STEAM LEAK DETECTION CALCULATION

RHR Rooms

25 gpm Leak Rate

PP&L	CALCULATION COVER SHEET	CALC. NO. M-SLD-003	SAFETY-RELATED [X]
		FILE NO. R2-1	ASME III OR XI [ ]
		SUPERSEDED BY NA	OTHER QUALITY [ ]
			NON QUALITY [ ]

PROJECT STEAM LEAK DETECTION PROJECT ER/CTN NO. NA

DESIGN ACTIVITY/PMR NUMBER EWR # M81000 PAGE 1 OF 20

TITLE/DESCRIPTION STEAM LEAK DETECTION CALC - RHR PUMP ROOMS (I-13/I-103 & I-14/I-104)

- UNIT 1 ONLY -

SYSTEMS AFFECTED S083G / S049

STATEMENT OF PROBLEM

REFER TO PAGE 3 FOR STATEMENT OF PROBLEM.

DESIGN BASIS (EPM-QA-208 OR EPM-QA-400)

REFER TO ATTACHED DESIGN INPUTS GENERATED FOR THIS CALCULATION.

REFERENCES/FORMULAE

REFER TO PAGE 4 FOR REFERENCES.

SUMMARY/CONCLUSIONS

REFER TO PAGE 12 FOR SUMMARY / CONCLUSIONS.

ENGINEERING TURNOVER (ETO) BINDER AFFECTED? [ ] YES-If Yes enter: Binder # _____ Vol. _____

Calc. File _____ Pgs. _____

[X] NO

REV. NO.	DATE	PREPARED BY	REVIEWED/CHECKED BY	DATE	APPROVED BY	DATE
0	9/14/89	M.R. Mjoatvedt	[signature]	9/27/89	J.E. Lyons	10/16/89

FORM EPM-QA-216A REV.1

mls/frb0061(12)

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1.0 PURPOSE

The purpose of this calculation is to predict the room temperature profile expected when a small water leak is introduced in the Unit 1 RHR Pump Rooms. The results of this calculation will be used as a basis for development of Steam Leak Detection System setpoints.

2.0 REFERENCES

2.1 Calc # M-RAF-024, Rev. 0 "RB Post DBA Transient Temperature Analysis"

2.2 Bechtel Calc # 176-18, Rev. 5 "RB Cooling Modes"

2.3 SEA-EE-129, Rev. 0 "SSES Unit 1 and Unit 2 Reactor Building Heat Loads"

2.4 Drawings :

P&ID M-176, Rev. 20
P&ID M-151 Sht 3, Rev. 2
P&ID M-151 Sht 4, Rev. 1
V-29-1, Rev. 9
V-29-2, Rev. 12
V-29-3, Rev. 11
V-28-1, Rev. 15
V-28-2, Rev. 14
V-28-3, Rev. 17
C-105, Rev. 20
C-106, Rev. 16
C-134, Rev. 15
C-135, Rev. 16
C-156, Rev. 12
C-157, Rev. 13
C-111, Rev. 15
C-117, Rev. 17
HBB-111-1, Rev. 6
HBB-111-2, Rev. 4
HBB-110-1, Rev. 9
GBB-104-1, Rev. 7
GBB-104-2, Rev. 4
GBB-105-1, Rev. 6
GBB-116-1, Rev. 6
GBB-106-1, Rev. 8

2.5 M-199 Piping Class Sheets

2.6 SEIS Pipeline General Index

2.7 Crane Technical Paper No. 410, 23rd Printing

2.8 ASHRAE 1985 Fundamentals Handbook

2.9 FSAR Table 3.11-6

2.10 FSAR Section 5.2.5.1.3

2.11 Calc # M-PAF-001, Rev. 1 "HVAC Environmental Analysis - Reactor Buildings & Control Structure"

2.12 COTTAP-2 Theory and Input Description Manual (User's Manual), Rev. 1, dated 1/27/89.

3.0 ASSUMPTIONS

1) Plant is operating under normal conditions prior to introducing a steam/water leak.

2) All adjacent rooms will be maintained at their design maximum temperature for summer conditions and at the average temperature for the month of January (if blue-box data is available) for winter conditions. Where winter temperature data is not available, the design minimum temperature of 60°F will be used.

3) The room under consideration will not be allowed to pressurize, as the blowout panel will relieve at approximately 0.5 psid. Therefore, a leakage path out of the room will be used to maintain pressure as close to 14.7 psia as possible. The temperature effects due to slight room pressurization are assumed to be negligeble.

4) The effects of adjacent room heatup are not considered in this analysis (i.e. adjacent room temperatures are held constant). This results in a conservative temperature profile for the room under consideration. The actual adjacent room heatup due to the water leak is expected to be minimal (when considering conductive heat losses).

5) The COTTAP model assumes perfect mixing of the air and water/steam in the room under consideration.

6) The original Bechtel Calc # 176-23 used the Steam Condensing Mode of RHR as the basis for the steam leak to the RHR Pump rooms. In previous outages, this mode of RHR was removed. The high energy piping (steam line from HPCI) associated with this mode of operation no longer exists in the RHR Pump rooms. Therefore, this calculation will use the Shutdown Cooling (SDC) mode of RHR as the basis for the water/steam leak in the RHR Pump rooms.

   The SDC mode initiates on the 98 psig (RX Pressure) permissive. At 98 psig, the lines are warmed by procedure for approximately 2 hours before SDC mode actually starts. During this time, the RX is being cooled down at a maximum allowed rate of 90°F/hr. For conservatism, this calculation will use saturated water at 14.7 psia and 212°F as the starting conditions for the leak. These conditions approximate the minimum requirements which define high energy piping. RHR SDC is considered high energy piping for a very short period of time (i.e. < 1% of the time).

4.0 METHODOLOGY

The Compartment Transient Temperature Analysis Program (COTTAP) was used to analyze the affects of a steam/water leak in various rooms within the plant. The program predicted temperature profiles for the room under consideration with the following set of conditions :

1) 5 gpm water leak (Summer)
2) 5 gpm water leak (Winter)
3) 25 gpm water leak (Summer)
4) 25 gpm water leak (Winter)

The individual room models were developed from various sources of information, as identified in Section 2.0 References. The results will consist of the COTTAP output and the plots of various profiles for the conditions stated above. The following discussion is provided to outline the steps used in developing the individual room models.

4.1 General Data For Rooms

Room Volumes : The room volume was taken from Reference 2.1 for the room under consideration. Adjacent room volumes were set to a large value (i.e. 1.0 EE15 cu. ft.) to maintain constant properties such as temperature, pressure and relative humidity.

Initial Pressure : All rooms were assumed to be at an initial pressure of 14.7 psia.

Initial Temperature : All rooms were assumed to be at their maximum normal design temperature initially for summer conditions. Actual winter data was used, where available, as a starting point for the winter runs. The winter data was taken as the "blue-box" average temperature for January 1988. The January data was considered to be more conservative than February data. Where actual winter data was not available, the design minimum room temperature of 60° F was used. Where winter data was not available for the room in question, the room was started at a temperature which allows it to reach a steady-state with its adjacent rooms.

The outside ambient temperature was taken as 79°F (summer) and 26°F (winter). The summer ambient was taken from Reference 2.8 as the 24 hour daily average temperature, based upon the 1% ASHRAE design value for the Wilkes-Barre/ Scranton area. The winter value was taken as the actual monthly average for January over the years 1986 thru 1989. This average was based upon SSES Meteorological Data taken from the plant computer. A comparison of February data over this same time period indicated that the January data was more conservative.

Relative Humidity : The relative humidity for all rooms connected by ventilation or leakage paths is based upon outside air temperatures of 92°F DB / 78°F WB (summer) and -5°F DB / -5°F WB (winter). Air at these conditions was then allowed to heat up or cool down (sensible heating/cooling only) to the initial room temperature, and the corresponding RH value calculated or read from the psychrometric chart.

Room Height : This value is no longer used by COTTAP. It's original purpose was associated with the wall condensation calculation used within COTTAP. COTTAP has been revised and no longer uses this information. Therefore, a value of 10.0 ft was inputted for each room. This value has no significance to the calculation. Note that the actual room height was used in the calculation of room volume.

4.2 Airflow and Leakage Path Data

Airflow Data : The design airflow is provided for the room under consideration. All flow paths are identified (i.e. supply, exhaust and transfer air). The source of the airflow data is the P&ID associated with the particular ventilation system for that room. The data identifies the room from which the air comes, and the room to which the air goes.

Since air flows are balanced to ± 10% accuracy, a conservative value of 1760 scfm was used for room I-13/I-103 (1600 scfm x 1.1). A value of 1210 scfm was used for room I-14/I-104 (1100 scfm x 1.1).

Leakage Path Data : As with the airflow data, all rooms connected to the leakage path are identified. The leakage path area is only used to scale the leakage flowrates for the entire compartment under consideration. The intent of the leakage path is to prevent compartment pressurization. For most rooms (except RWCU), only one leakage path is used, and a value of 1.0 sq. ft. is inputted for the leakage path area. When more than one leakage path exists, actual leakage areas can be inputted to better understand leakage flows between adjacent compartments.

4.3 Heat Load Data

Heat Load Type : The type of heat load was identified using the following nomenclature :

Type	Description
1	Lighting
2	Electrical Panels
3	Motors
4	Unit Coolers
5	Piping
8	Misc. Mechanical Equipment

Heat Input Rate : The heat rate input in Btu/hr for the associated heat load.

The values for heat load types 1 thru 3 were obtained from References 2.2 & 2.3. The heat rate inputs for type 4 heat loads are inputted as negative values since the unit coolers remove heat from the room. The heat input rate for type 5 heat loads were input as -1. This value directs COTTAP to obtain piping information necessary to calculate the piping heat loads. The heat input rate for type 8 heat loads was obtained from References 2.2 & 2.3, as necessary for the appropriate room.

To achieve an initial steady-state condition, a miscellaneous heat load (positive or negative) was added to the main room to balance all other time zero heat loads. This heat load was inputted as type 8.

