

MAIN CONTROL ROOM TEMPERATURE
TRANSIENT FOLLOWING STATION BLACKOUT

Commonwealth Edison Company
LaSalle Station Units 1&2
Project File No.: 25.2
System Code : SBO

NSLD
Calc. No. 3C7-0290-001
Date May 22, 1980
Safety Related YES
Project No(s). 8725-1
Page No. 1

CALCULATION
REVISION SUMMARY SHEET

ATD (Formerly NSLD)
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Revision: 1
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Date: May 12, 1992
Safety Related: Yes

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Date 5/11/92

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Date 5/11/92

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Date 5-12-92

Main Control Room
Temperature Transient
Following Station Blackout

Commonwealth Edison Company
LaSalle Station Units 1 & 2
Project No. 8726-17
Project File No. 35.2
System Code: SBO
WIN 1218

Calc. No. 3C7-0290-001
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1.0 Exceptions to Verified Data

All information used in this analysis was obtained from the HVACD or approved Sargent & Lundy calculations and is, therefore, considered to be verified data except as follows:

None

2.0 Purpose and Scope

In order to demonstrate compliance with 10 CFR 50 Section 50.63 requirements relative to Station Blackout (SBO), specific plant parameters have been examined for a 4-hour station blackout scenario. These parameters are directly related to plant capability of maintaining core cooling and appropriate containment integrity. This report examines the LaSalle Station Units 1&2 main control room (MCR) temperature response to SBO.

The purpose of Revision 1 is to:

1. Adjust the heat load in the MCR.
2. Modify initial temperatures of all nodes.
3. Modify final temperatures of all nodes.

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3.0 Computer Programs

The computer programs used in this analysis are filed and documented in S&L's Computer Software Library. The program names are:

KITTY1A (S&L Program Number 03.7.371-5.1I) (Ref. 6a)

KITTY1S (S&L Program Number 03.7.171-5.1I) (Ref. 6b)

4.0 Information and Assumptions

The following are the major assumptions used in this analysis

1. No HVAC systems are operating during the transient (SBO).
2. Heat is transferred to the walls by natural turbulent convection.
3. Walls are considered to be of constant thickness. Effects of columns or beams which are thicker than the walls are ignored.
4. Equipment is assumed to occupy 20% of the calculated air volumes.
5. The following properties were used for concrete wall (Ref. 5, Section 6.2.1.5, Branch Technical Position CSB 6-1)

Density = 145 lbm/ft³, C = 0.156 BTU/lbm°F, and k = 0.92 BTU/h-ft-*F.

6. The following properties for the gypsum board were used per Page 26.15 of Reference 2:

Density = 100 lbm/ft³ = 0.2 CTU/lbm°F, k = 0.42 BTU/h-ft°F.

7. No credit was taken for heat transfer down to the MCR floor. However, heat transfer from rooms beneath the MCR was accounted for. The effect of carpeting in the MCR was also neglected.

8. Initial temperatures and projected S60 boundary temperatures were obtained from Reference 1. These values are listed in Table 1. To be conservative, the nodes are stepped up to the final temperature at time zero in the transient run.
9. The heat load inside the MCR was taken as 66,093 BTU/h per Reference 8.
10. Volumes and wall areas were obtained from References 4 and 7.
11. All doors to the MCR are assumed to remain closed throughout the transient.
12. The MCR initial temperature was assumed to be taken as 90°F.
13. From Reference 9, the properties of air are:

<u>Temperature</u> <u>(°F)</u>	<u>Density</u> <u>(lb/ft³)</u>	<u>Thermal</u> <u>Conductivity</u> <u>(Btu/hr. ft°F)</u>	<u>Thermal</u> <u>Capacity (Btu/lb°F)</u>	<u>Constant</u> <u>Pressure</u>	<u>Constant</u> <u>Volume</u>
100	0.071	0.0154	0.240	0.171	
200	0.060	0.0174	0.241	0.172	

14. In the steady-state case, it is assumed that the air in the main control room in contact with the ceiling and in the rooms above is stratified. Therefore, there is no heat transfer by convection to the ceiling of the MCR. However, credit is taken for conduction through these layers. It is assumed that the length of the heat conduction path is half the MCR height.

In the transient case, the heat transfer mode to the ceiling of the MCR is assumed natural convection.

5.0 Method of Analysis

In order to investigate the temperature rise following an SBO, the initial wall temperatures had to be calculated. This was accomplished by preparing a steady state model consisting of nodes for rooms and walls, and heat transfer paths. For this purpose only, the MCR was assumed to be a boundary node at 90°F. The initial temperatures listed in Table 1 were used for the case.

Once all initial node temperatures for active nodes were determined, the steady state model was modified to include the heat generation rate inside the MCR, after converting it to active type, and the final temperatures listed in Table 1.

Finally, a transient case was run to determine the temperatures following SBO inside the MCR. The transient was run for a period of 6 hours, with no air flow through the MCR.

The input data and supporting hand calculations are given in Appendix B. Figures 2 and 3 present, respectively, the MCR plan and the node path diagram used in the model.

5.0 Results and Conclusions

These results are based on the assumption that the MCR is initially 90°F.

After the initial wall temperatures were calculated, one transient case was run.

In the transient case, the MCR temperature reaches 110°F within 30 minutes following SBO. At 4 hours into the transient, the temperature reaches 116°F (see Figure 1).

The results suggest that no specific actions needed to be taken in order to reduce the MCR temperature during a 4 hour SBO. However, per Page F-3 of Appendix F of Reference 3, it is suggested that control panel doors should be opened and kept open in order to provide enhanced cooling of the equipment within the control panels.

7.0 References

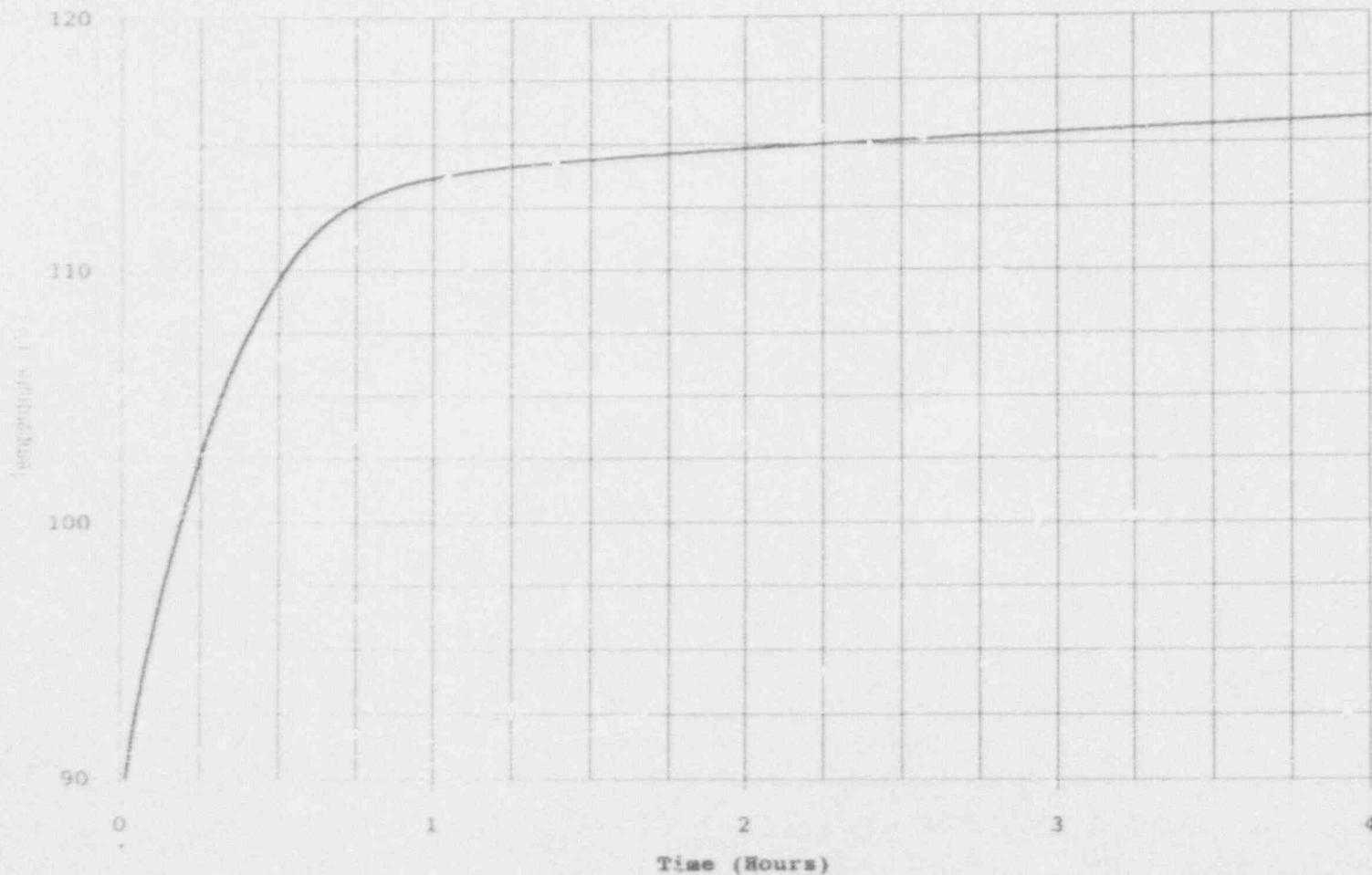
1. DIT LS-HVAC-0033-04, "Temperature in the Areas Adjacent to the Control Room and AEE for SBO," May 11, 1992.
2. 1989 ASHRAE Handbook Fundamentals, I-P Edition, American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., Atlanta.
3. "NUMARC 87-00, Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors," Nuclear Management and Resources Council, Inc., Rev. 1, August 1991.
4. S&L Drawings
A-190, Rev. AH
A-191, Rev. AF
5. NRC Standard Review Plan, NUREG-0800, Rev. 2, July 1981.
6. a) Input Specifications for "KITTY1A: Thermal Hydraulic Transients in Arbitrary Solid and/or Fluid Channel Configurations, S&L Program Number 03.7.371-5.1I.
b) Input Specifications for "KITTY1S: Thermal Hydraulic Steady States in Arbitrary Solid and/or Fluid Channel Configurations S&L Program Number 03.7.171-5.1I.
7. "Transient air temperatures in main control and AEE rooms after a loss of HVAC systems," LaSalle Unit 1, NSLD Calculation 3C7-0380-001, Rev. Q, approved May 21, 1980.
8. DIT LS-EPED-072-1 "Heat Generated From Electrical Equipment During a Station Blackout (SBO)," May 5, 1992.

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9. Principles of Heat Transfer, Frank Krieth, Third Edition,
Intext Educational Publishers, New York.

