
48 hr	83	68%	10.5	1400	3590	100			DCB 8/27/83
Final	85	46%	10.0	1400	3590	100			LC 8/30/83

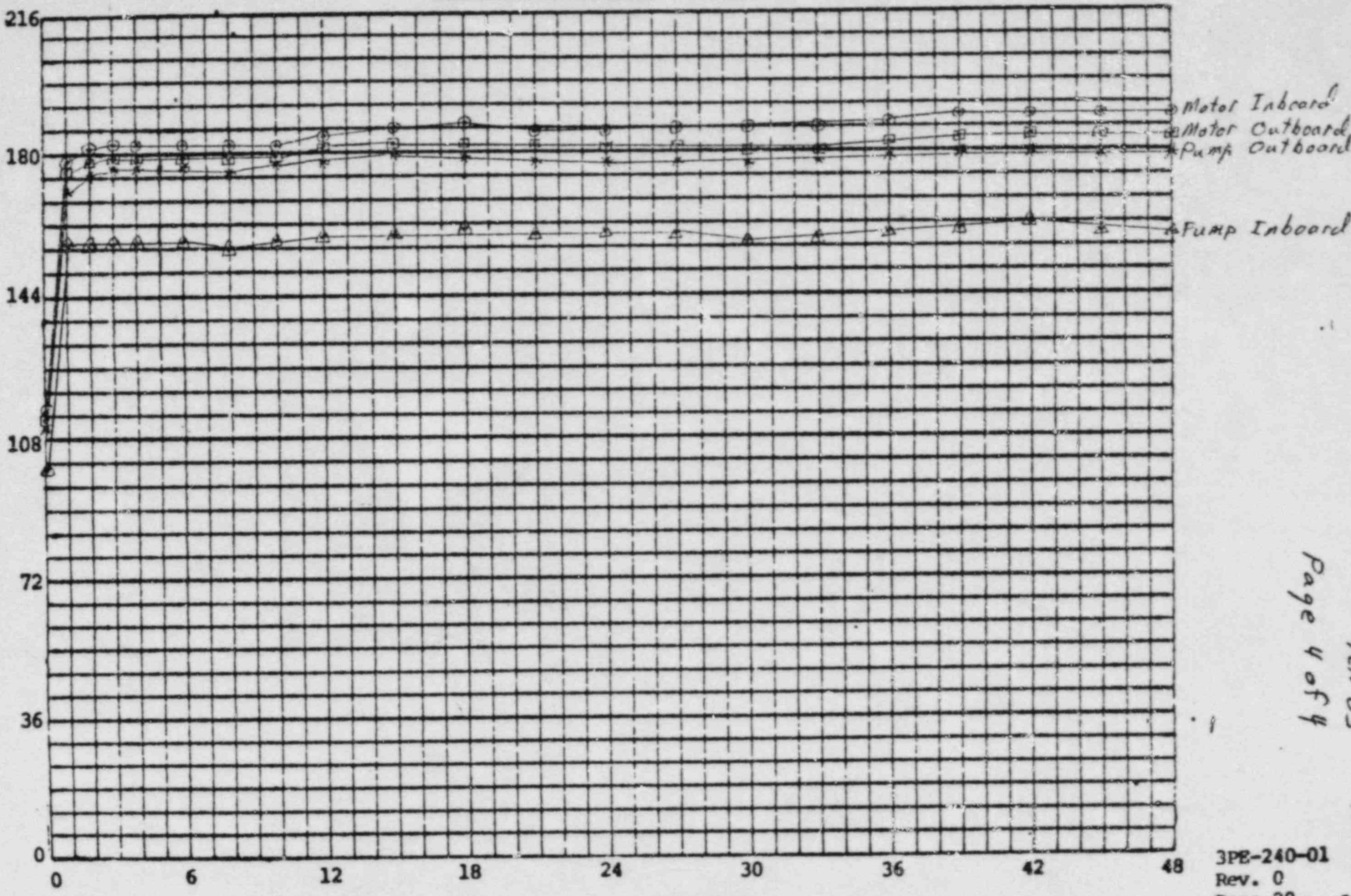
(2) If temperature exceeds range of 3TIC-9506, take measurements with digital thermometer of 6.2.

(3) Refer to Pump Curve attached.

(4) Nominal valve for Pump Speed is 3570 rpm.