Note that COTTAP neglects cold pipe and equipment as heat sinks. This represents non-conservatism in this calculation. A sample run made to determine the effects of these heat sinks indicated that resultant temperatures were only slightly lower than the values predicted when neglecting these heat sinks. Therefore, this calculation assumes the effects of these heat sinks are negligable.

For walls and floors in contact with ground, the model predicts a conservative value of heat loss to ground. The slabs are assumed to be in contact with soil at a temperature of 55°F. To model the heat loss to ground, a large value of surface film convective heat transfer coefficient (100 Btu/hr-sq ft- F) has been introduced on the ground side of the floors and walls to achieve a ground contact temperature of 55°F.

4.4 Piping Input Data

Only piping with a design temperature greater than that of the normal room design temperature was included, since COTTAP ignores cold pipe as a heat sink. This generally meant that piping at or close to Reactor conditions was included. Also note that this calculation neglects heat loss from small pipe (i.e. less than 2" OD).

Pipe OD	:	The outside diameter of the pipe was obtained from Reference 2.4 .
Pipe ID	:	The pipe schedule was obtained from Reference 2.5 . Knowing the schedule, the inside diameter was obtained from Reference 2.7 .
Insulation OD	:	The insulation OD was obtained from Reference 2.11 .
Pipe Length	:	The pipe length was obtained from Reference 2.4 .
Emmisivity	:	The emmisivity was obtained from Reference 2.11 .
Insulation k Value	:	The insulation thermal conductivity (k) was obtained from Reference 2.11 .
Pipe Fluid Temperature	:	The design fluid temperature was obtained from Reference 2.6 .

Fluid Phase : The state of the fluid was determined by reviewing the system P&ID's and design temperatures/pressures. If a particular line could carry steam or water, it was assumed to be liquid for conservatism.

4.5 General Data For Thick Slabs

Room ID # on Side 1 : The room number on one side of the slab.

Room ID # on Side 2 : The room number on the other side of the slab. When slab is adjacent to ground, a room # of "0" is used.

Thickness : The thickness of the slab was obtained from Reference 2.4 .

Heat Transfer Area : The area of the slab was obtained from Reference 2.4 . The dimensions were scaled from plant ventilation drawings. The slab areas are calculated in the Data Input Section (Refer to Appendix A).

Thermal Conductivity : The thermal conductivity of the concrete slabs were obtained from Reference 2.8 , Chapter 23 Table 3A. A value of 1.0 Btu/hr sq-ft F was used for all concrete slabs.

Density : The density of all concrete slabs is assumed to be 140 lbm/cu ft. This value was obtained from Reference 2.8 , Chapter 23 Table 3A.

Specific Heat : The specific heat for all concrete slabs was assumed to be 0.22 Btu/lbm F as obtained from Reference 2.8 , Chapter 23 Table 3A.

4.6 Film Coefficient Data For Thick Slabs

Type w/r to Room on Side 1 : The type of slab with respect to the room on Side 1 was defined using the following codes :

Type 1	Vertical Wall
Type 2	Floor
Type 3	Ceiling

h1 & h2 : All film coefficients (h) for inside walls were calculated by COTTAP. The film coefficient for walls in contact with outside air were inputted as :

Summer	4.0	Btu/hr-sq ft- F
Winter	6.0	Btu/hr-sq ft- F

(Per Reference 2.8 , Chapter 23, Table 1)

A value of 100 Btu/hr-sq ft- F was inputted for walls in contact with ground. This value helps to simulate a wall (or floor) in contact with soil at 55°F. This will result in a conservative prediction of the heat loss to ground.

4.7 Pipe Break Data

Fluid Pressure : The fluid pressure within the pipe (psia). The RHR Pump Rooms used saturared fluid conditions of 14.7 psia, which was considered representative of normal Reactor conditions during the Shutdown Cooling mode of RHR.

Mass Flow : The total mass flow exiting the pipe break (lbm/hr) was inputted as follows :

for 5 gpm water/steam leak :

5 gal/min x 1 cu ft/7.48 gal x 60 min/hr / .016719 cu ft/lbm = 2400 lbm/hr

vf = 0.016719 cu ft/lbm @ 14.7 psia and 212°F (per ASME Steam Tables)

for 25 gpm water/steam leak :

5 x 2400 lbm/hr = 12000 lbm/hr

The break occurs at t=0.5 hrs. This allows the room to reach equilibrium conditions prior to initiation of the break. In all room models, the break mass flow is allowed to increase linearly (ramp) from 0 lbm/hr to its maximum value over 0.1 hrs.

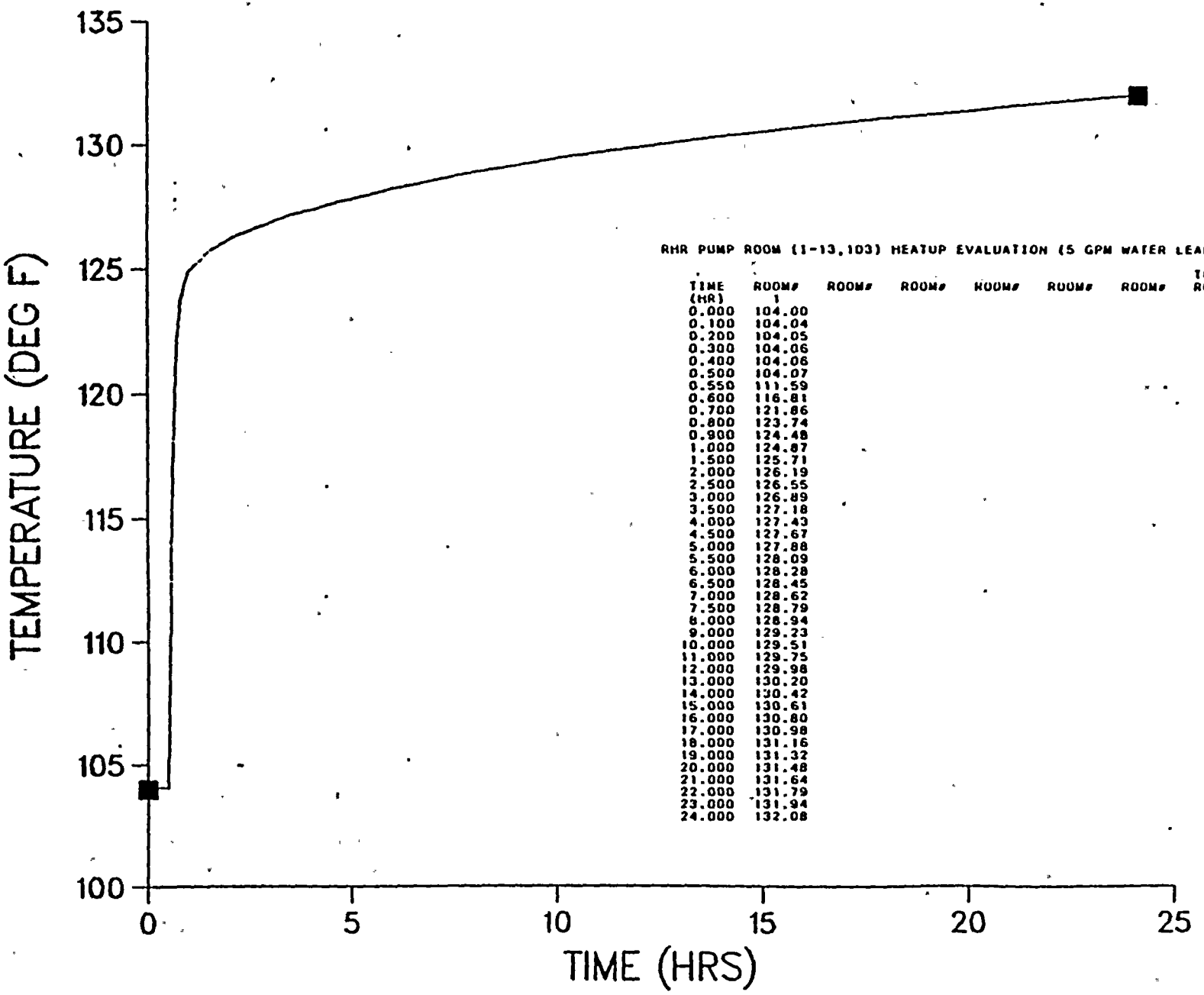
5.0 RESULTS/CONCLUSIONS

The following pages provide the temperature profiles resulting from the RHR Pump Room models for the conditions stated below :

1) 5 gpm water leak (Summer)
2) 5 gpm water leak (Winter)
3) 25 gpm water leak (Summer)
4) 25 gpm water leak (Winter)

The COTTAP output for each case above can be found as Attachments 1 thru 8, respectively. Each output provides a summary of the data input, and the results of each time step within the 24 hour run time. At the end of each COTTAP output, a summary table of Temp vs Time information is also provided.