PPP 05/12/92 10:27:26 KITTY-1A File mcrtr.plt

Figure 1: Main Control Room Temperature Transient Following SBO



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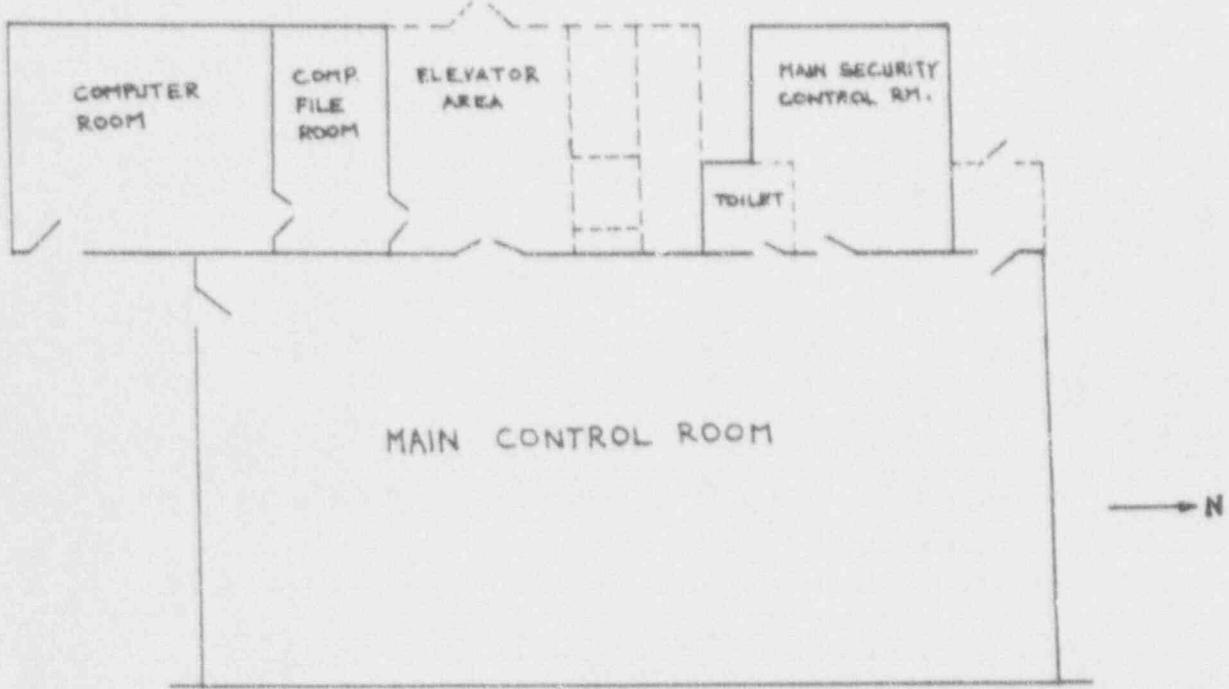
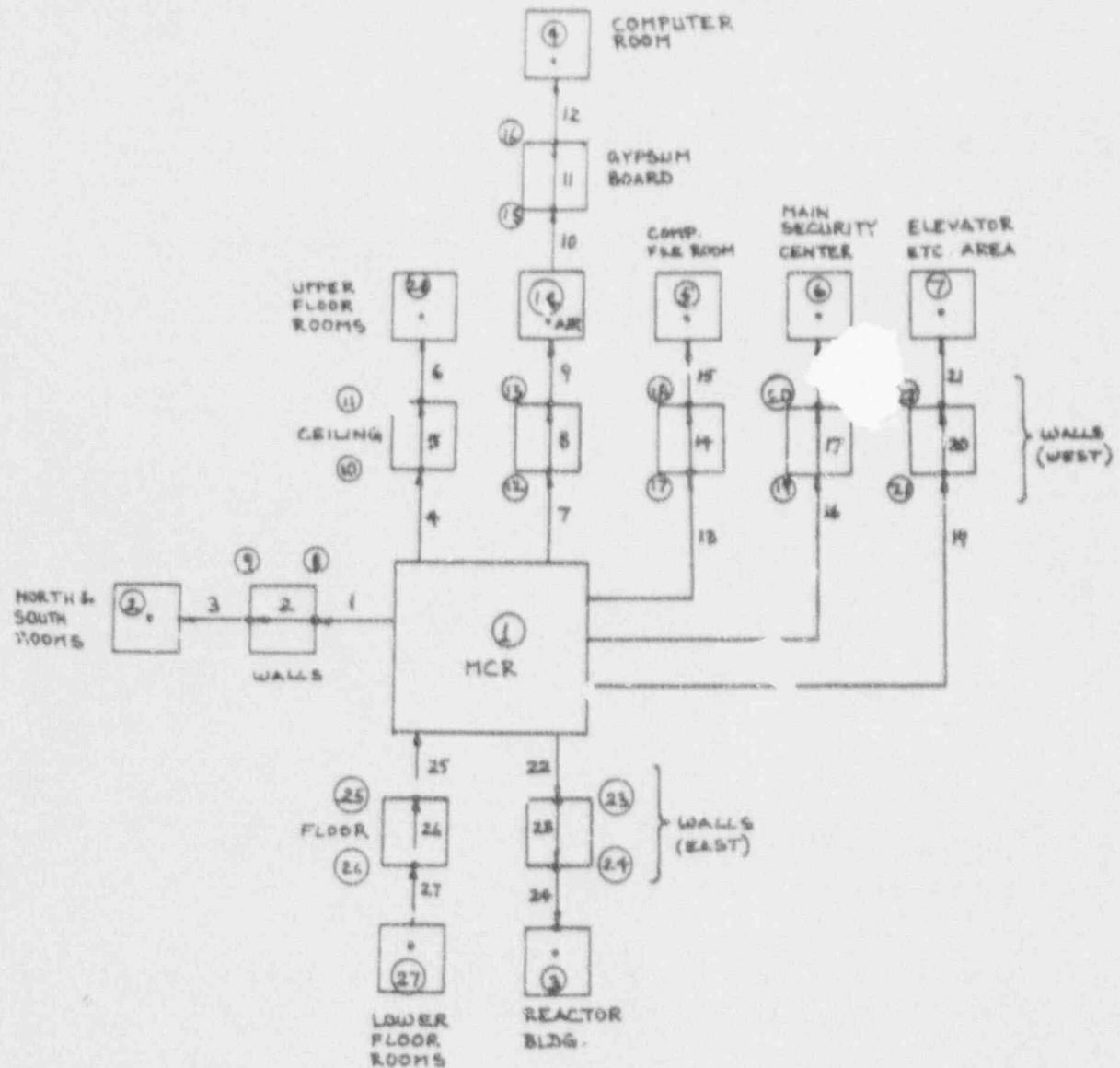


FIGURE 2
MCR PLAN VIEW



Note: Plain numbers and circled numbers indicate the paths and the nodes, respectively.

FIGURE 3

MCR HEAT TRANSFER MODEL

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Table 1
Node Initial and Final Temperatures

Node	Room	Temperature (°F)	
		Initial	Final
1	Control Room 415	90	Calculated
2	Start-up Engineer's Office 414	80	85
	Shift Foreman and Engineering Office 409		
	Operational Analysis Department 416		
	Corridor 423		
3	Reactor Building General Area Unit I	131	131
	Clean-up Recirculation Pump Rooms 331A, 331B, 331C		
	Reactor Building General Area Unit II		
4	Computer Room 403	80	150
5	T.S.C. Computer Room 4D2 (Comp. File Room)	80	150
6	Main Security Control Center 431	90	150
	Toilet 435		
7	Elevator Entrance Hall 401	105	116
	Elevator Shaft		
	Stair A-2		
8-26	Those Nodes Model Heat Structures Temperatures are Calculated by Programs		
27	Cable Spreading Room 307	104	109
	Cable Spreading Room 308		
28	Reactor Building Exhaust Equip. Room Units 1 & 2	130	130
	Reactor Building Exhaust Fan Units 1 & 2		
	Reactor Building Vent Supply System Room		

Node 27 is at Elevation 749'0"
Node 28 is at Elevation 786'6"

All other nodes are at 768'0"

REVIEW METHOD SHEET

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This calculation has been reviewed by me according to the method(s) checked below.

1. Computer Aided Calculations

a	Review to determine that the computer program(s) has been validated and documented, is suitable to the problem being analyzed, and that the calculation contains all necessary information for reconstruction at a later date.
b	Review to determine that the input data as specified for program execution is consistent with the design input, correctly defines the problem for the computer algorithm and is sufficiently accurate to produce results within any numerical limitations of the program.
c <input checked="" type="checkbox"/>	Review to verify that the results obtained from the program are correct and within stated assumptions and limitations of the program and are consistent with the input.
d	Review validation documentation for temporary changes to listed, or developmental, or unique single application programs, to assure that methods used adequately validate the program for the intended application.
e <input checked="" type="checkbox"/>	Review of code input only, since the computer program has sufficient history of use at Sargent & Lundy in similar calculations.
f <input checked="" type="checkbox"/>	Review arithmetic necessary to prepare code input data.
g	Other:

2. Hand Prepared Design Calculations

a	Detailed review of the original calculations.
b	Review by an alternate, simplified, or approximate method of calculation.
c	Review of a representative sample of repetitive calculations.
d	Review of the calculation against a similar calculation previously performed.

3. Revisions

a <input checked="" type="checkbox"/>	Editorial changes -enter-
b	Elimination of unapproved input data without altering calculated results.
c	Other:

4. Other

Reviewer

Terry Yank

Date 5.11.92

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Prepared by Laura J. Babb Date 5/11/92
Reviewed by Tonya L. Haby Date 5.11.92
Approved by Peter J. Peterson Date 5-12-92

Appendix A
Computer Input and Output Listings

LASALLE MAIN CONTROL ROOM, SS INITIAL TEMPS.

28 27 3 14 6. 0 2
1 0.0 74
2 90. 0 1 /5-1 MCR
2 80. 0 1 /5-2 N&S ROOMS
2 131. 0 1 /5-3 REAC.BLDG,E
2 80. 0 1 /5-4 COMP.RM,W
2 80. 0 1 /5-5 COMP. F/S RM,W
2 90. 0 1 /5-6 MSC RM,W
2 106. 0 1 /5-7 ELEV. AREA,W
6 0. 0 0 5 /5-8 N&S WALLS,TAIL
7 . . . HEAD
6 0. 0 0 5 /5-10 CEILING,TAIL
7 . . . HEAD
6 0. 0 0 5 /5-12 COMP.RM WLL,W,TAIL
7 . . . HEAD
1 31. 84.6 .03226 0 0 1 /5-14 AIR BTWN CONC&GYPSM,W
6 0. 0 0 9 /5-15 GYPSUM PF COMP RM WLL,W,TAIL
7 . . . HEAD
6 0. 0 0 5 /5-16 COMP F/S RM WLL,W,TAIL
7 . . . HEAD
6 0. 0 0 5 /5-17 MSC RM WLL,W,TAIL
7 . . . HEAD
6 0. 0 0 5 /5-18 HEAD
6 0. 0 0 5 /5-19 MSC RM WLL,W,TAIL
7 . . . HEAD
6 0. 0 0 5 /5-20 HEAD
6 0. 0 0 5 /5-21 ELEV.AREA WLL,W,TAIL
7 . . . HEAD
6 0. 0 0 5 /5-22 HEAD
6 0. 0 0 5 /5-23 REAC.BLDG WLL,E,TAIL
7 . . . HEAD
7 . . . /5-25 FLOOR,HEAD (UPPER SURFACE)
6 0. 0 0 5 /5-26 FLY'R,TAIL
2 104. 0 1 /5-27 ROOMS BELOW
2 130. 0 1 /5-28 . . . ABOVE
2 1 8 1 1815. /L . . .
8 8 9 12 1815. 2. /6-1 . . . CONCRETE
2 9 2 1 1815. /6-3 NC,VERT
2 1 10 3 6720. /6-4 COND TO CEIL.
8 10 11 12 6720. 2. /6-5 COND,THRU CEIL.
2 11 28 . 6720. /6-6 COND FROM CEIL.
2 1 12 1 541. /6-7 NC,VERT
8 12 13 9 541. 1.5 /6-8 COND

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Program KITTY15-PC - 13.7.27-5.11) Program file: KITTY15.ENE Created: 02/27/92 15:44:05
Input file: mers2.inp 05/12/92 10:10:15 Output file: mers2.out 05/12/92 10:10:47