ATTACHMENT - MOTOR DRIVEN
AUXILIARY FEEDWATER PUMP P-504 ENDURANCE RUN
DATA RECORD

"BEARING TEMPERATURE VS. TIME"



Sheet 3 of 4

RETEST # 1 REF 3PE-240-01 TCN-03

TERI S03-SPSU-123a Page 5 of 5 TCN 0-3

Page 4 of 4

3PE-240-01
Rev. 0
Page 20 a of 25
SONGS 3

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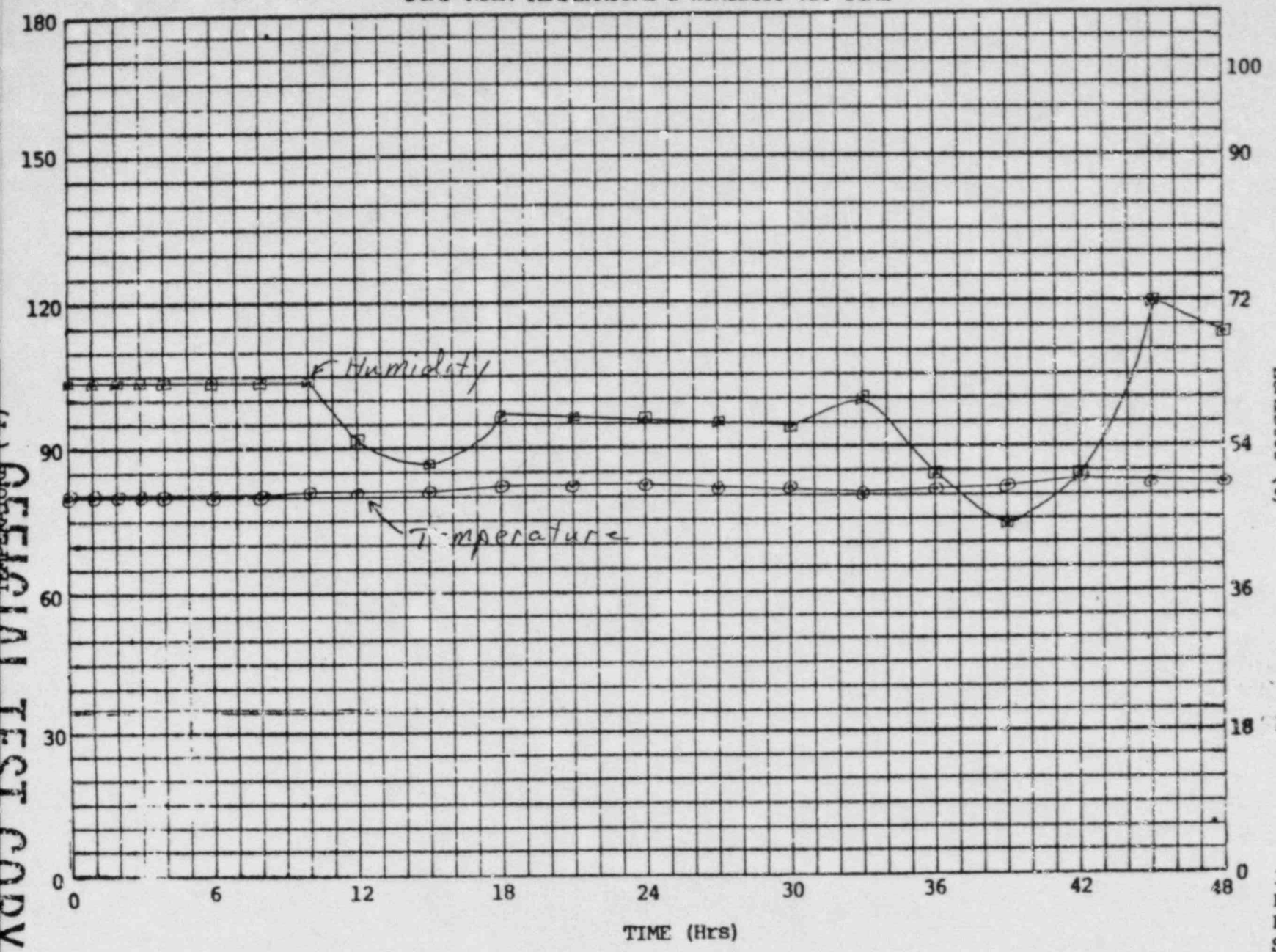
ATTACHMENT 3 - MOTOR DRIVEN
AUXILIARY FEEDWATER PUMP P-504 ENDURANCE RUN
DATA RECORD

"PUMP ROOM TEMPERATURE & HUMIDITY VS. TIME"



3PE-240-01
Rev. 0
Page 21 of 25
SONGS 3

Sheet 4 of .