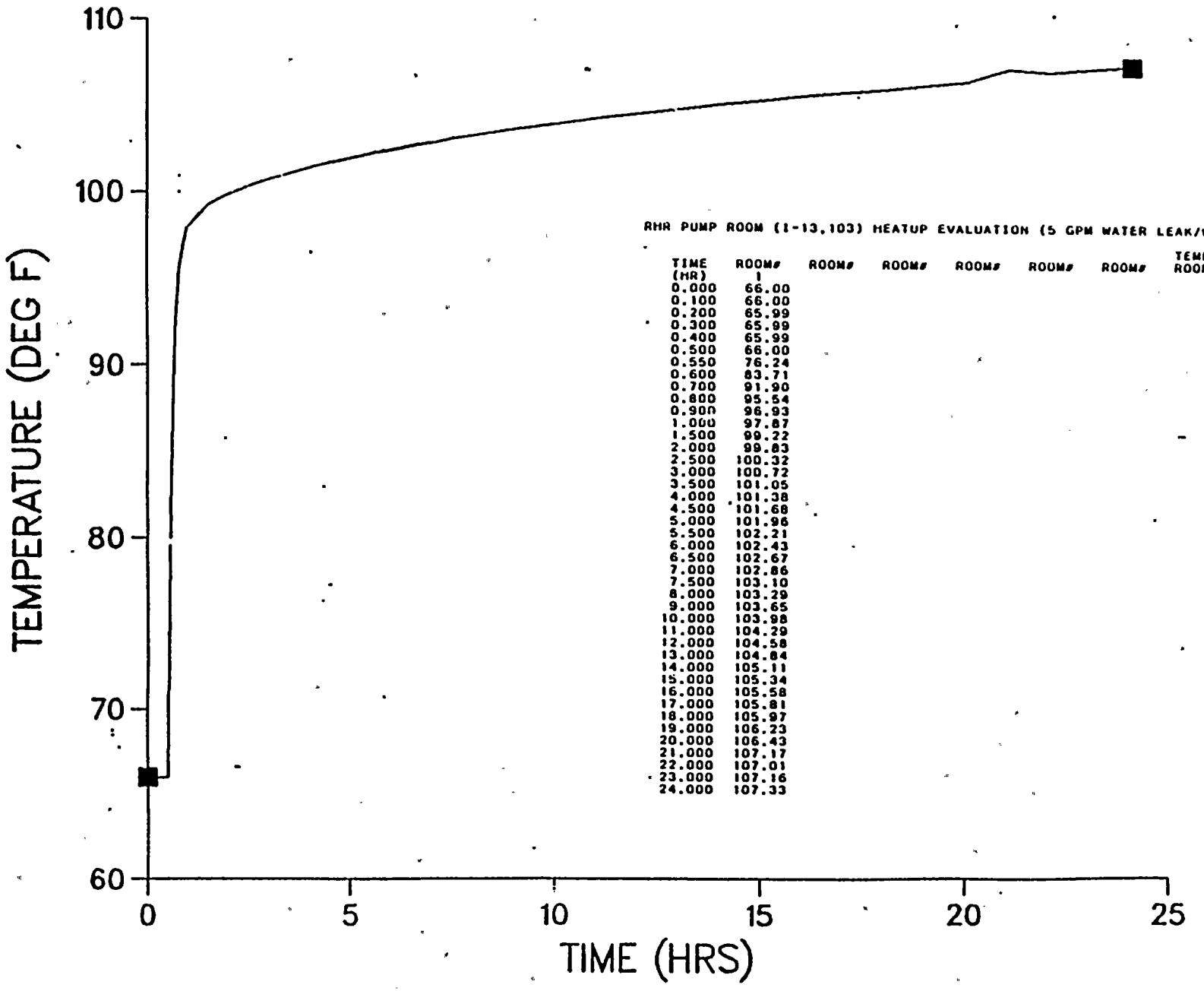
RHR PUMP ROOM (1–13,103) HEATUP EVALUATION (5 GPM WATER LEAK/SUMMER)



RHR PUMP ROOM (1-13,103) HEATUP EVALUATION (5 GPM WATER LEAK/SUMMER)

TIME (HR)	TEMPERATURE (DEG F) ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
0.000	104.00								
0.100	104.04								
0.200	104.05								
0.300	104.06								
0.400	104.06								
0.500	104.07								
0.550	111.59								
0.600	116.81								
0.700	121.86								
0.800	123.74								
0.900	124.48								
1.000	124.87								
1.500	125.71								
2.000	126.19								
2.500	126.55								
3.000	126.89								
3.500	127.18								
4.000	127.43								
4.500	127.67								
5.000	127.88								
5.500	128.09								
6.000	128.28								
6.500	128.45								
7.000	128.62								
7.500	128.79								
8.000	128.94								
9.000	129.23								
10.000	129.51								
11.000	129.75								
12.000	129.98								
13.000	130.20								
14.000	130.42								
15.000	130.61								
16.000	130.80								
17.000	130.98								
18.000	131.16								
19.000	131.32								
20.000	131.48								
21.000	131.64								
22.000	131.79								
23.000	131.94								
24.000	132.08								

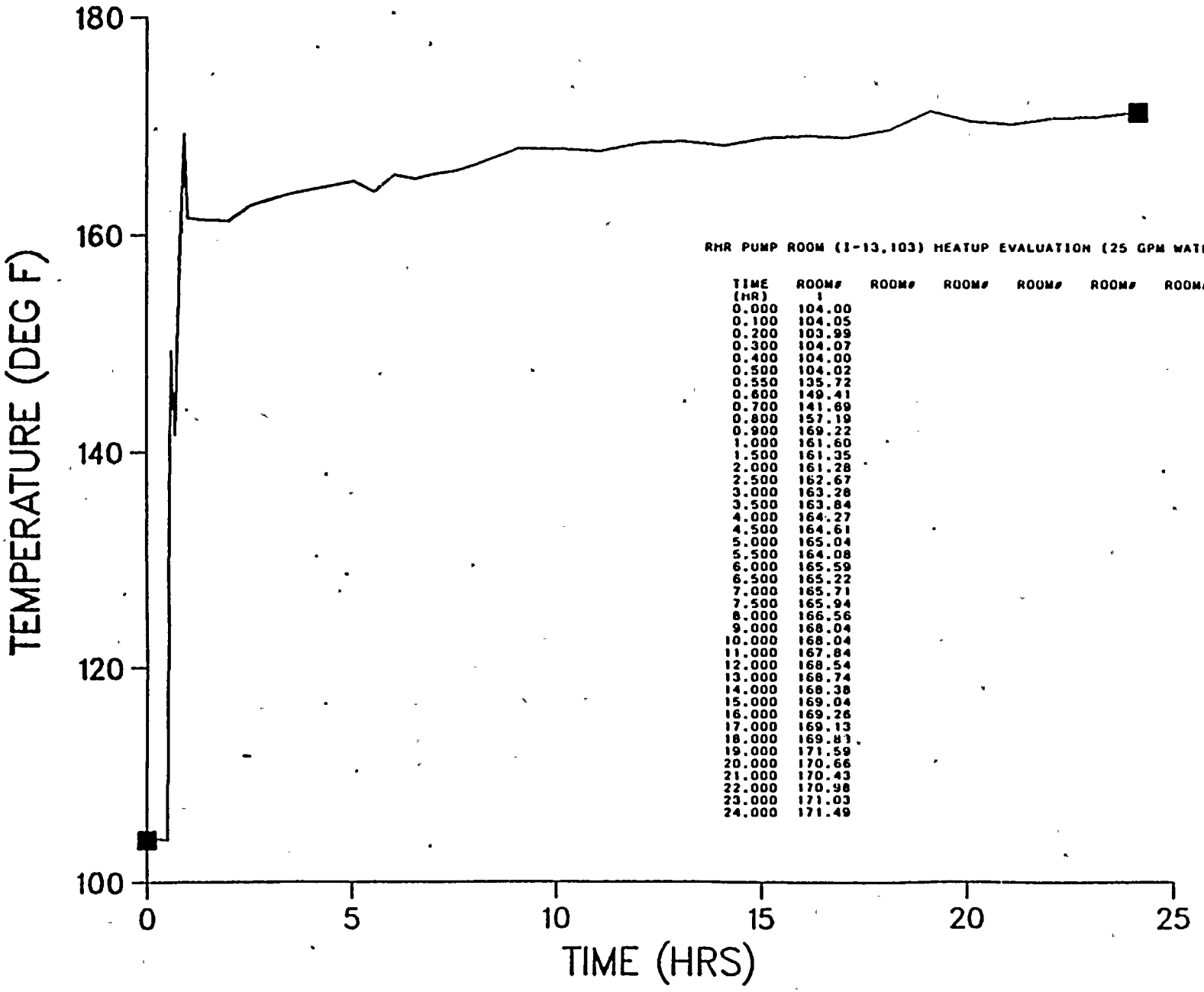
RHR PUMP ROOM (I–13,103) HEATUP EVALUATION (5 GPM WATER LEAK/WINTER)



RHR PUMP ROOM (I-13,103) HEATUP EVALUATION (5 GPM WATER LEAK/WINTER)

TIME (HR)	TEMPERATURE (DEG F) ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
0.000	66.00									
0.100	66.00									
0.200	65.99									
0.300	65.99									
0.400	65.99									
0.500	66.00									
0.550	76.24									
0.600	83.71									
0.700	91.90									
0.800	95.54									
0.900	96.93									
1.000	97.87									
1.500	99.22									
2.000	99.83									
2.500	100.32									
3.000	100.72									
3.500	101.05									
4.000	101.38									
4.500	101.68									
5.000	101.96									
5.500	102.21									
6.000	102.43									
6.500	102.67									
7.000	102.86									
7.500	103.10									
8.000	103.29									
9.000	103.65									
10.000	103.98									
11.000	104.29									
12.000	104.58									
13.000	104.84									
14.000	105.11									
15.000	105.34									
16.000	105.58									
17.000	105.81									
18.000	105.97									
19.000	106.23									
20.000	106.43									
21.000	107.17									
22.000	107.01									
23.000	107.16									
24.000	107.33									

RHR PUMP ROOM (I–13,103) HEATUP EVALUATION (25 GPM WATER LEAK/SUMMER)



RHR PUMP ROOM (I-13,103) HEATUP EVALUATION (25 GPM WATER LEAK/SUMMER)