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2 13 14 1 541. /6-9 NC, VERT, TO AIR GAP
2 14 15 1 541. /6-10 NC, VERT, TO GFS.
8 15 16 2 341. .052083 /6-11 COND, THRU GFSIM
2 16 4 1 541. /6-12 NC, VERT, TO AIR
2 1 17 1 274. /6-13 NC, VERT, TO CF/S RM.WLL
8 17 18 9 274. 1.5 /6-14 COND
2 18 5 1 274. /6-15 NF, VERT
2 1 19 1 53C. /6-16 NC, VERT
8 19 20 9 534. 1.5 /6-17 COND
2 20 6 1 536. /6-18 NC, VERT
2 1 21 1 448. /6-19 NC, VERT
8 2 22 9 448. 1.5 /6-20 CGd0
2 22 7 1 448. /6-21 NC, VERT
2 1 23 1 1980. /6-22 NC, VERT
8 23 24 27 1980. 4.5 /6-23 COND
2 24 3 1 1980. /6-24 NC, VERT
2 25 1 2 6720. /6-25 NC, HSEZ
... 6 6720. 0.5 /6-26 COND 1 THRU FLOOR
... 2 6720. (r', HSEZ
... 0.19 0.75353 /7-1 AC, TURB, VERT (HFE1)
... 0.22 0.33333 /7-2 NC, TURB, HSEZ (HFE2)
1 16 0 1. /7-3 CONNECTION UP
2 100. .071 206. 0.06
2 100. .171 200. 0.172
2 100. .0154 200. 0.174
2 100. .1 200. 0.241 /8-1 AIR PIPES.
1 0.0 0.2
1 0.0 0.2
1 0.0 0.42 /A-0, GFSIM, PIPES.
1 90. 0.0 /8-13, HEAT GEN, FATE (NONE)
2 100. .00154 200. .00174 /8-14 COND/T110W UP
NAME1 NSTPM=30000, IPow=0, IPowN=0,
.900000E+02 -.600000E+02 .131000E+02 .800000E+02 .900000E-02 .106000E-02 .862172E+02 .837387E+02 .109967E+03
.110033E+03 .877487E+02 .868347E+02 .845834E+02 .825264E+02 .854875E+02 .840124E+02 .859999E+02 .859999E+02

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Program KITTY1S-PC (03.7.171-5.11) Program File: KITTY1S.EXE Created: 02/27/92 15:44:05
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.962600E+02	.998081E+02	.100299E+03	.120791E+03	.963038E+02	.976962E+02	.104000E+03	.130000E+03	.860744E+02	.258115E+02
.856086E+02	.854057E+02	.852029E+02	.850000E+02	.847971E+02	.845943E+02	.843914E+02	.841885E+02	.839856E+02	.109972E+03
.109972E+02	.109983E+03	.109989E+03	.109994E+03	.110000E+03	.110006E+03	.110011E+03	.110017E+03	.110022E+03	.110028E+03
.878472E+02	.875456E+02	.874441E+02	.873425E+02	.872409E+02	.871394E+02	.870378E+02	.869363E+02	.822917E+02	.857681E+02
.855487E+02	.853292E+02	.851097E+02	.848903E+02	.846708E+02	.844513E+02	.842319E+02	.899996E+02	.899996E+02	.899996E+02
.899996E+02	.899996E+02	.899996E+02	.899996E+02	.899996E+02	.966568E+02	.970530E+02	.974485E+02	.978434E+02	.982377E+02
.986312E+02	.990241E+02	.994164E+02	.100977E+03	.101734E+03	.102496E+03	.103258E+03	.104020E+03	.104783E+03	.105545E+03
.106307E+03	.107070E+03	.107832E+03	.108594E+03	.109357E+03	.110119E+03	.110881E+03	.111643E+03	.112406E+03	.113165E+03
.113930E+03	.114693E+03	.115455E+03	.116217E+03	.116909E+03	.117742E+03	.118504E+03	.119266E+03	.120029E+03	.974641E+02
.972321E+02	.970000E+02	.967679E+02	.965359E+02						

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Program KITTY15.PC (03.7.171-5.11) Program File: KITTY15.EVE Created: 02/27/92 15:44:05
Input file: mers2.inp 05/12/92 10:10:15 Output File: mers2.out 05/12/92 10:10:47

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NCASE= 1
LASALLE MAIN CONTROL ROOM, SS INITIAL TEMPS.
NV, NP, NH, NF, XMAX, ITIP
28 27 3 14 .69P000E+0; 0
NR= 1 PRINTOUT TIMES- XX(K), K=1,NX
.000000E+00
INPUT DATA FOR NV= 28 VOLUME NODES-
FOR VOLUME NODE NO. 1, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .900000E+02 0 1
FOR VOLUME NODE NO. 2, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .800000E+02 0 1
FOR VOLUME NODE NO. 3, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .131000E+03 0 1
FOR VOLUME NODE NO. 4, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .800000E+02 0 1
FOR VOLUME NODE NO. 5, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .800000E+02 0 1
FOR VOLUME NODE NO. 6, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .900000E+02 0 1
FOR VOLUME NODE NO. 7, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .106000E+03 0 1
FOR VOLUME NODE NO. 8, INPUT IVT(1), GB(1), IV1(1), IV2(1), IV3(1) ARE-
6 .000000E+00 0 0 5
FOR VOLUME NODE NO. 9, INPUT IVT(1) ARE-
7
FOR VOLUME NODE NO. 10, INPUT IVT(1), GB(1), IV1(1), IV2(1), IV3(1) ARE-
6 .000000E+00 0 0 5
FOR VOLUME NODE NO. 11, INPUT IVT(1) ARE-
7
FOR VOLUME NODE NO. 12, INPUT IVT(1), GB(1), IV1(1), IV2(1), IV3(1) ARE-
6 .000000E+00 0 0 5
FOR VOLUME NODE NO. 13, INPUT IVT(1) ARE-
7
FOR VOLUME NODE NO. 14, INPUT IVT(1), NC(1), TFC(1), GB(1), IV1(1), IV2(1), IV3(1) ARE-
1 .310000E+02 .846030E+02 .322600E-01 0 0 9
FOR VOLUME NODE NO. 15, INPUT IVT(1), SB(1), IV1(1), IV2(1), IV3(1) ARE-
6 .000000E+00 3 0 9
FOR VOLUME NODE NO. 16, INPUT IVT(1) ARE-
7

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```
FOR VOLUME NODE NO. 17, INPUT IVT(1),GB(1),IVT(1),IV2(1),IV3(1) ARE-
 6 .000000E+00 0 0 5
FOR VOLUME NODE NO. 18, INPUT IVT(1) ARE-
 7
FOR VOLUME NODE NO. 19, INPUT IVT(1),GB(1),IVT(1),IV2(1),IV3(1) ARE-
 6 .000000E+00 0 0 5
FOR VOLUME NODE NO. 20, INPUT IVT(1) ARE-
 7
FOR VOLUME NODE NO. 21, INPUT IVT(1),GB(1),IVT(1),IV2(1),IV3(1) ARE-
 6 .000000E+00 0 0 5
FOR VOLUME NODE NO. 22, INPUT IVT(1) ARE-
 7
FOR VOLUME NODE NO. 23, INPUT IVT(1),GB(1),IVT(1),IV2(1),IV3(1) ARE-
 6 .000000E+00 0 0 5
FOR VOLUME NODE NO. 24, INPUT IVT(1) ARE-
 7
FOR VOLUME NODE NO. 25, INPUT IVT(1) ARE-
 7
FOR VOLUME NODE NO. 26, INPUT IVT(1),GB(1),IVT(1),IV2(1),IV3(1) ARE-
 6 .000000E+00 0 0 5
FOR VOLUME NODE NO. 27, INPUT IVT(1),TFB(1),IVT(1),IV3(1) ARE-
 2 -1040000E+03 0 1
FOR VOLUME NODE NO. 28, INPUT IVT(1),TFB(1),IVT(1),IV3(1) ARE-
 2 -1300000E+03 0 1
SINCE ITF1P=0, NO T-VECTOR IS PROVIDED
INPUT DATA FOR NP= 27 PATHS-
FOR PATH NO. 1 INPUT IPT(J),ITC(J),IH(J),IP1(J),AP(J) ARE-
 2 1 6 1 -1875000E+04
FOR PATH NO. 2 INPUT IPT(J),ITC(J),IH(J),IP1(J),AP(J),DT(J) ARE-
 8 8 9 12 -1875000E+04 -2000000E+01
FOR PATH NO. 3 INPUT IPT(J),ITC(J),IH(J),IP1(J),AP(J),DT(J) ARE-
 2 9 2 1 -1875000E+04
OR PATH NO. 4 INPUT IPT(J),ITC(J),IH(J),IP1(J),AP(J) ARE-
 2 1 10 3 -5720000E+04
FOR PATH NO. 5 INPUT IPT(J),ITC(J),IH(J),IP1(J),AP(J),DT(J) ARE-
 8 10 11 12 -6720000E+04 -2000000E+01
FOR PATH NO. 6 INPUT IPT(J),ITC(J),IH(J),IP1(J),AP(J) ARE-
 2 11 23 3 -6720000E+04
FOR PATH NO. 7 1<201 IPT(J),ITC(J),IH(J),IP1(J),AP(J) ARE-
```

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Input File: mers2.inp 05/12/92 10:10:15 Output File: mers2.out 05/12/92 10:10:47

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```
2 1 12 1 .541000E+03
FOR PATH NO. 8 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J),DT(J) ARE-
8 12 13 9 .541000E+03 .150000E+01
FOR PATH NO. 9 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 13 14 1 .541000E+03
FOR PATH NO. 10 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 14 15 1 .541000E+03
FOR PATH NO. 11 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J),DT(J) ARE-
8 15 16 2 .541000E+03 .5208500E-01
FOR PATH NO. 12 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 16 4 1 .541000E+03
FOR PATH NO. 13 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 1 17 1 .274000E+03
FOR PATH NO. 14 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J),DT(J) ARE-
8 17 18 9 .274000E+03 .150000E+01
FOR PATH NO. 15 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 18 5 1 .274000E+03
FOR PATH NO. 16 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 1 19 1 .534000E+03
FOR PATH NO. 17 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J),DT(J) ARE-
8 19 20 9 .534000E+03 .150000E+01
FOR PATH NO. 18 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 20 6 1 .534000E+03
FOR PATH NO. 19 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 1 21 1 .448000E+03
FOR PATH NO. 20 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J),DT(J) ARE-
8 21 22 9 .448000E+03 .150000E+01
FOR PATH NO. 21 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 22 7 1 .448000E+03
FOR PATH NO. 22 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 1 23 1 .198000E+04
FOR PATH NO. 23 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J),DT(J) ARE-
8 23 24 27 .198000E+04 .450000E+01
FOR PATH NO. 24 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 24 3 1 .198000E+04
FOR PATH NO. 25 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J) ARE-
2 25 1 2 .672000E+04
FOR PATH NO. 26 INPUT IPT(J),IT(J),IN(J),IP1(J),AC(J),DT(J) ARE-
8 26 25 6 .572000E+04 .500000E+01
```

Calc. No. 3C7-0290-001
Revision: 1
Page: A7
Project No. 8726-17

Program KITTY15.FPC (03.7-171-5-11) Program file: KITTY15.EPE Created: 02/27/92 15:44:05
Input File: 'KTRSS2.inp' 05/12/92 10:10:15 Output File: 'KTRSS2.out' 05/12/92 10:10:47

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```
FOR PATH NO. 27 INPUT IPT(J),IT(J),IH(J),IP1(J),AP(J) ARE-
 2 27 26 2 -672000E+06

INPUT DATA FOR NH= 3 HEAT TRANSFER FUNCTIONS-
FOR HTF NO. 1, INPUT IHX(LH),INFX(LH),IHFT(LH),C1(LH),C2(LH) ARE-
 3 0 0 -1000000E-00 .33333300E+00
FOR HTF NO. 2, INPUT IHX(LH),INFX(LH),IHFT(LH),C1(LH),C2(LH) ARE-
 5 0 0 -2200000E-00 .33333300E+00
FOR HTF NO. 3, INPUT IHX(LH),INFX(LH),IHFT(LH),C1(LH) ARE-
 1 14 0 -1000000E-01