TIME (HR)	TEMPERATURE (DEG F) ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
0.000	104.00									
0.100	104.05									
0.200	103.99									
0.300	104.07									
0.400	104.00									
0.500	104.02									
0.550	135.72									
0.600	149.41									
0.700	141.69									
0.800	157.19									
0.900	169.22									
1.000	161.60									
1.500	161.35									
2.000	161.28									
2.500	162.67									
3.000	163.28									
3.500	163.84									
4.000	164.27									
4.500	164.61									
5.000	165.04									
5.500	164.08									
6.000	165.59									
6.500	165.22									
7.000	165.71									
7.500	165.94									
8.000	166.56									
9.000	168.04									
10.000	168.04									
11.000	167.84									
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14.000	168.38									
15.000	169.04									
16.000	169.26									
17.000	169.13									
18.000	169.83									
19.000	171.59									
20.000	170.66									
21.000	170.43									
22.000	170.98									
23.000	171.03									
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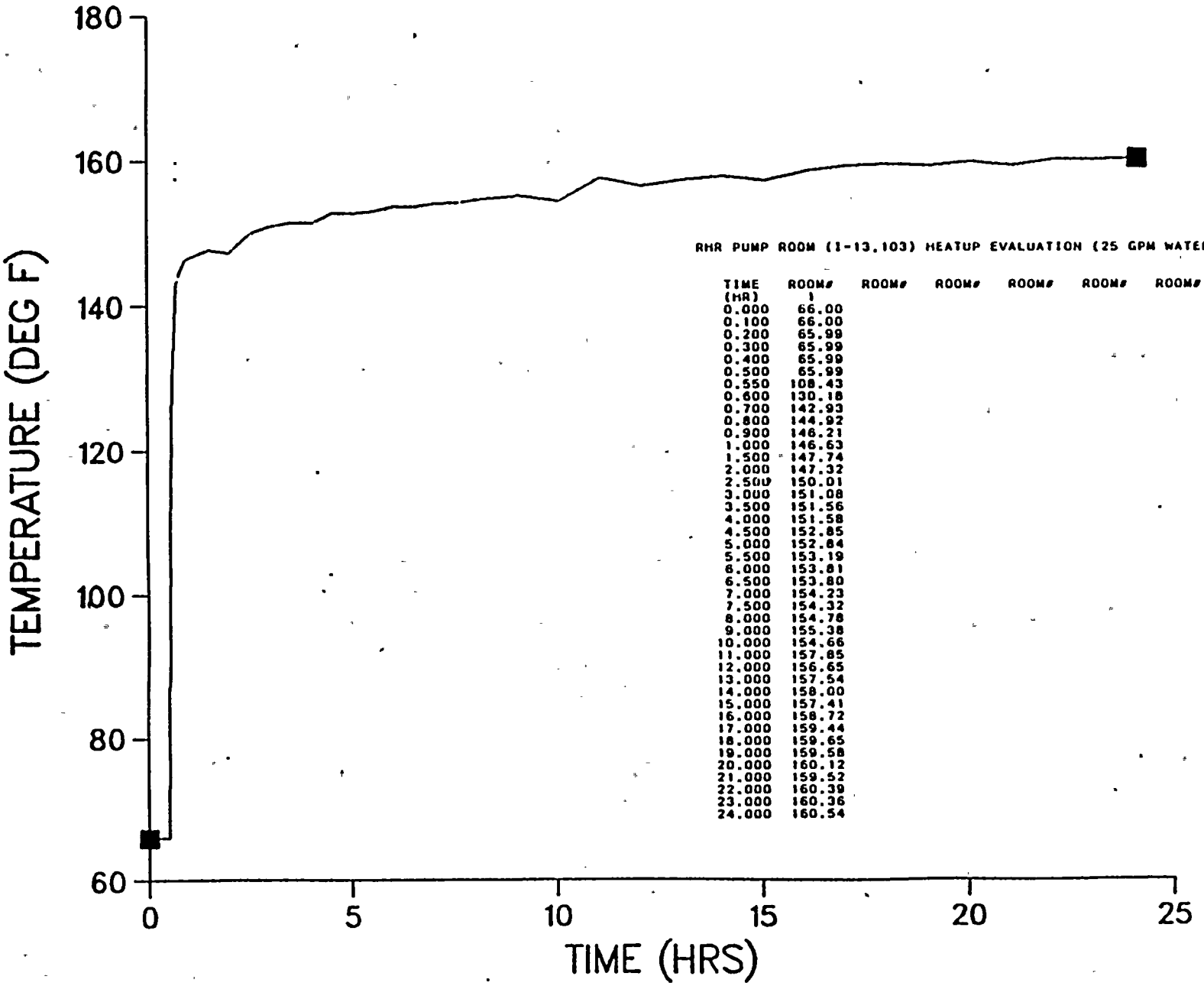
RHR PUMP ROOM (I–13,103) HEATUP EVALUATION (25 GPM WATER LEAK/WINTER)



RHR PUMP ROOM (1-13,103) HEATUP EVALUATION (25 GPM WATER LEAK/WINTER)

TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	TEMPERATURE (DEG F) ROOM#	ROOM#	ROOM#
0.000	66.00								
0.100	66.00								
0.200	65.99								
0.300	65.99								
0.400	65.99								
0.500	65.99								
0.550	108.43								
0.600	130.18								
0.700	142.93								
0.800	144.92								
0.900	146.21								
1.000	146.63								
1.500	147.74								
2.000	147.32								
2.500	150.01								
3.000	151.08								
3.500	151.56								
4.000	151.58								
4.500	152.85								
5.000	152.84								
5.500	153.19								
6.000	153.81								
6.500	153.80								
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7.500	154.32								
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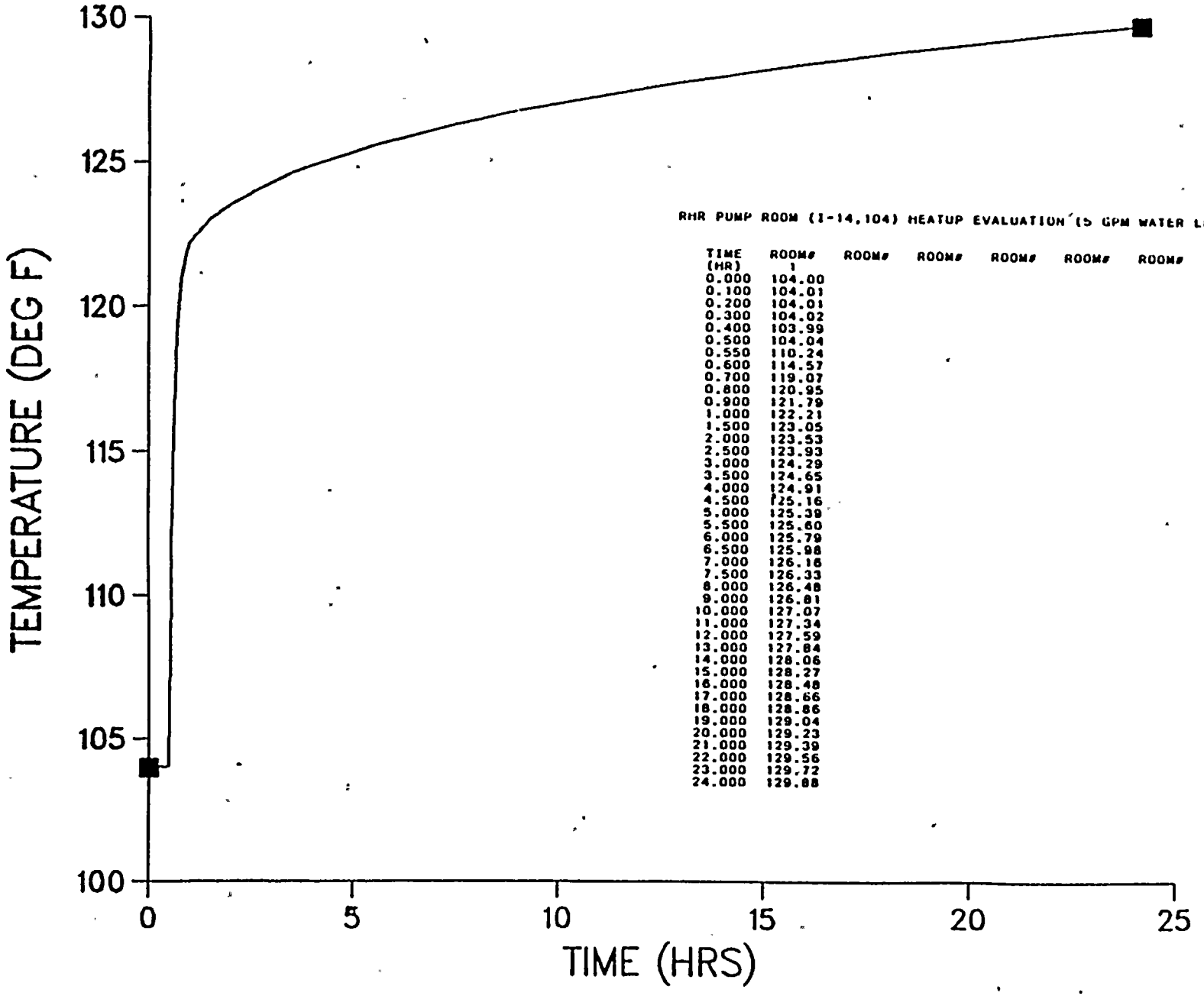
9.000	155.38								
10.000	154.66								
11.000	157.85								
12.000	156.65								
13.000	157.54								
14.000	158.00								
15.000	157.41								
16.000	158.72								
17.000	159.44								
18.000	159.65								
19.000	159.58								
20.000	160.12								
21.000	159.52								
22.000	160.39								
23.000	160.36								
24.000	160.54								

RHR PUMP ROOM (I–14,104) HEATUP EVALUATION (5 GPM WATER LEAK/SUMMER)



RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (5 GPM WATER LEAK/SUMMER)

TIME (HR)	TEMPERATURE (DEG F) ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
0.000	104.00									
0.100	104.01									
0.200	104.01									
0.300	104.02									
0.400	103.99									
0.500	104.04									
0.550	110.24									
0.600	114.57									
0.700	119.07									
0.800	120.95									
0.900	121.79									
1.000	122.21									
1.500	123.05									
2.000	123.53									
2.500	123.93									
3.000	124.29									
3.500	124.65									
4.000	124.91									
4.500	125.16									
5.000	125.39									
5.500	125.60									
6.000	125.79									
6.500	125.98									
7.000	126.16									
7.500	126.33									
8.000	126.48									
9.000	126.81									
10.000	127.07									
11.000	127.34									
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15.000	128.27									
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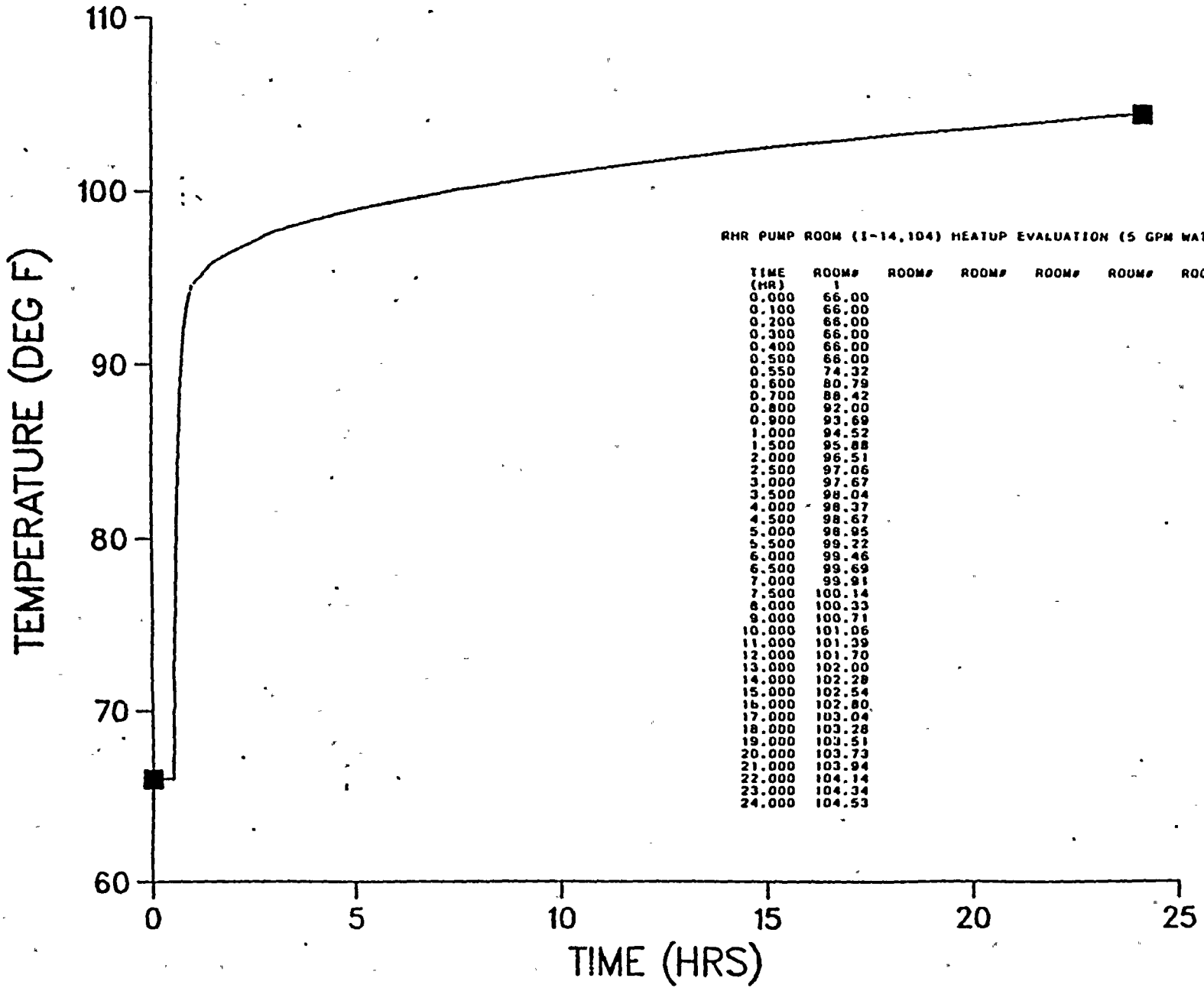
18.000	128.86									
19.000	129.04									
20.000	129.23									
21.000	129.39									
22.000	129.56									
23.000	129.72									
24.000	129.88									

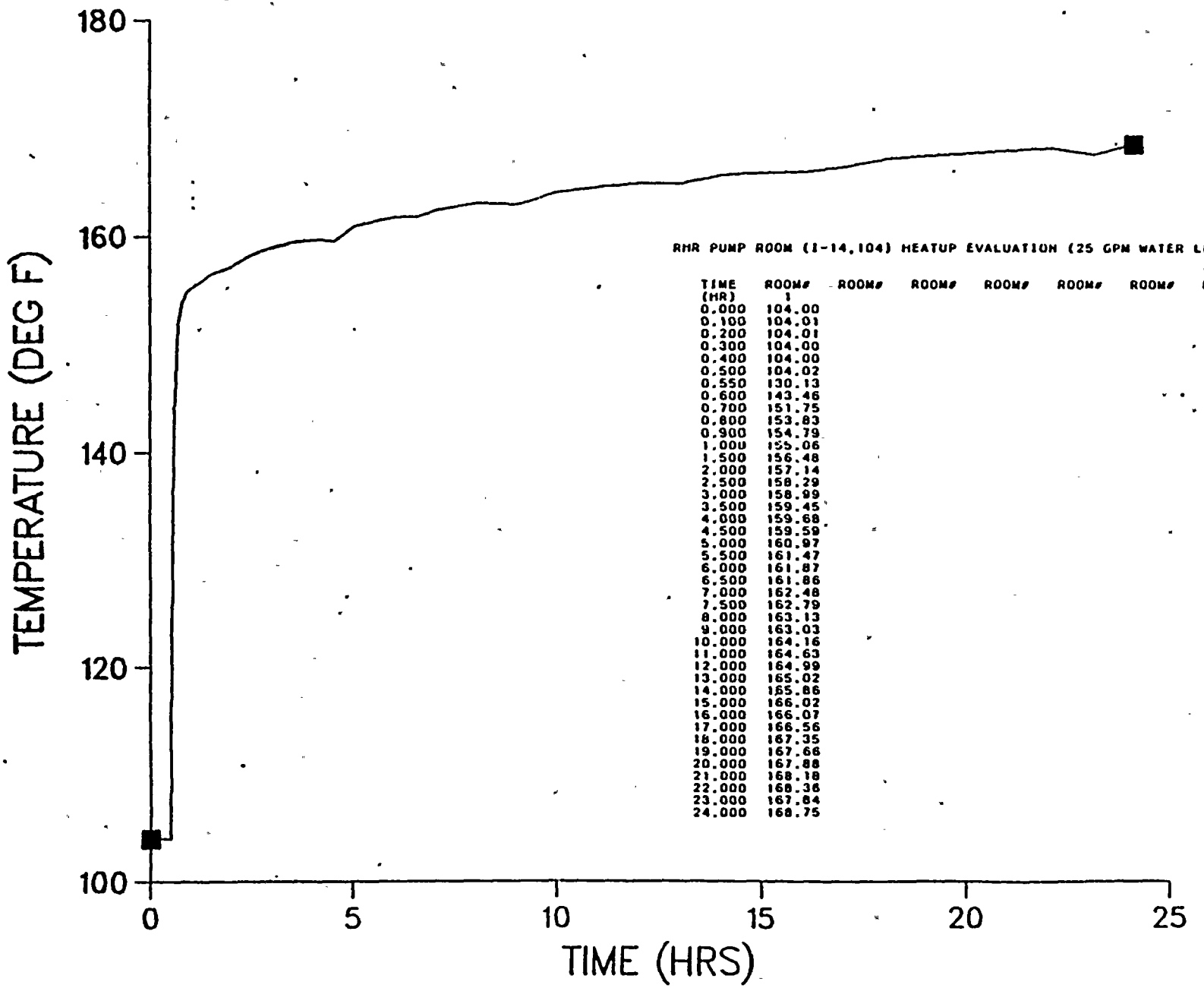
RHR PUMP ROOM (I–14,104) HEATUP EVALUATION (5 GPM WATER LEAK/WINTER)



RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (5 GPM WATER LEAK/WINTER)

TIME (HR)	TEMPERATURE (DEG F) ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
0.000	66.00									
0.100	66.00									
0.200	66.00									
0.300	66.00									
0.400	66.00									
0.500	66.00									
0.550	74.32									
0.600	80.79									
0.700	88.42									
0.800	92.00									
0.900	93.69									
1.000	94.52									
1.500	95.88									
2.000	96.51									
2.500	97.06									
3.000	97.67									
3.500	98.04									
4.000	98.37									
4.500	98.67									
5.000	98.95									
5.500	99.22									
6.000	99.46									
6.500	99.69									
7.000	99.91									
7.500	100.14									
8.000	100.33									
9.000	100.71									
10.000	101.06									
11.000	101.39									
12.000	101.70									
13.000	102.00									
14.000	102.28									
15.000	102.54									
16.000	102.80									
17.000	103.04									
18.000	103.28									
19.000	103.51									
20.000	103.73									
21.000	103.94									
22.000	104.14									
23.000	104.34									
24.000	104.53									