INPUT DATA FOR NF= 14 SIMPLE FUNCTIONS ARE-
SF TABLE NO. 1 HAS 2 (Y,F) POINTS AS FOLLOWS-
 -1000000E-03 .7100000E-01 2000000E+03 -6000000E-01
SF TABLE NO. 2 HAS 2 (Y,F) POINTS AS FOLLOWS-
 -1000000E-03 .1710000E+00 .2000000E+05 -1720000E+00
SF TABLE NO. 3 HAS 2 (Y,F) POINTS AS FOLLOWS-
 -1000000E-03 .1540000E-01 .2000000E+03 -1740000E+00
SF TABLE NO. 4 HAS 2 (Y,F) POINTS AS FOLLOWS-
 -1000000E+03 .2400200E+00 .2000000E+03 -2410000E+00
SF TABLE NO. 5 HAS 1 (Y,F) POINTS AS FOLLOWS-
 ,000000E+0C -1450000E+03
SF TABLE NO. 6 HAS 1 (Y,F) POINTS AS FOLLOWS-
 ,000000E+00 -1560000E+00
SF TABLE NO. 7 HAS 1 (Y,F) POINTS AS FOLLOWS-
 ,000000E+00 -9200000E+00
SF TABLE NO. 8 HAS 1 (Y,F) POINTS AS FOLLOWS-
 ,000000E+00 -2000000E+00
SF TABLE NO. 9 HAS 1 (Y,F) POINTS AS FOLLOWS-
 ,000000E+00 -1000000E+05
SF TABLE NO. 10 HAS 1 (Y,F) POINTS AS FOLLOWS-
 ,000000E+00 -1560000E+00
SF TABLE NO. 11 HAS 1 (Y,F) POINTS AS FOLLOWS-
 ,000000E+00 -4200000E+00
SF TABLE NO. 12 HAS 1 (Y,F) POINTS AS FOLLOWS-
 ,000000E+00 -2000000E+00
SF TABLE NO. 13 HAS 1 (Y,F) POINTS AS FOLLOWS-
 ,900000E+02 .0000000E+00
SF TABLE NO. 14 HAS 2 (Y,F) POINTS AS FOLLOWS-
 ,1000000E+03 -1540000E-02 -2000000E+03 -1740000E-02
NAME1 INPUT- NSTPM,NSTPOP,IPG,IFOP,IPDN,IPMN,IPNB,
```

Calc. No. 3C7-9290-001
Revision: 1
Page: AB
Project No. 8726-17

Program KITTY15-PC (03.7.171-5.41) Program File: KITTY15.EEN Created: 02/27/92 15:44:05
Input File: mcrss2.inp 05/12/92 10:10:15 Output File: mcrss1.out 05/12/92 10:10:47

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XACIN, FINC, CTRNR, EH1, ELO, XACD, CTRIF, TBLAS RELAX

FFF, CASENO

30000 1 0 0 1 0 0 1

.100000E-05 .1260000E+01 .1000000E-01 .3000000E-06 .3000000E-07 .1000000E-01 .4500000E+03 .5000000E+00

.1000000E-01 .1000000E+01

WITH WALLS PRESENT. THE 1-VECTOR (1F(1), I=1, NW) 15-

.9000000E+02 .8000000E+02 .1310000E+03 .8000000E+02 .8000000E+02 .9000000E+02 .1060000E+02 .8621720E+02 .8378280E+02 .105 .570E+03
.1100330E+03 .8776870E+02 .8683470E+02 .8458340E+02 .8232660E+02 .8225480E+02 .8508750E+02 .8401240E+02 .85099960E+02
.9626000E+02 .9980810E+02 .1002090E+03 .1207910E+03 .963058E+02 .9769620E+02 .1040090E+03 .1300000E+03 .8601440E+02
.856086E+02 .8540570E+02 .8520290E+02 .8500000E+02 .8479710E+02 .845930E+02 .8439140E+02 .8418853E+02 .8395640E+02 .1099720E+03
.1999780E+03 .1099830E+03 .1099890E+03 .1099940E+03 .1100000E+03 .1100060E+03 .1100120E+03 .1100170E+03 .1100220E+03 .1100280E+03
.8764720E+02 .8754560E+02 .8744410 .-02 .8734250E+02 .872L090E+02 .8713940E+02 .8703780E+02 .8693630E+02 .8676810E+02
.8554870E+02 .8532720E+02 .8510970E+02 .8489930E+02 .8467080E+02 .8445130E+02 .8423190E+02 .84099960E+02 .83999960E+02 .83899960E+02
.89999960E+02 .89999960E+02 .89999960E+02 .89999960E+02 .89999960E+02 .89665680E+02 .9705300E+02 .97444850E+02 .9786340E+02 .98235770E+02
.9863120E+02 .9902410E+02 .9241640E+02 .1009710E+03 .1017340E+03 .1024940E+03 .1032580E+03 .1047830E+03 .1055450E+03
.1063070E+03 .1070700E+03 .1078320E+03 .1095940E+03 .1093570E+03 .1101190E+03 .1108010E+03 .1116430E+03 .1131460E+03
.1139300E+03 .1146930E+03 .1154550E+03 .1162170E+03 .1169630E+03 .117720E+03 .1185040E+03 .1192642E+03 .1200290E+03 .9746410E+02
.9723210E+02 .9700000E+02 .96757790E+02 .9653590E+02

Z(A(J), J=1, NE)

.8621720E+02 .8378280E+02 .1099670E+03 .1100330E+03 .8774870E+02 .8683470E+02 .8658540E+02 .8252660E+02 .8225660E+02 .8598760E+02
.861240E+02 .85999960E+02 .85999960E+02 .9426600E+02 .9980810E+02 .9980810E+02 .1502090E+03 .1207910E+03 .1207910E+03 .1060000E+02
.8581150E+02 .8560860E+02 .8540570E+02 .8520290E+02 .8500000E+02 .8479710E+02 .845930E+02 .8439140E+02 .8418853E+02 .8395640E+02
.1099720E+03 .1099780E+03 .1099830E+03 .1099890E+03 .1100000E+03 .1100060E+03 .1100120E+03 .1100170E+03 .1100220E+03 .1100280E+03
.1100280E+03 .1090260E+02 .8764720E+02 .8754560E+02 .8744410 .-02 .8734250E+02 .872L090E+02 .8713940E+02 .8703780E+02 .8693630E+02 .8676810E+02
.8576310E+02 .8554870E+02 .8532720E+02 .8510970E+02 .8489930E+02 .8467080E+02 .8445130E+02 .8423190E+02 .84099960E+02 .83999960E+02
.89999960E+02 .89999960E+02 .89999960E+02 .89999960E+02 .89999960E+02 .89665680E+02 .9705300E+02 .97444850E+02 .9786340E+02 .98235770E+02
.9823770E+02 .9863120E+02 .9902410E+02 .9980810E+02 .9980810E+02 .1017340E+03 .1024940E+03 .1032580E+03 .1047830E+03 .1055450E+03
.1055450E+03 .1063070E+03 .1070700E+03 .1078320E+03 .1095940E+03 .1093570E+03 .1101190E+03 .1108010E+03 .1116430E+03 .1131460E+03
.1131460E+03 .1139300E+03 .1146930E+03 .1154550E+03 .1162170E+03 .1169630E+03 .117720E+03 .1185040E+03 .1192642E+03 .1200290E+03 .9746410E+02
.9723210E+02 .9700000E+02 .96757790E+02 .9653590E+02

CONVERGED. NSTPF= 4

Calc. No. 3C7+0290-001*
Revision: 1
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Project No. 8726-17

AFTER TAKING STEP NO. 4, XF= .0000000000E+00, NJCTD= 0, XACD= -1000000E-01, AND (TF(1), I=1, NW)=

.900000E+02 .800000E+02 .131000E+03 .800000E+02 .800000E+02 .900000E+02 .1060000E+02 .1060000E+02 .1060000E+02 .1060000E+02
.1100330E+03 .8774870E+02 .8683470E+02 .8458347E+02 .8232660E+02 .8232660E+02 .8232660E+02 .8401240E+02 .8401240E+02 .8401240E+02
.962596E+02 .9980810E+02 .1002090E+03 .1207910E+03 .963058E+02 .9769620E+02 .1040090E+03 .1300000E+03 .8601440E+02 .8601440E+02
.856086E+02 .8540570E+02 .8520290E+02 .8500000E+02 .8479710E+02 .845930E+02 .8439140E+02 .8418853E+02 .8395640E+02 .8395640E+02
.1099720E+03 .1099780E+03 .1099830E+03 .1099890E+03 .1100000E+03 .1100060E+03 .1100120E+03 .1100170E+03 .1100220E+03 .1100280E+03
.1100280E+03 .1090260E+02 .8764720E+02 .8754560E+02 .8744410 .-02 .8734250E+02 .872L090E+02 .8713940E+02 .8703780E+02 .8693630E+02 .8676810E+02
.8576310E+02 .8554870E+02 .8532720E+02 .8510970E+02 .8489930E+02 .8467080E+02 .8445130E+02 .8423190E+02 .84099960E+02 .83999960E+02
.89999960E+02 .89999960E+02 .89999960E+02 .89999960E+02 .89999960E+02 .89665680E+02 .9705300E+02 .97444850E+02 .9786340E+02 .98235770E+02
.9823770E+02 .9863120E+02 .9902410E+02 .9980810E+02 .9980810E+02 .1017340E+03 .1024940E+03 .1032580E+03 .1047830E+03 .1055450E+03
.1055450E+03 .1063070E+03 .1070700E+03 .1078320E+03 .1095940E+03 .1093570E+03 .1101190E+03 .1108010E+03 .1116430E+03 .1131460E+03
.1131460E+03 .1139300E+03 .1146930E+03 .1154550E+03 .1162170E+03 .1169630E+03 .117720E+03 .1185040E+03 .1192642E+03 .1200290E+03 .9746410E+02
.9723210E+02 .9700000E+02 .96757790E+02 .9653590E+02

Program: KITTY15.PC (03.7.171-5.11) Program File: KITTY15.EEF Created: 02/27/92 15:44:05
Input File: mcrs2.inp Output File: mcrs2.out TS/12/92 10:10:47

◎

PROGNAME KITTY15-PC (033771511) 05/12/02 10:10:48

List of Pages of the Output

LASALLE MAIN CONTROL ROOM S60 TRANSIENT TEMPERATURE CALCULATION

28 27 3 14 6. 0 /2
13,.0167,.0833,.1667,.25,.3333,.5,1.,1.5,2.,3.,4.,5.,6. /4
1 88700. 90. 1.1273E-5 0 15 1 /5-1 MCR
2 85. 0 1 /5-2 N&S ROOMS
2 131. 0 1 /5-3 REAC.BLDG,E
2 150. 0 1 /5-4 COMP.RM,W
2 150. 0 1 /5-5 COMP. T/S RM,W
2 150. 0 1 /5-6 MSC RM,W
2 116. 0 1 /5-7 ELEV. AREA,W
6 0. 0 0 5 /5-8 N&S WALLS,TAIL
7 0. 0 0 5 /5-9 HEAD
6 0. 0 0 5 /5-10 CEILING,TAIL
7 0. 0 0 5 /5-11 HEAD
6 0. 0 0 5 /5-12 COMP.RM WLL,W,TAIL
7 0. 0 0 5 /5-13 HEAD
1 31. 84.6 .03226 0 0 1 /5-14 AIR BTWN CONC&GYPSM,W
6 0. 0 0 9 /5-15 GYPSUM OF COMP RM WLL,W,TAIL
7 0. 0 0 5 /5-16 HEAD
6 0. 0 0 5 /5-17 COMP F/S RM W',W,TAIL
7 0. 0 0 5 /5-18 HEAD
6 0. 0 0 5 /5-19 MSC RM WLL,W,TAIL
7 0. 0 0 5 /5-20 HEAD
6 0. 0 0 5 /5-21 ELEV.AREA WLL,W,TAIL
7 0. 0 0 5 /5-22 HEAD
6 0. 0 0 5 /5-23 REAC.BLDG WLL,E,TAIL
7 0. 0 0 5 /5-24 HEAD
7 0. 0 0 5 /5-25 FLOOR,HEAD (UPPER SURFACE)
6 0. 0 0 5 /5-26 FLOOR,TAIL
2 109. 0 1 /5-27 ROOMS BELOW
2 130. 0 1 /5-28 ROOMS ABOVE
2 1 8 1 1815. /6-1 NC,VERT
8 8 9 12 1815. 2. /6-2 COND.,CONCRETE
2 9 2 1 1815. /6-3 NC,VERT
2 1 10 2 6720. /6-4 NC,HOR,TO CEIL.
8 10 11 12 6720. 2. /6-5 COND.,THRU CEIL.
2 11 28 3 6720. /6-6 COND.,HOR,FROM CEIL.
2 1 12 1 541. /6-7 NC,VERT
8 12 13 9 541. 1.5 /6-8 "

2 13 1- 1 541. /6-9 NC,VERT, TO AIR GAP
2 14 15 1 541. /6-10 NC,VERT, TO GYPS.
8 15 16 2 541. .052083 /6-11 COND,THRU GYPSUM
2 16 4 1 541. /6-12 NC,VERT, TO AIR
2 1 17 1 274. /6-13 NC,VERT, TO CF,S RM,WLL
8 17 18 9 274. 1.5 /6-14 COND
2 18 5 1 274. /6-15 NC,VERT