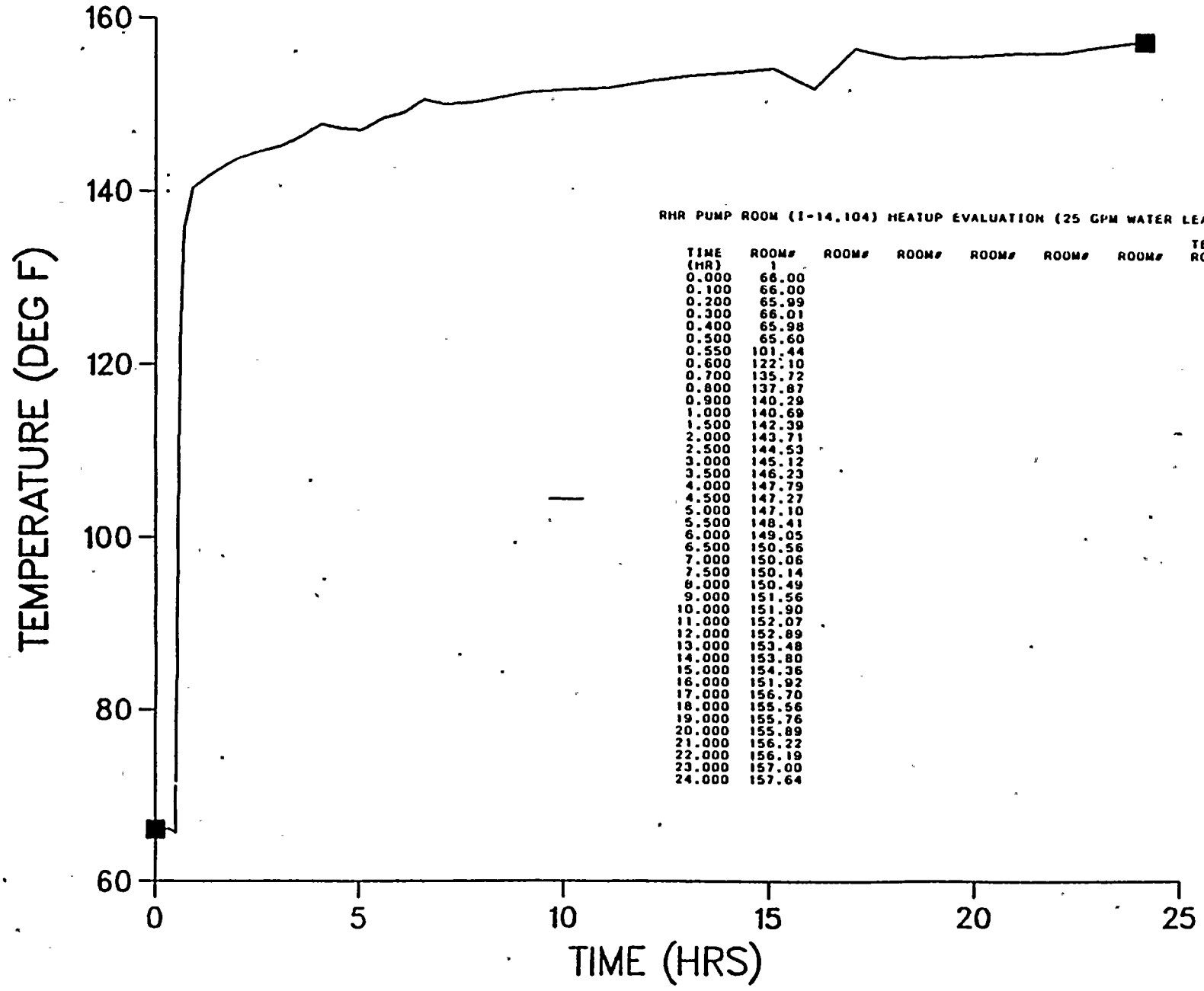
RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (25 GPM WATER LEAK/SUMMER)



RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (25 GPM WATER LEAK/SUMMER)

TIME (HR)	TEMPERATURE (DEG F) ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
0.000	104.00									
0.100	104.01									
0.200	104.01									
0.300	104.00									
0.400	104.00									
0.500	104.02									
0.550	130.13									
0.600	143.46									
0.700	151.75									
0.800	153.83									
0.900	154.79									
1.000	155.06									
1.500	156.48									
2.000	157.14									
2.500	158.29									
3.000	158.99									
3.500	159.45									
4.000	159.68									
4.500	159.59									
5.000	160.97									
5.500	161.47									
6.000	161.87									
6.500	161.86									
7.000	162.48									
7.500	162.79									
8.000	163.13									
9.000	163.03									
10.000	164.16									
11.000	164.63									
12.000	164.99									
13.000	165.02									
14.000	165.86									
15.000	166.02									
16.000	166.07									
17.000	166.56									
18.000	167.35									
19.000	167.66									
20.000	167.88									
21.000	168.18									
22.000	168.36									
23.000	167.84									
24.000	168.75									

RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (25 GPM WATER LEAK/WINTER)



RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (25 GPM WATER LEAK/WINTER)

TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	TEMPERATURE (DEG F) ROOM#	ROOM#	ROOM#
0.000	66.00									
0.100	66.00									
0.200	65.99									
0.300	66.01									
0.400	65.98									
0.500	65.60									
0.550	101.44									
0.600	122.10									
0.700	135.72									
0.800	137.87									
0.900	140.29									
1.000	140.69									
1.500	142.39									
2.000	143.71									
2.500	144.53									
3.000	145.12									
3.500	146.23									
4.000	147.79									
4.500	147.27									
5.000	147.10									
5.500	148.41									
6.000	149.05									
6.500	150.56									
7.000	150.06									
7.500	150.14									
8.000	150.49									
9.000	151.56									
10.000	151.90									
11.000	152.07									
12.000	152.89									
13.000	153.48									
14.000	153.80									
15.000	154.36									
16.000	151.92									
17.000	156.70									
18.000	155.56									
19.000	155.76									
20.000	155.89									
21.000	156.22									
22.000	156.19									
23.000	157.00									
24.000	157.64									

COTTAP RUN

RHR Rooms

50 gpm Leak Rate

RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (50 GPM WATER LEAK/WINTER)

TEMPERATURE (

OM# TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
0.000000	66.00							
0.100000	65.99							
0.200000	65.99							
0.300000	66.00							
0.400000	65.99							
0.500000	65.87							
0.550000	125.31							
0.600000	146.15							
0.700000	154.12							
0.800000	155.46							
0.900000	155.80							
1.000000	156.62							
1.500000	158.91							
2.000000	160.49							
2.500000	161.47							
3.000000	161.78							
3.500000	163.46							
4.000000	163.83							
4.500000	165.12							
5.000000	165.26							
5.500000	165.78							
6.000000	166.32							
6.500000	167.01							
7.000000	166.52							
7.500000	167.65							
8.000000	167.98							
9.000000	168.71							
10.000000	170.23							
11.000000	170.11							
12.000000	170.48							
13.000000	170.31							
14.000000	171.26							
15.000000	172.04							
16.000000	171.93							
17.000000	172.80							
18.000000	173.06							
19.000000	173.23							
20.000000	173.26							
21.000000	173.34							
22.000000	174.18							
23.000000	174.69							
24.000000	174.94							

SUMMARY OF MAXIMUM COMPARTMENT TEMPERATURES AND TIME OF OCCURRENCE

ROOM#	MAX TEMP (F)	TIME OF OCCURRENCE (HR)
1	174.94	24.0000

RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (50 GPM WATER LEAK/WINTER)

PRESSURE (P

OOM# TIME	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM

(HR)	1
0.000000	14.700000
0.100000	14.700000
0.200000	14.700000
0.300000	14.700000
0.400000	14.700000
0.500000	14.700000
0.550000	14.717000
0.600000	14.704000
0.700000	14.701000
0.800000	14.700000
0.900000	14.700000
1.000000	14.700000
1.500000	14.701000
2.000000	14.699000
2.500000	14.700000
3.000000	14.699000
3.500000	14.700000
4.000000	14.700000
4.500000	14.699000
5.000000	14.700000
5.500000	14.700000
6.000000	14.700000
6.500000	14.700000
7.000000	14.699000
7.500000	14.700000
8.000000	14.700000
9.000000	14.700000
10.000000	14.699000
11.000000	14.700000
12.000000	14.700000
13.000000	14.700000
14.000000	14.700000
15.000000	14.700000
16.000000	14.700000
17.000000	14.699000
18.000000	14.700000
19.000000	14.701000
20.000000	14.701000
21.000000	14.700000
22.000000	14.700000
23.000000	14.700000
24.000000	14.700000

SUMMARY OF MAXIMUM COMPARTMENT PRESSURES AND TIME OF OCCURRENCE

ROOM#	MAX PRES (PSIA)	TIME OF OCCURRENCE (HR)
1	14.717	0.55

RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (50 GPM WATER LEAK/WINTER)

#	TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	RELATIVE HUM ROOM#	ROO
	0.000	0.100							
	0.100	0.099							

0.200	0.097
0.300	0.096
0.400	0.095
0.500	0.094
0.550	0.015
0.600	0.009
0.700	0.007
0.800	0.007
0.900	0.007
1.000	0.006
1.500	0.006
2.000	0.006
2.500	0.005
3.000	0.005
3.500	0.005
4.000	0.005
4.500	0.005
5.000	0.005
5.500	0.005
6.000	0.005
6.500	0.005
7.000	0.005
7.500	0.005
8.000	0.004
9.000	0.004
10.000	0.004
11.000	0.004
12.000	0.004
13.000	0.004
14.000	0.004
15.000	0.004
16.000	0.004
17.000	0.004
18.000	0.004
19.000	0.004
20.000	0.004
21.000	0.004
22.000	0.004
23.000	0.004
24.000	0.004

SUMMARY OF MAXIMUM COMPARTMENT RELATIVE HUMIDITY AND TIME OF OCCURRENCE

ROOM#	MAX HUMIDITY	TIME OF OCCURRENCE (HR)
1	0.10	0.00

RHR PUMP ROOM (I-13,103) HEATUP EVALUATION (50 GPM WATER LEAK/WINTER)

TEMPERATURE (

OM# TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
0.000000	66.00								
0.100000	65.95								
0.200000	65.95								
0.300000	65.94								
0.400000	65.89								
0.500000	66.00								
0.550000	134.54								
0.600000	153.87								
0.700000	160.70								
0.800000	161.51								
0.900000	162.01								
1.000000	162.88								
1.500000	164.66								
2.000000	165.91								
2.500000	166.97								
3.000000	167.95								
3.500000	168.17								
4.000000	169.32								
4.500000	169.45								
5.000000	169.98								
5.500000	170.50								
6.000000	170.84								
6.500000	171.25								
7.000000	171.69								
7.500000	172.32								
8.000000	172.43								
9.000000	174.10								
10.000000	173.47								
11.000000	174.07								
12.000000	173.90								
13.000000	174.57								
14.000000	175.20								
15.000000	175.37								
16.000000	175.98								
17.000000	176.05								
18.000000	176.52								
19.000000	176.74								
20.000000	177.05								
21.000000	177.10								
22.000000	177.32								
23.000000	177.94								
24.000000	178.47								

SUMMARY OF MAXIMUM COMPARTMENT TEMPERATURES AND TIME OF OCCURRENCE

ROOM#	MAX TEMP (F)	TIME OF OCCURRENCE (HR)
1	178.47	24.0000

RHR PUMP ROOM (I-13,103) HEATUP EVALUATION (50 GPM WATER LEAK/WINTER)

PRESSURE (P

OOM# TIME	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM

(HR)	1
0.000000	14.700000
0.100000	14.700000
0.200000	14.700000
0.300000	14.700000
0.400000	14.700000
0.500000	14.709000
0.550000	14.711000
0.600000	14.706000
0.700000	14.700000
0.800000	14.700000
0.900000	14.700000
1.000000	14.701000
1.500000	14.700000
2.000000	14.700000
2.500000	14.700000
3.000000	14.700000
3.500000	14.700000
4.000000	14.700000
4.500000	14.700000
5.000000	14.700000
5.500000	14.700000
6.000000	14.701000
6.500000	14.700000
7.000000	14.700000
7.500000	14.699000
8.000000	14.700000
9.000000	14.700000
10.000000	14.700000
11.000000	14.700000
12.000000	14.700000
13.000000	14.700000
14.000000	14.700000
15.000000	14.701000
16.000000	14.700000
17.000000	14.699000
18.000000	14.700000
19.000000	14.700000
20.000000	14.700000
21.000000	14.700000
22.000000	14.700000
23.000000	14.700000
24.000000	14.700000

SUMMARY OF MAXIMUM COMPARTMENT PRESSURES AND TIME OF OCCURRENCE

ROOM#	MAX PRES (PSIA)	TIME OF OCCURRENCE (HR)
1	14.711	0.55

RHR PUMP ROOM (I-13,103) HEATUP EVALUATION (50 GPM WATER LEAK/WINTER)

ROOM#	TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	RELATIVE HUM ROOM#	ROO
	0.000	0.100							
	0.100	0.098							

0.200	0.096
0.300	0.094
0.400	0.092
0.500	0.091
0.550	0.011
0.600	0.007
0.700	0.006
0.800	0.006
0.900	0.005
1.000	0.005
1.500	0.005
2.000	0.005
2.500	0.005
3.000	0.004
3.500	0.004
4.000	0.004
4.500	0.004
5.000	0.004
5.500	0.004
6.000	0.004
6.500	0.004
7.000	0.004
7.500	0.004
8.000	0.004
9.000	0.004
10.000	0.004
11.000	0.004
12.000	0.004
13.000	0.004
14.000	0.004
15.000	0.004
16.000	0.004
17.000	0.004
18.000	0.004
19.000	0.004
20.000	0.004
21.000	0.004
22.000	0.004
23.000	0.004
24.000	0.004

SUMMARY OF MAXIMUM COMPARTMENT RELATIVE HUMIDITY AND TIME OF OCCURRENCE

ROOM#	MAX HUMIDITY	TIME OF OCCURRENCE (HR)
1	0.10	0.00

RHR PUMP ROOM (I-13,103) HEATUP EVALUATION ([redacted] GPM WATER LEAK/SUMMER)

OM#	TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
		TEMPERATURE (DEG F)													
	0.000000	104.00													
	0.100000	103.75													
	0.200000	103.65													
	0.300000	103.56													
	0.400000	103.60													
	0.500000	103.57													
	0.550000	150.53													
	0.600000	159.52													
	0.700000	161.80													
	0.800000	163.18													
	0.900000	162.82													
	1.000000	164.71													
	1.500000	167.09													
	2.000000	167.72													
	2.500000	169.50													
	3.000000	170.38													
	3.500000	171.36													
	4.000000	172.06													
	4.500000	171.88													
	5.000000	173.32													
	5.500000	173.91													
	6.000000	174.12													
	6.500000	172.93													
	7.000000	174.40													
	7.500000	175.74													
	8.000000	176.04													
	9.000000	176.20													
	10.000000	178.40													
	11.000000	177.99													
	12.000000	178.36													
	13.000000	178.55													
	14.000000	179.55													
	15.000000	180.04													
	16.000000	180.18													
	17.000000	180.79													
	18.000000	180.83													
	19.000000	181.37													
	20.000000	180.95													
	21.000000	182.21													
	22.000000	182.48													
	23.000000	182.43													
	24.000000	182.63													

SUMMARY OF MAXIMUM COMPARTMENT TEMPERATURES AND TIME OF OCCURRENCE

ROOM#	MAX TEMP (F)	TIME OF OCCURRENCE (HR)
1	182.63	24.0000

RHR PUMP ROOM (I-13,103) HEATUP EVALUATION (25 GPM WATER LEAK/SUMMER)

OOM#	TIME	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
		PRESSURE (PSIA)													

(HR)	1
0.000000	14.700000
0.100000	14.700000
0.200000	14.700000
0.300000	14.700000
0.400000	14.700000
0.500000	14.700000
0.550000	14.706000
0.600000	14.702000
0.700000	14.701000
0.800000	14.700000
0.900000	14.697000
1.000000	14.700000
1.500000	14.700000
2.000000	14.701000
2.500000	14.700000
3.000000	14.700000
3.500000	14.700000
4.000000	14.700000
4.500000	14.700000
5.000000	14.700000
5.500000	14.700000
6.000000	14.699000
6.500000	14.699000
7.000000	14.699000
7.500000	14.700000
8.000000	14.700000
9.000000	14.701000
10.000000	14.696000
11.000000	14.699000
12.000000	14.700000
13.000000	14.701000
14.000000	14.700000
15.000000	14.700000
16.000000	14.701000
17.000000	14.700000
18.000000	14.700000
19.000000	14.700000
20.000000	14.699000
21.000000	14.700000
22.000000	14.700000
23.000000	14.700000
24.000000	14.699000

SUMMARY OF MAXIMUM COMPARTMENT PRESSURES AND TIME OF OCCURRENCE

ROOM#	MAX PRES (PSIA)	TIME OF OCCURRENCE (HR)
1	14.706	0.55

RHR PUMP ROOM (I-13,103) HEATUP EVALUATION (25 GPM WATER LEAK/SUMMER)

RELATIVE HUMIDITY

ROOM#	TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
	0.000	0.380													
	0.100	0.383													

0.200	0.384
0.300	0.384
0.400	0.384
0.500	0.384
0.550	0.108
0.600	0.087
0.700	0.082
0.800	0.079
0.900	0.080
1.000	0.076
1.500	0.072
2.000	0.071
2.500	0.068
3.000	0.067
3.500	0.066
4.000	0.064
4.500	0.065
5.000	0.063
5.500	0.062
6.000	0.062
6.500	0.063
7.000	0.061
7.500	0.059
8.000	0.059
9.000	0.059
10.000	0.058
11.000	0.056
12.000	0.056
13.000	0.056
14.000	0.054
15.000	0.054
16.000	0.054
17.000	0.053
18.000	0.053
19.000	0.052
20.000	0.053
21.000	0.051
22.000	0.051
23.000	0.051
24.000	0.051

SUMMARY OF MAXIMUM COMPARTMENT RELATIVE HUMIDITY AND TIME OF OCCURRENCE

ROOM#	MAX HUMIDITY	TIME OF OCCURRENCE (HR)
1	0.38	0.50

RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (50 GPM WATER LEAK/SUMMER)

OM#	TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
		TEMPERATURE (DEG F)													
	0.000000	104.00													
	0.100000	103.79													
	0.200000	103.68													
	0.300000	103.64													
	0.400000	103.71													
	0.500000	103.82													
	0.550000	143.49													
	0.600000	153.57													
	0.700000	157.56													
	0.800000	158.43													
	0.900000	158.85													
	1.000000	159.65													
	1.500000	161.95													
	2.000000	163.38													
	2.500000	164.92													
	3.000000	166.07													
	3.500000	166.67													
	4.000000	167.62													
	4.500000	168.48													
	5.000000	168.97													
	5.500000	169.73													
	6.000000	170.63													
	6.500000	170.71													
	7.000000	177.56													
	7.500000	171.79													
	8.000000	172.30													
	9.000000	172.90													
	10.000000	173.82													
	11.000000	174.12													
	12.000000	175.45													
	13.000000	175.56													
	14.000000	176.20													
	15.000000	176.63													
	16.000000	177.43													
	17.000000	177.46													
	18.000000	178.22													
	19.000000	178.25													
	20.000000	178.77													
	21.000000	179.07													
	22.000000	179.41													
	23.000000	179.76													
	24.000000	179.96													

SUMMARY OF MAXIMUM COMPARTMENT TEMPERATURES AND TIME OF OCCURRENCE

ROOM#	MAX TEMP (F)	TIME OF OCCURRENCE (HR)
1	179.96	24.0000

RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (25 GPM WATER LEAK/SUMMER)

OOM#	TIME	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
		PRESSURE (PSIA)													

(HR)	1
0.000000	14.700000
0.100000	14.701000
0.200000	14.700000
0.300000	14.700000
0.400000	14.700000
0.500000	14.700000
0.550000	14.708000
0.600000	14.702000
0.700000	14.701000
0.800000	14.701000
0.900000	14.700000
1.000000	14.700000
1.500000	14.700000
2.000000	14.700000
2.500000	14.700000
3.000000	14.700000
3.500000	14.700000
4.000000	14.700000
4.500000	14.700000
5.000000	14.701000
5.500000	14.700000
6.000000	14.701000
6.500000	14.700000
7.000000	14.697000
7.500000	14.700000
8.000000	14.700000
9.000000	14.699000
10.000000	14.700000
11.000000	14.700000
12.000000	14.699000
13.000000	14.700000
14.000000	14.700000
15.000000	14.700000
16.000000	14.699000
17.000000	14.700000
18.000000	14.700000
19.000000	14.700000
20.000000	14.700000
21.000000	14.699000
22.000000	14.700000
23.000000	14.700000
24.000000	14.700000