2 1 19 1 534. /6-16 NC,VERT
8 19 20 9 534. 1.5 /6-17 COND
2 20 6 1 534. /6-18 NC,VERT
2 1 21 1 448. /6-19 NC,VERT
8 21 22 9 448. 1.5 /6-20 COND
2 22 7 1 448. /6-21 NC,VERT
2 1 23 1 1980. /6-22 NC,VERT
8 23 24 27 1980. 4.5 /6-23 COND
2 24 3 1 1980. /6-24 NC,VERT
2 25 1 2 6720. /6-25 NC,HORZ
8 26 25 6 6720. C.5 /6-26 COND THRU FLOOR
2 27 26 2 6720. /6-27 NC,HORZ
3 0 0 0.19 0.33333 /7-1 NC,TURB,VERT (HTF1)
5 0 0 0.22 0.33333 /7-2 NC,TURB,HORZ (HTF2)
1 14 0 1. /7-3 CONDUCTION UP
2 100. .071 200. .060
2 100. .171 200. .172
2 100. .0154 200. .0174
2 100. .24 200. .241 /8-1,AIR PROPS.
1 0.0 145.
1 0.0 0.156
1 0.0 0.92
1 0.0 0.156 /8-5,CONCRETE PROPS.
1 0.0 100.
1 0.0 0.2
1 0.0 0.42
1 0.0 0.2 /8-9,GYPSUM PROPS.
1 90. 56093.0 /8-13, HEAT GEN. RATE
2 100. .00154 200. .00174 /8-14, CONDUCTION UP
ENAMEI KSTPMX=5000,IPOM=0,IPOM=0,plotfile='mcrtr2.plt' /
.900000E+02 .850000E+02 .131000E+03 .150000E+03 .150000E+03 .116000E+03 .862172E+02 .837828E+02 .109967E+03
.110033E+03 .877487E+02 .868347E+02 .845834E+02 .823266E+02 .822568E+02 .859878E+02 .840126E+02 .899996E+02

Program KITTYIA-PIC (05.7.371-5.1) Program File: KITTYIA.EXE Created: 02/27/92 15:11:00
Input File: merr2.inp 05/12/92 10:15:04 Output File: merr2.out 05/12/92 10:17:08

Page: 3

.962596E+02	.998075E+02	.100209E+03	.120791E+03	.943038E+02	.976962E+02	.100005E+03	.130000E+03	.860144E+03	.858115E+02
.856086E+02	.854057E+02	.852029E+02	.850008E+02	.847971E+02	.845043E+02	.843914E+02	.841885E+02	.839856E+02	.839072E+03
.109978E+03	.109983E+03	.109984E+03	.109985E+03	.110000E+03	.110004E+03	.110011E+03	.110017E+03	.110022E+03	.110028E+03
.876472E+02	.875456E+02	.874441E+02	.873425E+02	.872409E+02	.871395E+02	.870378E+02	.869363E+02	.868347E+02	.867331E+02
.855487E+02	.853292E+02	.851097E+02	.848903E+02	.846709E+02	.844512E+02	.842319E+02	.840116E+02	.839996E+02	.839998E+02
.899999E+02									
.984307E+02	.990236E+02	.994159E+02	.100971E+03	.101734E+03	.102498E+03	.103258E+03	.104020E+03	.104782E+03	.105545E+03
.106307E+03	.107070E+03	.107832E+03	.108594E+03	.109357E+03	.110119E+03	.110881E+03	.111643E+03	.112406E+03	.113168E+03
.113930E+03	.114649E+03	.115455E+03	.116217E+03	.116980E+03	.117742E+03	.118504E+03	.119266E+03	.120020E+03	.974641E+02
.972321E+02	.970000E+02	.967679E+02	.965359E+02						

Calc. No. 3C7-0390-001
Revision: 1
Page: A13
Project No. 8726-17

Program KITTY1A-PC (03.7.371-5.1.1); Program File: KITTY1A.EXE Created: 02/27/92 15:11:09
Input File: mrt2.inp 05/12/92 10:15:04 Output File: mrt2.out 05/12/92 10:17:08

Page: 12

NCASE= 1 LASALLE MAIN CONTROL ROOM SEO TRANSIENT TEMPERATURE CALCULATION

NV, NP, NH, NF, XMAX, ITFIP

NX= 13 PRINTOUT TIMES- NX(K), K=1,NX
.167000E+01 .8335000E-01 .1667000E+00 .2500000E+00 .333360E+00 .5000000E+00 .1000000E+00 .1500000E+01 .2000000E+01 .1500000E+01
.400000E+01 .5000000E+01 .6000000E+01

INPUT DATA FOR NV= 28 VOLUME NODES-

FOR VOLUME NODE NO. 1, INPUT IVT(1), VI(1), TF(1), GB(1), IV1(1), IV2(1), IV3(1) ARE-
1 .8870000E-05 .9000000E+02 .1127500E-04 0 13 1

FOR VOLUME NODE NO. 2, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .8500000E+02 0 1

FOR VOLUME NODE NO. 3, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .1310000E+03 0 1

FOR VOLUME NODE NO. 4, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .1500000E+03 0 1

FOR VOLUME NODE NO. 5, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .1500000E+03 0 1

FOR VOLUME NODE NO. 6, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .1500000E+03 0 1

FOR VOLUME NODE NO. 7, INPUT IVT(1), TFB(1), IV1(1), IV2(1), IV3(1) ARE-
2 .1160000E+03 0 1

FOR VOLUME NODE NO. 8, INPUT IVT(1), GB(1), IV1(1), IV2(1), IV3(1) ARE-
6 .000000E+00 0 0 5

FOR VOLUME NODE NO. 9, INPUT IVT(1) ARE-
7

FOR VOLUME NODE NO. 10, INPUT IVT(1), GB(1), IV1(1), IV2(1), IV3(1) ARE-
6 .000000E+00 0 0 5

FOR VOLUME NODE NO. 11, INPUT IVT(1) ARE-
7

FOR VOLUME NODE NO. 12, INPUT IVT(1), GB(1), IV1(1), IV2(1), IV3(1) ARE-
6 .000000E+00 0 0 5

FOR VOLUME NODE NO. 13, INPUT IVT(1) ARE-
7

FOR VOLUME NODE NO. 14, INPUT IVT(1), VI(1), TF(1), GB(1), IV1(1), IV2(1), IV3(1) ARE-
1 .3100000E+02 .8460000E+02 .3226000E-01 0 0 1

FOR VOLUME NODE NO. 15, INPUT IVT(1), GB(1), IV1(1), IV2(1), IV3(1) ARE-
6 .000000E+00 0 0 9

FOR VOLUME NODE NO. 16, INPUT IVT(1) ARE-

Calc. No. 3C7-0290-001
Revision: 1
Page: A14
Project No. 8726-17

Program KITTY1A-PC (03.7.371-5.1.1) Program File: KITTY1A.EXE Created: 02/27/92 15:11:09
Input File: mctr2.inp 05/12/92 10:15:04 Output File: mctr2.out 05/12/92 10:17:08

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7 FOR VOLUME NODE NO. 17, INPUT IVT(1),GB(1),IV1(1),IV2(1),IV3(1) ARE-
6 -.000000E+00 0 0 5
FOR VOLUME NODE NO. 18, INPUT IVT(1) ARE-
7
FOR VOLUME NODE NO. 19, INPUT IVT(1),GB(1),IV1(1),IV2(1),IV3(1) ARE-
6 -.000000E+00 0 0 5
FOR VOLUME NODE NO. 20, INPUT IVT(1) ARE-
7
FOR VOLUME NODE NO. 21, INPUT IVT(1),GB(1),IV1(1),IV2(1),IV3(1) ARE-
6 -.000000E+00 0 0 5
FOR VOLUME NODE NO. 22, INPUT IVT(1) ARE-
7
FOR VOLUME NODE NO. 23, INPUT IVT(1),GB(1),IV1(1),IV2(1),IV3(1) ARE-
6 .000000E+00 0 0 5
FOR VOLUME NODE NO. 24, INPUT IVT(1) ARE-
7
FOR VOLUME NODE NO. 25, INPUT IVT(1) ARE-
7
FOR VOLUME NODE NO. 26, INPUT IVT(1),GB(1),IV1(1),IV2(1),IV3(1) ARE-
6 -.020000E+00 0 0 5
FOR VOLUME NODE NO. 27, INPUT IVT(1),IBC(1),IV1(1),IV3(1) ARE-
2 -.109000E+03 0 1
FOR VOLUME NODE NO. 28, INPUT IVT(1),ITQ(1),IV1(1),IV3(1) ARE-
2 -.130000E+03 0 1
SINCE ITF1=0, NO T-VECTOR IS PROVIDED
INPUT DATA FOR MP= 27 PATHS-
FOR PATH NO. 1 INPUT IPT(J),IT(J),IH(J),IP1(J),AJ(J),DT(J) ARE-
2 1 8 1 .1815000E+04
FOR PATH NO. 2 INPUT IPT(J),IT(J),IH(J),IP1(J),AJ(J),DT(J) ARE-
8 8 9 12 -.1815000E+04 .2000000E-01
FOR PATH NO. 3 INPUT IPT(J),IT(J),IH(J),IP1(J),AJ(J),DT(J) ARE-
2 9 2 1 .1815000E+04
FOR PATH NO. 4 INPUT IPT(J),IT(J),IH(J),IP1(J),AJ(J) ARE-
2 1 10 2 -.672000E+04
FOR PATH NO. 5 INPUT IPT(J),IT(J),IH(J),IP1(J),AJ(J),DT(J) ARE-
8 10 11 12 .672000E+04 .2000000E+01
FOR PATH NO. 6 INPUT IPT(J),IT(J),IH(J),IP1(J),AJ(J) ARE-
2 11 28 3 .672000E+04

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Program KITTY1A-PC (03.7.371-5.1 1) Program File: KITTY1A.EXE Created: 02/27/92 15:11:09
Input File: merr2.inp 05/12/92 0:15:04 Output File: merr2.out 05/12/92 10:17:08

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FOR PATH NO.    7 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   1   12   1   .5410000E+03
FOR PATH NO.    8 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J),DT(J) ARE-
 8   12   13   9   .5410000E+03   .1500000E+01
FOR PATH NO.    9 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   13   14   1   .5410000E+03
FOR PATH NO.   10 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   14   15   1   .5410000E+03
FOR PATH NO.   11 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J),DT(J) ARE-
 8   15   16   2   .5410000E+03   .5208300E-01
FOR PATH NO.   12 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   16   4   1   .5410000E+03
FOR PATH NO.   13 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   17   1   .2740000E+03
FOR PATH NO.   14 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J),DT(J) ARE-
 8   17   18   9   .2740000E+03   .1500000E+01
FOR PATH NO.   15 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   18   5   .2740000E+03
FOR PATH NO.   16 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   19   1   .5340000E+03
FOR PATH NO.   17 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J),DT(J) ARE-
 8   19   20   9   .5340000E+03   .1500000E+01
FOR PATH NO.   18 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   20   6   1   .5340000E+03
FOR PATH NO.   19 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J),DT(J) ARE-
 2   1   21   1   .4480000E+03
FOR PATH NO.   20 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J),DT(J) ARE-
 8   21   22   9   .4480000E+03   .1500000E+01
FOR PATH NO.   21 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   22   7   1   .4480000E+03
FOR PATH NO.   22 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   1   23   1   .1980000E+04
FOR PATH NO.   23 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J),DT(J) ARE-
 8   23   24   27   .1980000E+04   .4500000E+01
FOR PATH NO.   24 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   24   3   1   .1980000E+04
FOR PATH NO.   25 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J) ARE-
 2   25   1   2   .6720000E+04
FOR PATH NO.   26 INPUT IPT(J),IT(J),IH(J),IP1(J),AC(J),DT(J) ARE-
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Program KITTY1A-PC (03.7.371-5.1) Program File: KITTY1A.EXE Created: 02/27/92 15:11:09
 Input File: mcrtr2.inp 05/12/92 10:15:04 Output File: mcrtr2.out 05/12/92 10:17:08

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    8   26   25   6   .6720000E+04   .5000000E+00
FOR PATH NO. 27 INPUT IPT(J),IT(J),IR(J),IP1(J),A(J) ARE-
    2   27   26   2   .6720000E+04

INPUT DATA FOR NH=      3 HEAT TRANSFER FUNCTIONS-
FOR HTF NO.      1, INPUT IHT(LH),IHFX(LH),IHFT(LH),C1(LH),C2(LH) ARE-
    5   0   0   .1900000E+00   .3553500E+00
FOR HTF NO.      2, INPUT IHT(LH),IHFX(LH),IHFT(LH),C1(LH),C2(LH) ARE-
    5   0   0   .2200000E+00   .*13300E+00
FOR HTF NO.      3, INPUT IHT(LH),IHFX(LH),IHFT(LH),C1(LH) ARE-
    1   16   0   .1000000E+01

INPUT DATA FOR NF=      14 SIMPLE FUNCTIONS ARE-
SF TABLE NO. 1 HAS 2 (Y,F) POINTS AS FOLLOWS-
    -1000000E+03   .7100000E-01   .2060000E+03   .6000000E-01
SF TABLE NO. 2 HAS 2 (Y,F) POINTS AS FOLLOWS-
    -1000000E+03   .1710000E+00   .-2000000E+03   .-1720000E+00
SF TABLE NO. 3 HAS 2 (Y,F) POINTS AS FOLLOWS-
    -1000000E+03   .1540000E-01   .2000000E+03   .-1740000E-01
SF TABLE NO. 4 HAS 2 (Y,F) POINTS AS FOLLOWS-
    -1000000E+03   .-2400000E+00   .2000000E+03   .-2410000E+00
SF TABLE NO. 5 HAS 1 (Y,F) POINTS AS FOLLOWS-
    .0000000E+00   .1450000E+03
SF TABLE NO. 6 HAS 1 (Y,F) POINTS AS FOLLOWS-
    .0000000E+00   .1560000E+00
SF TABLE NO. 7 HAS 1 (Y,F) POINTS AS FOLLOWS-
    .0000000E+00   .9200000E+00
SF TABLE NO. 8 HAS 1 (Y,F) POINTS AS FOLLOWS-
    .0000000E+00   .1560000E+00
SF TABLE NO. 9 HAS 1 (Y,F) POINTS AS FOLLOWS-
    .0000000E+00   .1000000E+03
SF TABLE NO. 10 HAS 1 (Y,F) POINTS AS FOLLOWS-
    .0000000E+00   .2000000E+00
SF TABLE NO. 11 HAS 1 (Y,F) POINTS AS FOLLOWS-
    .0000000E+00   .4200000E+00
SF TABLE NO. 12 HAS 1 (Y,F) POINTS AS FOLLOWS-
    .0000000E+00   .-2000000E+00
SF TABLE NO. 13 HAS 1 (Y,F) POINTS AS FOLLOWS-
    .9000000E+02   .6609300E+05
SF TABLE NO. 14 HAS 2 (Y,F) POINTS AS FOLLOWS-
    .1000000E+03   .1540000E-02   .2000000E+03   .-1740000E-02
  
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Program KITTY1A-PC (03.7.371-5.1) Program File: KITTY1A.EXE Created: 02/27/92 15:11:09
Input File: merr2.inp 05/12/92 10:15:04 Output File: merr2.out 05/12/92 10:17:08

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NAME1 INPUT- NSTPNV, NSTPOP, IPO, IFOP, IPOIN, IPOIN, IPOP,
XACM, FINC, CTBNR, EH1, ELO, XACD, CTRTF, TBIAS, RELAX

FFF, CASEND, FLOFILE

5060 1 0 0 1 0 0 1

-1000000E-06 -1260000E+01 -1000000E-01 -3000000E-06 .3000000E-07 -1000000E-01 -4504600E+03 .5600000E-33 .5000000E+00

.1000000E-01 -1000000E+01 merr2.pit

WITH WALLS PRESENT, THE 1-VECTOR (1F(1), I=1, NV) IS-

.9000000E+02 .8500000E+02 -1310000E+03 -1500000E+03 -1500000E+03 -1500000E+03 .1160000E+03 .8621720E+02 .8378280E+02 .1099670E+03
.1100330E+03 .8774C- 't+02 .86483470E+02 .84528360E+02 .8232660E+02 .8225480E+02 .8598760E+02 .8491240E+02 .8999940E+02
.9625940E+02 .99807- 't+02 .1002090E+03 -1207910E+03 .9630380E+02 .9769620E+02 .1090000E+03 .1090000E+03 .8601440E+02
.8560860E+02 .854057- 't+02 .8520290E+02 .8506900E+02 .8479710E+02 .8459430E+02 .8639140E+02 .8418850E+02 .8398560E+02
.1099780E+03 .1099830E+03 -1099890E+03 -1099940E+03 .1100000E+03 .1100060E+03 .1100110E+03 .1100170E+03 .1100220E+03
.6764720E+02 .8754560E+02 .8745410E+02 .8734250E+02 .8726090E+02 .8713940E+02 .8703780E+02 .8693630E+02 .86249170E+02 .8576810E+02
.8554870E+02 .8532920E+02 .8510970E+02 .8489030E+02 .8467080E+02 .8465150E+02 .8423190E+02 .8099960E+02 .8999960E+02
.8999960E+02 .8999960E+02 .8999960E+02 .8999960E+02 .8999960E+02 .9665630E+02 .9705250E+02 .9744800E+02 .9786290E+02
.9863070E+02 .9902360E+02 .9941590E+02 -1005710E+03 .1017340E+03 .1024690E+03 .1032580E+03 .1048020E+03 .1055450E+03
.1063070E+03 -1070700E+03 .1078320E+03 -1085942E+03 .1093570E+03 .1101910E+03 .1108910E+03 .11166430E+03 .1124606E+03 .1131606E+03
.1139230E+03 -1146930E+03 .1154550E+03 -1162170E+03 .1169800E+03 .1177420E+03 .1185040E+03 .1192660E+03 .1209290E+03 .97466410E+02
.9723210E+02 .9703000E+02 .9676790E+02 .9653590E+02
Z(A(J), J=" , NE
.9000000E+02 .8621720E+02 .8578280E+02 .1099670E+03 .1130330E+03 .8774870E+02 .8683470E+02 .8458340E+02 .8232660E+02 .8225680E+02
.8598760E+02 .8431240E+02 .8099960E+02 .8999960E+02 .9425940E+02 .9980760E+02 .1002090E+03 .1207910E+03 .9430380E+02 .9769620E+02
.8601440E+02 .8581150E+02 .85603960E+02 .8540570E+02 .8520290E+02 .8506900E+02 .8479710E+02 .8459430E+02 .8439140E+02 .8418850E+02
.8398560E+02 .1099720E+03 -1099780E+03 -1099830E+03 -1099890E+03 -1099940E+03 -1100000E+03 -1100060E+03 .1100110E+03 .1100170E+03
.1100220E+03 -1100280E+03 .8764720E+02 .8754560E+02 .8744410E+02 .8734250E+02 .8724090E+02 .8713940E+02 .8703780E+02 .8693630E+02
.8229170E+02 .8576810E+02 .8554870E+02 .8532920E+02 .8510970E+02 .8506900E+02 .8489030E+02 .8467080E+02 .8445150E+02 .8423190E+02
.8999960E+02 .8999960E+02 .8999960E+02 .8999960E+02 .8999960E+02 .9000000E+02 .8999960E+02 .9065630E+02 .9705250E+02 .9744800E+02
.9784290E+02 .9823720E+02 .9843070E+02 .9902360E+02 .9941590E+02 .1005710E+03 .1017340E+03 .1024690E+03 .1032580E+03 .1048020E+03
.1067839E+03 -1055450E+03 .1063070E+03 -1070700E+03 .1078320E+03 -1085942E+03 .1093570E+03 -1095940E+03 .1101910E+03 .1108910E+03 .11166430E+03
.1124606E+03 -1131606E+03 .1139300E+03 -1146930E+03 .1154550E+03 -1162170E+03 .1169800E+03 .1177420E+03 .1185040E+03 .1192660E+03 .1192660E+02
.1200290E+03 .97466410E+02 .9723210E+02 .9703000E+02 .9676790E+02 .9653590E+02

AFTER TAKING STEP NO. 0, XA= .16700000E-01, NR ICTD= 0, XACD= -1000000E-01, AND (TF(1), I=1, NV)=
.9000000E+02 .8500000E+02 .1310000E+03 -1500000E+03 .1500000E+03 .1500000E+03 .1160000E+03 .1160000E+03 .1160000E+03 .1099670E+03
.1100330E+03 .877487E+02 .8668347E+02 .8458346E+02 .8232660E+02 .8225680E+02 .84124E+02 .840124E+02 .8999960E+02 .8999960E+02
.9625940E+02 .998076E+02 .998076E+02 .1002090E+03 -1207910E+03 .963038E+02 .976962E+02 .1090000E+03 .130000E+03 .860144E+02
.856986E+02 .854057E+02 .852029E+02 .8506900E+02 .847971E+02 .845943E+02 .843914E+02 .841885E+02 .839856E+02 .8423190E+02
.1099780E+03 .1099830E+03 -1099890E+03 -1099940E+03 .1100000E+03 .1100060E+03 .1100110E+03 .1100170E+03 .1100220E+03 .1100280E+03
.1100340E+03 .1100400E+03 -1100460E+03 -1100520E+03 .1100580E+03 .1100640E+03 .1100700E+03 .1100760E+03 .1100820E+03 .1100880E+03
.1100940E+03 .1100980E+03 -1101040E+03 -1101100E+03 .1101160E+03 .1101220E+03 .1101280E+03 .1101340E+03 .1101400E+03 .1101460E+03
.1101520E+03 .1101580E+03 -1101640E+03 -1101700E+03 .1101760E+03 .1101820E+03 .1101880E+03 .1101940E+03 .1101980E+03 .1102040E+03
.1102100E+03 .1102160E+03 -1102220E+03 -1102280E+03 .1102340E+03 .1102400E+03 .1102460E+03 .1102520E+03 .1102580E+03 .1102640E+03
.1102700E+03 .1102760E+03 -1102820E+03 -1102880E+03 .1102940E+03 .1103000E+03 .1103060E+03 .1103120E+03 .1103180E+03 .1103240E+03
.1103300E+03 .1103360E+03 -1103420E+03 -1103480E+03 .1103540E+03 .1103600E+03 .1103660E+03 .1103720E+03 .1103780E+03 .1103840E+03
.1103900E+03 .1103960E+03 -1104020E+03 -1104080E+03 .1104140E+03 .1104200E+03 .1104260E+03 .1104320E+03 .1104380E+03 .1104440E+03
.1104500E+03 .1104560E+03 -1104620E+03 -1104680E+03 .1104740E+03 .1104800E+03 .1104860E+03 .1104920E+03 .1104980E+03 .1105040E+03 .1105100E+03
.1105160E+03 .1105220E+03 -1105280E+03 -1105340E+03 .1105400E+03 .1105460E+03 .1105520E+03 .1105580E+03 .1105640E+03 .1105700E+03
.1105760E+03 .1105820E+03 -1105880E+03 -1105940E+03 .1105100E+03 .1105160E+03 .1105220E+03 .1105280E+03 .1105340E+03 .1105400E+03
.1105460E+03 .1105520E+03 -1105580E+03 -1105640E+03 .1105700E+03 .1105760E+03 .1105820E+03 .1105880E+03 .1105940E+03 .1106000E+03
.1106060E+03 .1106120E+03 -1106180E+03 -1106240E+03 .1106300E+03 .1106360E+03 .1106420E+03 .1106480E+03 .1106540E+03 .1106600E+03