SUMMARY OF MAXIMUM COMPARTMENT PRESSURES AND TIME OF OCCURRENCE

ROOM#	MAX PRES (PSIA)	TIME OF OCCURRENCE (HR)
1	14.708	0.55

RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (25 GPM WATER LEAK/SUMMER)

RELATIVE HUMIDITY

ROOM#	TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
	0.000	0.380														
	0.100	0.382														

0.200	0.383
0.300	0.384
0.400	0.383
0.500	0.382
0.550	0.129
0.600	0.100
0.700	0.091
0.800	0.089
0.900	0.088
1.000	0.086
1.500	0.082
2.000	0.079
2.500	0.076
3.000	0.074
3.500	0.073
4.000	0.071
4.500	0.070
5.000	0.069
5.500	0.068
6.000	0.067
6.500	0.067
7.000	0.057
7.500	0.065
8.000	0.064
9.000	0.063
10.000	0.062
11.000	0.062
12.000	0.060
13.000	0.060
14.000	0.059
15.000	0.058
16.000	0.057
17.000	0.057
18.000	0.056
19.000	0.056
20.000	0.055
21.000	0.055
22.000	0.055
23.000	0.054
24.000	0.054

SUMMARY OF MAXIMUM COMPARTMENT RELATIVE HUMIDITY AND TIME OF OCCURRENCE

ROOM#	MAX HUMIDITY	TIME OF OCCURRENCE (HR)
1	0.38	0.30

COTTAP RUN

RHR Rooms

100 gpm Leak Rate

RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (100 GPM WATER LEAK/WINTER)

TEMPERATURE (DEG F)

OM#	TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
	0.000000	66.00													
	0.100000	65.99													
	0.200000	65.99													
	0.300000	66.00													
	0.400000	65.99													
	0.500000	65.86													
	0.550000	159.71													
	0.600000	173.80													
	0.700000	176.50													
	0.800000	177.30													
	0.900000	177.75													
	1.000000	178.26													
	1.500000	179.50													
	2.000000	181.08													
	2.500000	181.78													
	3.000000	182.49													
	3.500000	182.47													
	4.000000	183.24													
	4.500000	184.28													
	5.000000	184.68													
	5.500000	185.33													
	6.000000	185.71													
	6.500000	185.39													
	7.000000	186.01													
	7.500000	186.13													
	8.000000	186.66													
	9.000000	187.19													
	10.000000	187.80													
	11.000000	187.82													
	12.000000	188.25													
	13.000000	188.08													
	14.000000	188.86													
	15.000000	189.50													
	16.000000	189.73													
	17.000000	190.04													
	18.000000	190.28													
	19.000000	190.01													
	20.000000	190.68													
	21.000000	190.66													
	22.000000	190.65													
	23.000000	191.63													
	24.000000	191.30													

SUMMARY OF MAXIMUM COMPARTMENT TEMPERATURES AND TIME OF OCCURRENCE

ROOM#	MAX TEMP (F)	TIME OF OCCURRENCE (HR)
1	191.63	23.0000

RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (100 GPM WATER LEAK/WINTER)

PRESSURE (PSIA)

OOM#	TIME	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#

(HR)	1
0.000000	14.700000
0.100000	14.700000
0.200000	14.700000
0.300000	14.700000
0.400000	14.700000
0.500000	14.700000
0.550000	14.716000
0.600000	14.703000
0.700000	14.700000
0.800000	14.700000
0.900000	14.700000
1.000000	14.700000
1.500000	14.700000
2.000000	14.700000
2.500000	14.700000
3.000000	14.699000
3.500000	14.700000
4.000000	14.700000
4.500000	14.700000
5.000000	14.700000
5.500000	14.700000
6.000000	14.698000
6.500000	14.701000
7.000000	14.700000
7.500000	14.699000
8.000000	14.700000
9.000000	14.700000
10.000000	14.700000
11.000000	14.700000
12.000000	14.699000
13.000000	14.699000
14.000000	14.700000
15.000000	14.700000
16.000000	14.700000
17.000000	14.700000
18.000000	14.700000
19.000000	14.700000
20.000000	14.700000
21.000000	14.700000
22.000000	14.700000
23.000000	14.696000
24.000000	14.700000

SUMMARY OF MAXIMUM COMPARTMENT PRESSURES AND TIME OF OCCURRENCE

ROOM#	MAX PRES (PSIA)	TIME OF OCCURRENCE (HR)
1	14.716	0.55

RHR PUMP ROOM (I-14,104) HEATUP EVALUATION (100 GPM WATER LEAK/WINTER)

RELATIVE HUMIDITY

ROOM#	TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
	0.000	0.100														
	0.100	0.099														

0.200	0.097
0.300	0.096
0.400	0.095
0.500	0.094
0.550	0.006
0.600	0.004
0.700	0.004
0.800	0.004
0.900	0.004
1.000	0.004
1.500	0.004
2.000	0.003
2.500	0.003
3.000	0.003
3.500	0.003
4.000	0.003
4.500	0.003
5.000	0.003
5.500	0.003
6.000	0.003
6.500	0.003
7.000	0.003
7.500	0.003
8.000	0.003
9.000	0.003
10.000	0.003
11.000	0.003
12.000	0.003
13.000	0.003
14.000	0.003
15.000	0.003
16.000	0.003
17.000	0.003
18.000	0.003
19.000	0.003
20.000	0.003
21.000	0.003
22.000	0.003
23.000	0.003
24.000	0.003

SUMMARY OF MAXIMUM COMPARTMENT RELATIVE HUMIDITY AND TIME OF OCCURRENCE

ROOM#	MAX HUMIDITY	TIME OF OCCURRENCE (HR)
1	0.10	0.00

RHR PUMP ROOM (I-13,103) HEATUP EVALUATION (100 GPM WATER LEAK/WINTER)

TEMPERATURE (DEG F)

OM#	TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
	0.000000	66.00													
	0.100000	65.95													
	0.200000	65.95													
	0.300000	65.94													
	0.400000	65.89													
	0.500000	66.00													
	0.550000	169.71													
	0.600000	179.83													
	0.700000	181.56													
	0.800000	182.08													
	0.900000	182.30													
	1.000000	183.13													
	1.500000	184.24													
	2.000000	184.65													
	2.500000	185.54													
	3.000000	186.20													
	3.500000	186.99													
	4.000000	187.21													
	4.500000	187.40													
	5.000000	187.86													
	5.500000	188.33													
	6.000000	189.47													
	6.500000	189.00													
	7.000000	188.97													
	7.500000	188.70													
	8.000000	189.57													
	9.000000	190.11													
	10.000000	190.32													
	11.000000	190.71													
	12.000000	190.64													
	13.000000	191.09													
	14.000000	191.98													
	15.000000	191.39													
	16.000000	192.04													
	17.000000	192.41													
	18.000000	192.45													
	19.000000	192.66													
	20.000000	192.79													
	21.000000	193.05													
	22.000000	192.99													
	23.000000	193.10													
	24.000000	192.96													

SUMMARY OF MAXIMUM COMPARTMENT TEMPERATURES AND TIME OF OCCURRENCE

ROOM#	MAX TEMP (F)	TIME OF OCCURRENCE (HR)
1	193.10	23.0000

RHR PUMP ROOM (I-13,103) HEATUP EVALUATION (100 GPM WATER LEAK/WINTER)

PRESSURE (PSIA)

OOM#	TIME	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#

(HR)	1
0.000000	14.700000
0.100000	14.700000
0.200000	14.700000
0.300000	14.700000
0.400000	14.700000
0.500000	14.700000
0.550000	14.710000
0.600000	14.700000
0.700000	14.700000
0.800000	14.700000
0.900000	14.701000
1.000000	14.701000
1.500000	14.700000
2.000000	14.700000
2.500000	14.700000
3.000000	14.700000
3.500000	14.700000
4.000000	14.700000
4.500000	14.700000
5.000000	14.700000
5.500000	14.700000
6.000000	14.701000
6.500000	14.700000
7.000000	14.700000
7.500000	14.699000
8.000000	14.699000
9.000000	14.700000
10.000000	14.700000
11.000000	14.700000
12.000000	14.700000
13.000000	14.700000
14.000000	14.697000
15.000000	14.701000
16.000000	14.700000
17.000000	14.700000
18.000000	14.700000
19.000000	14.700000
20.000000	14.700000
21.000000	14.700000
22.000000	14.700000
23.000000	14.700000
24.000000	14.700000

SUMMARY OF MAXIMUM COMPARTMENT PRESSURES AND TIME OF OCCURRENCE

ROOM#	MAX PRES (PSIA)	TIME OF OCCURRENCE (HR)
1	14.710	0.55

RHR PUMP ROOM (I-13,103) HEATUP EVALUATION (100 GPM WATER LEAK/WINTER)

RELATIVE HUMIDITY

ROOM#	TIME (HR)	ROOM# 1	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#	ROOM#
	0.000	0.100														
	0.100	0.098														

0.200	0.096
0.300	0.094
0.400	0.092
0.500	0.091
0.550	0.005
0.600	0.004
0.700	0.003
0.800	0.003
0.900	0.003
1.000	0.003
1.500	0.003
2.000	0.003
2.500	0.003
3.000	0.003
3.500	0.003
4.000	0.003
4.500	0.003
5.000	0.003
5.500	0.003
6.000	0.003
6.500	0.003
7.000	0.003
7.500	0.003
8.000	0.003
9.000	0.003
10.000	0.003
11.000	0.003
12.000	0.003
13.000	0.003
14.000	0.003
15.000	0.003
16.000	0.003
17.000	0.003
18.000	0.003
19.000	0.003
20.000	0.003
21.000	0.003
22.000	0.003
23.000	0.003
24.000	0.003

SUMMARY OF MAXIMUM COMPARTMENT RELATIVE HUMIDITY AND TIME OF OCCURRENCE

ROOM#	MAX HUMIDITY	TIME OF OCCURRENCE (HR)
1	0.10	0.00