.1106660E+03 .1106720E+03 -1106780E+03 -1106840E+03 .1106900E+03 .1106960E+03 .1107020E+03 .1107080E+03 .1107140E+03 .1107200E+03
.1107260E+03 .1107320E+03 -1107380E+03 -1107440E+03 .1107500E+03 .1107560E+03 .1107620E+03 .1107680E+03 .1107740E+03 .1107800E+03
.1107860E+03 .1107920E+03 -1107980E+03 -1108040E+03 .1108100E+03 .1108160E+03 .1108220E+03 .1108280E+03 .1108340E+03 .1108400E+03
.1108460E+03 .1108520E+03 -1108580E+03 -1108640E+03 .1108700E+03 .1108760E+03 .1108820E+03 .1108880E+03 .1108940E+03 .1109000E+03
.1109060E+03 .1109120E+03 -1109180E+03 -1109240E+03 .1109300E+03 .1109360E+03 .1109420E+03 .1109480E+03 .1109540E+03 .1109600E+03
.1109660E+03 .1109720E+03 -1109780E+03 -1109840E+03 .1109900E+03 .1109960E+03 .1110020E+03 .1110080E+03 .1110140E+03 .1110200E+03
.1110260E+03 .1110320E+03 -1110380E+03 -1110440E+03 .1110500E+03 .1110560E+03 .1110620E+03 .1110680E+03 .1110740E+03 .1110800E+03
.1110860E+03 .1110920E+03 -1110980E+03 -1111040E+03 .1111100E+03 .1111160E+03 .1111220E+03 .1111280E+03 .1111340E+03 .1111400E+03
.1111460E+03 .1111520E+03 -1111580E+03 -1111640E+03 .1111700E+03 .1111760E+03 .1111820E+03 .1111880E+03 .1111940E+03 .1112000E+03
.1112060E+03 .1112120E+03 -1112180E+03 -1112240E+03 .1112300E+03 .1112360E+03 .1112420E+03 .1112480E+03 .1112540E+03 .1112600E+03
.1112660E+03 .1112720E+03 -1112780E+03 -1112840E+03 .1112900E+03 .1112960E+03 .1113020E+03 .1113080E+03 .1113140E+03 .1113200E+03
.1113260E+03 .1113320E+03 -1113380E+03 -1113440E+03 .1113500E+03 .1113560E+03 .1113620E+03 .1113680E+03 .1113740E+03 .1113800E+03
.1113860E+03 .1113920E+03 -1113980E+03 -1114040E+03 .1114100E+03 .1114160E+03 .1114220E+03 .1114280E+03 .1114340E+03 .1114400E+03
.1114460E+03 .1114520E+03 -1114580E+03 -1114640E+03 .1114700E+03 .1114760E+03 .1114820E+03 .1114880E+03 .1114940E+03 .1115000E+03
.1115060E+03 .1115120E+03 -1115180E+03 -1115240E+03 .1115300E+03 .1115360E+03 .1115420E+03 .1115480E+03 .1115540E+03 .1115600E+03
.1115660E+03 .1115720E+03 -1115780E+03 -1115840E+03 .1115900E+03 .1115960E+03 .1116020E+03 .1116080E+03 .1116140E+03 .1116200E+03
.1116260E+03 .1116320E+03 -1116380E+03 -1116440E+03 .1116500E+03 .1116560E+03 .1116620E+03 .1116680E+03 .1116740E+03 .1116800E+03
.1116860E+03 .1116920E+03 -1116980E+03 -1117040E+03 .1117100E+03 .1117160E+03 .1117220E+03 .1117280E+03 .1117340E+03 .1117400E+03
.1117460E+03 .1117520E+03 -1117580E+03 -1117640E+03 .1117700E+03 .1117760E+03 .1117820E+03 .1117880E+03 .1117940E+03 .1118000E+03
.1118060E+03 .1118120E+03 -1118180E+03 -1118240E+03 .1118300E+03 .1118360E+03 .1118420E+03 .1118480E+03 .1118540E+03 .1118600E+03
.1118660E+03 .1118720E+03 -1118780E+03 -1118840E+03 .1118900E+03 .1118960E+03 .1119020E+03 .1119080E+03 .1119140E+03 .1119200E+03
.1119260E+03 .1119320E+03 -1119380E+03 -1119440E+03 .1119500E+03 .1119560E+03 .1119620E+03 .1119680E+03 .1119740E+03 .1119800E+03
.1119860E+03 .1119920E+03 -1119980E+03 -1111040E+03 .1111100E+03 .1111160E+03 .1111220E+03 .1111280E+03 .1111340E+03 .1111400E+03
.1111460E+03 .1111520E+03 -1111580E+03 -1111640E+03 .1111700E+03 .1111760E+03 .1111820E+03 .1111880E+03 .1111940E+03 .1111100E+03
.1111160E+03 .1111220E+03 -1111280E+03 -1111340E+03 .1111400E+03 .1111460E+03 .1111520E+03 .1111580E+03 .1111640E+03 .1111700E+03
.1111760E+03 .1111820E+03 -1111880E+03 -1111940E+03 .1111100E+03 .1111160E+03 .1111220E+03 .1111280E+03 .1111340E+03 .1111400E+03
.1111460E+03 .1111520E+03 -1111580E+03 -1111640E+03 .1111700E+03 .1111760E+03 .1111820E+03 .1111880E+03 .1111940E+03 .1111100E+03
.1111160E+03 .1111220E+03 -1111280E+03 -1111340E+03 .1111400E+03 .1111460E+03 .1111520E+03 .1111580E+03 .1111640E+03 .1111700E+03
.1111760E+03 .1111820E+03 -1111880E+03 -1111940E+03 .1111100E+03 .1111160E+03 .1111220E+03 .1111280E+03 .1111340E+03 .1111400E+03
.1111460E+03 .1111520E+03 -1111580E+03 -1111640E+03 .1111700E+03 .1111760E+03 .1111820E+03 .1111880E+03 .1111940E+03 .1111100E+03
.1111160E+03 .1111220E+03 -1111280E+03 -1111340E+03 .1111400E+03 .1111460E+03 .1111520E+03 .1111580E+03 .1111640E+03 .1111700E+03
.1111760E+03 .1111820E+03 -1111880E+03 -1111940E+03 .1111100E+03 .1111160E+03 .1111220E+03 .1111280E+03 .1111340E+03 .1111400E+03
.1111460E+03 .1111520E+03 -1111580E+03 -1111640E+03 .1111700E+03 .1111760E+03 .1111820E+03 .1111880E+03 .1111940E+03 .1111100E+03
.1111160E+03 .1111220E+03 -1111280E+03 -1111340E+03 .1111400E+03 .1111460E+03 .1111520E+03 .1111580E+03 .1111640E+03 .1111700E+03
.1111760E+03 .1111820E+03 -1111880E+03 -1111940E+03 .1111100E+03 .1111160E+03 .1111220E+03 .1111280E+03 .1111340E+03 .1111400E+03
.1111460E+03 .1111520E+03 -1111580E+03 -1111640E+03 .1111700E+03 .1111760E+03 .1111820E+03 .1111880E+03 .1111940E+03 .1111100E+03
.1111160E+03 .1111220E+03 -1111280E+03 -1111340E+03 .1111400E+03 .1111460E+03 .1111520E+03 .1111580E+03 .1111640E+03 .1111700E+03
.1111760E+03 .1111820E+03 -1111880E+03 -1111940E+03 .1111100E+03 .1111160E+03 .1111220E+03 .1111280E+03 .1111340E+03 .1111400E+03
.1111460E+03 .1111520E+03 -1111580E+03 -1111640E+03 .1111700E+03 .1111760E+03 .1111820E+03 .1111880E+03 .1111940E+03 .1111100E+03
.1111160E+03 .1111220E+03 -1111280E+03 -1111340E+03 .1111400E+03 .1111460E+03 .1111520E+03 .1111580E+03 .1111640E+03 .1111700E+03
.1111760E+03 .1111820E+03 -1111880E+03 -1111940E+03 .1111100E+03 .1111160E+03 .1111220E+03 .1111280E+03 .1111340E+03 .1111400E+03
.1111460E+03 .1111520E+03 -1111580E+03 -1111640E+03 .1111700E+03 .1111760E+03 .1111820E+03 .1111880E+03 .1111940E+03 .1111100E+03
.1111160E+03 .1111220E+03 -1111280E+03 -1111340E+03 .1111400E+03 .1111460E+03 .1111520E+03 .1111580E+03 .1111640E+03 .1111700E+03
.1111760E+03 .1111820E+03 -1111880E+03 -1111940E+03 .1111100E+03 .1111160E+03 .1111220E+03 .1111280E+03 .1111340E+03 .1111400E+03
.1111460E+03 .1111520E+03 -1111580E+03 -1111640E+03 .1111700E+03 .1111760E+03 .1111820E+03 .1111880E+03 .1111940E+03 .1111100E+03
.1111160E+03 .1111220E+03 -1111280E+03 -1111340E+03 .1111400E+03 .1111460E+03 .1111520E+03 .1111580E+03 .1111640E+03 .1111700E+03
.1111760E+03 .1111820E+03 -1111880E+03 -1111940E+03 .1111100E+03 .1111160E+03 .1111220E+03 .1111280E+03 .1111340E+03 .1111400E+03
.1111460E+03 .1111520E+03 -1111580E+03 -1111640E+03 .1111700E+03 .1111760E+03 .1111820E+03 .1111880E+03 .1111940E+03 .1111100E+03
.1111160E+03 .1111220E+03 -1111280E+03 -11

alc. No. 3C7-0290-001
revision: 1
ago: A19
roject No. 8726-17

program KITTYIA-PC (03.-371-5-1) Program File: KITTYIA.EXE Create-dt: 02/27/92 15:11:09
Input File: mcrtr2.inp 05/12/92 10:15:06 Output File: mcrtr2.out 05/12/92 10:17:08

卷之三

Calc. No. 3C7-0296-001
Revision: 1
Page: A20
Project No. 8726-17

Program KITTY1A-PC (03.7-371.5-1) Program File: KITTY1E.Eh_ Created: 02/27/92 15:11:09
Input File: merr2.inp 05/12/92 10:15:04 Output File: merr2.out 05/12/92 10:17:08

卷之三

Calc. No. 3C7-0290-001
Revision: 1
Page: A21
Project No. 8726-17

Program KITTY1\PC (03.7.371-5.1.1) program file: KITTY1.EXE Created: 02/27/92 15:11:39
Output File: netr2.out Output File: netr2.out 05/12/92 0:17:39

卷之三

Program KITTY1A-PC (03.7.371-5.1 1) Program File: KITTY1A.EXE Created: 02/27/92 15:11:09
Input File: mcrtr2.inp 05/12/92 10:15:04 Output File: mcrtr2.out 05/12/92 10:17:08

Page: 13

.966522E+02	.100429E+03	.100661E+03	.120791E+03	.966252E+02	.980779E+02	.109000E+03	.130000E+03	.860942E+02	.858201E+02
.856094E+02	.854058E+02	.852029E+02	.850000E+02	.847971E+02	.845943E+02	.843919E+02	.841928E+02	.840160E+02	.109973E+03
.109978E+03	.109983E+03	.109989E+03	.109994E+03	.110000E+03	.110006E+03	.110011E+03	.110017E+03	.110022E+03	.110028E+03
.877213E+02	.875534E+02	.874448E+02	.873426E+02	.872499E+02	.871395E+02	.870391E+02	.869487E+02	.952438E+02	.858488E+02
.855574E+02	.853300E+02	.851099E+02	.848918E+02	.846883E+02	.846096E+02	.853424E+02	.900616E+02	.900061E+02	.900002E+02
.899997E+02	.900010E+02	.900146E+02	.901359E+02	.909565E+02	.957118E+02	.970585E+02	.974483E+02	.978427E+02	.982370E+02
.986323E+02	.990407E+02	.995383E+02	.101040E+03	.101742E+03	.102497E+03	.103258E+03	.104020E+03	.104783E+03	.105545E+03
.106307E+03	.107070E+03	.107852E+03	.108594E+03	.109357E+03	.110119E+03	.110881E+03	.111643E+03	.112406E+03	.113168E+03
.113930E+03	.114693E+03	.115455E+03	.116217E+03	.116980E+03	.117742E+03	.118504E+03	.119266E+03	.120029E+03	.976463E+02
.973102E+02	.970426E+02	.968290E+02	.966804E+02						

(D96(1), 3=3, 96V)w

(OP(1), i=1, MP) =

-1706802E+03 .7041740E+04 -3736491E+03 .0000000E+00 .9612673E+02 .2066318E+03 .4551530E+04 .1703723E+04 -.6132E27E+03 .6191326E+03
 -5646611E+04 .2944466E+05 .2618097E+04 .1094590E+04 .1253608E+05 .3749685E+04 .1198424E+04 .2131377E+05 .1547679E+04 .1473240E+03
 -3309526E+04 .3042618E+04 .4139135E+04 .8331478E+04 .0000000E+00 .3195614E+05 .3582968E+05 .2746515E+04 .2111474E+04 .2039656E+04
 -2032852E+04 .2032597E+04 .2032537E+04 .2031931E+04 .2028306E+04 .1994427E+04 .1771186E+04 .7814120E+03 -.185012E+03 .1979572E+03
 -2067967E+03 -.2025460E+03 .2130195E+03 .2130218E+03 -.2025787E+03 .2071578E+03 .2011830E+03 .2072051E+03 .2026673E+03 .5009253E+03
 -3248638E+03 .3052569E+03 .3034563E+03 .3029635E+03 .2998308E+03 .2498012E+03 .4316623E+02 .1564587E+05 .4477222E+03 .3439445E+03
 -3328612E+03 .3298063E+03 .3079269E+03 .1190148E+03 .1108376E+04 .6445386E+04 .1637696E+03 .1739210E+02 .123192E+01 .3562187E+01
 -4032428E+02 .3574722E+03 .2418820E+04 .1138960E+05 .8573571E+03 .9640258E+03 .9752663E+03 .9752506E+03 .9775114E+03 .1009964E+04
 -1230465E+04 .2203820E+04 .7668383E+04 .8251267E+04 .8321816E+04 .8330075E+04 .8333705E+04 .8331081E+04 .8331091E+04 .8333812E+04
 -8331091E+04 .8331084E+04 .8333745E+04 .8330668E+04 .8329355E+04 .8330668E+04 .8333745E+04 .8331084E+04 .8331091E+04 .8333312E+04
 -8331091E+04 .8331084E+04 .8333745E+04 .8330668E+04 .8329358E+04 .8330700E+04 .8333930E+04 .8331697E+04 .2495711E+05 .1985285E+05
 1584647E+05 .1102361E+05 .4091975E+04

AFTER TAKING STEP NO. 75, XA= .50000000E+00, NRJCTD= 4, XACD= .7942478E-02, AND (TF(1),I=1,NV)=
 1004.1E+03 850000E+02 131000E+03 -150000E+03 -150500E+03 150000E+03 116000E+03 .873129E+02 .339872E+02 109971E+03

caic, No. 397-0290-001
Revision: 1
page: A23
project No. 8726-17

program KITTYIA-PC (03.7.371-5.1.1) Program File: KITTYIA.EXE Created: 02/27/92 15:11:09
Input File: mcrtr2.inp 05/12/92 10:15:04 Output File: mcrtr2.out 05/12/92 10:17:08

卷之三

-1.10033E+03	-887758E+02	-870684E+02	-935429E+02	-1000346E+03	-102240E+03	-870913E+02	-912282E+02	-909222E+02	-962253E+02
-9.90618E+02	-100616E+03	-101007E+03	-120791E+03	-947217E+02	-981678E+02	-109000E+03	-135000E+03	-862326E+02	-858616E+02
-8.54062E+02	-854062E+02	-852029E+02	-850500E+02	-847972E+02	-845945E+02	-863952E+02	-841998E+02	-860411E+02	-109973E+03
-8.86131E+02	-109981E+03	-109989E+03	-109996E+03	-110000E+03	-110006E+03	-110011E+03	-110017E+03	-110022E+03	-110028E+03
-8.75779E+02	-875639E+02	-875643E+02	-872611E+02	-871401E+02	-870637E+02	-869770E+02	-869656E+03	-869882E+02	-869882E+02
-8.878522E+02									
-8.53353E+02	-853353E+02	-851113E+02	-848993E+02	-847378E+02	-848627E+02	-862281E+02	-901780E+02	-980271E+02	-900332E+02
-9.00074E+02	-900074E+02	-900573E+02	-903551E+02	-917191E+02	-968064E+02	-970761E+02	-974508E+02	-978429E+02	-982277E+02
-9.000099E+02									
-9.996376E+02	-9.996376E+02	-9.996376E+02	-101140E+03	-101752E+03	-102500E+03	-103259E+03	-104020E+03	-104783E+03	-105545E+03
-10.04307E+02									
-10.07070E+03	-10.07070E+03	-10.7832E+03	-10.8596E+03	-10.9357E+03	-11.0119E+03	-11.0881E+03	-11.1643E+03	-11.2406E+03	-11.3168E+03
-11.46692E+03	-11.46692E+03	-11.5455E+03	-11.6217E+03	-11.6961E+03	-11.7742E+03	-11.8504E+03	-11.9266E+03	-12.0029E+03	-12.0773E+03
-9.71045E+02	-9.71045E+02	-9.68993E+02	-9.67672E+02	-9.66803E+02	-9.66033E+02	-9.65353E+02	-9.64763E+02	-9.64263E+02	-9.63763E+02

REF ID: A-10000000001 SUBJECT: 4. VACUUM -700.24 TSP-02, AND TPE12, L-1. WY-3-

Input File: mcrtr2.inp 05/12/92 10:15:04 Output File: mcrtr2.out 05/12/92 10:17:08

.113673E+03 .850000E+02 .131000E+03 .150000E+03 .150000E+03 .150000E+03 .116000E+03 .886706E+02 .840887E+02 .110102E+03
 .110033E+03 .900970E+02 .876665E+02 .995978E+02 .111537E+03 .113305E+03 .884556E+02 .943444E+02 .921487E+02 .989293E+02
 .980571E+02 .100992E+03 .101978E+03 .120791E+03 .969670E+02 .983893E+02 .109000E+03 .130000E+03 .868854E+02 .860658E+02
 .858714E+02 .854191E+02 .852054E+02 .850005E+02 .847979E+02 .849975E+02 .844044E+02 .842332E+02 .841144E+02 .110901E+03
 .109983E+03 .109984E+03 .109989E+03 .109994E+03 .110000E+03 .110006E+03 .110011E+03 .110017E+03 .110022E+03 .110028E+03
 .884776E+02 .877787E+02 .875035E+02 .873556E+02 .872461E+02 .871540E+02 .871017E+02 .871855E+02 .112149E+03 .866449E+02
 .858055E+02 .853972E+02 .851481E+02 .850086E+02 .851322E+02 .860195E+02 .886795E+02 .907521E+02 .902167E+02 .900563E+02
 .900321E+02 .901010E+02 .90776E+02 .913529E+02 .938404E+02 .972828E+02 .972324E+02 .974918E+02 .978541E+02 .982508E+02
 .986817E+02 .991994E+02 .999200E+02 .101602E+03 .101920E+03 .102543E+03 .103268E+03 .104022E+03 .104783E+03 .105545E+03
 .106307E+03 .107070E+03 .107832E+03 .108594E+03 .109357E+03 .110119E+03 .110881E+03 .111643E+03 .112406E+03 .113168E+03
 .113930E+03 .114693E+03 .115455E+03 .116217E+03 .116980E+03 .117742E+03 .118504E+03 .119266E+03 .120029E+03 .979603E+02
 .976058E+02 .973279E+02 .971280E+02 .970073E+02

(DN(1), I=1, NV)=

.6949593E-01 .7100000E-01 .6759000E-01 .6550000E-01 .6550000E-01 .6550000E-01 .5924000E-01 .1500000E-01 .1450000E-01 .1450000E+03
 .1450000E+03 .1450000E+03 .1450000E+03 .710C000E-01 .1000000E+03 .1000000E+03 .1450000E+03 .9450000E+03 .1450000E+03 .1450000E+03
 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .7001000E-01 .6770000E-01 .1450000E+03 .1450000E+03 .1450000E+03
 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
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 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03

(OP(1), I=1, NP)=

.2521213E+05 .1788602E+05 .3046943E+03 .8071640E+04 .3733224E+04 .2066310E+03 .6948921E+04 .4836002E+04 .2802399E+04 .2804934E+04
 -.5258905E+04 .1253402E+05 .3849831E+04 .2738694E+04 .1106225E+05 .6074907E+04 .4116839E+04 .1922435E+05 .3322511E+04 .1914603E+04
 -.3151044E+04 .9987208E+04 .4102641E+04 .8331542E+04 .0000000E+00 .3183089E+05 .3447027E+05 .8211580E+04 .3951463E+04 .2527202E+04
 .2141250E+04 .2052336E+04 .2030453E+04 .2007761E+04 .1934795E+04 .1714960E+04 .1189832E+04 .2581264E+03 .6792443E+03 .4399958E+02
 -.1792997E+03 .-2026761E+03 .-2079718E+03 .-2085320E+03 .-2068041E+03 .-2054440E+03 .-2047405E+03 .-2051204E+03 .-2059458E+03 .-2062037E+04
 .8468690E+03 .4416677E+03 .3270631E+03 .2750555E+03 .1561633E+03 .2502163E+03 .1436567E+04 .1016490E+05 .1259547E+04 .6176449E+03
 .3766537E+03 .2119700E+03 .1878337E+03 .1342059E+04 .4023234E+04 .8568044E+04 .1578108E+04 .4728216E+03 .7124340E+02 .2029208E+03
 -.8742607E+03 .2816191E+04 .7332161E+04 .1500045E+05 .1248361E+03 .6416199E+03 .8959633E+03 .9809780E+03 .1065594E+04 .1280271E+04
 -.1781893E+04 .2651331E+04 .3475280E+04 .6803667E+04 .7929063E+04 .8240531E+04 .8313861E+04 .8328698E+04 .8331422E+04 .8332009E+04
 -.8331905E+04 .8331827E+04 .8331751E+04 .8331209E+04 .8330858E+04 .8331209E+04 .8331751E+04 .8331828E+04 .8331914E+04 .8332079E+04
 -.8331914E+04 .8331829E+04 .8331754E+04 .8331221E+04 .8330896E+04 .8331293E+04 .8331849E+04 .8331738E+04 .2630140E+05 .2061848E+05
 .1483052E+05 .8950085E+04 .2993607E+04

Calc. No. 3C7-0290-001
 Revision: 1
 Page: A25
 Project No. 6726-17

AFTER TAKING STEP NO. 264, XA= 200000000E+01, NRJCTD= 4, XACD= .7942478E-02, AXC= (TF(1), I=1, NV)=
.114813E+03 .850000E+02 .131000E+03 .150000E+03 .150000E+03 .116000E+03 .902946E+02 .8421E+02 .110371E+03
.110033E+03 .915823E+02 .889900E+02 .105718E+03 .122448E+03 .123869E+03 .90005E+02 .979854E+02 .935472E+02 .102098E+03
.992615E+02 .101449E+03 .103129E+03 .120791E+03 .974295E+02 .987892E+02 .109000E+03 .130000E+03 .881414E+02 .868179E+02
.860322E+02 .855654E+02 .852578E+02 .850195E+02 .848103E+02 .846185E+02 .844482E+02 .843130E+02 .842315E+02 .110156E+03
.110051E+03 .110009E+03 .109997E+03 .109997E+03 .110001E+03 .110006E+03 .110011E+03 .110017E+03 .110022E+03 .110028E+03
.896891E+02 .885112E+02 .878538E+02 .875112E+02 .873456E+02 .873114E+02 .874585E+02 .879575E+02 .123055E+03 .879161E+02
.865915E+02 .858545E+02 .855645E+02 .857352E+02 .865995E+02 .886027E+02 .922775E+02 .918879E+02 .909105E+02 .904551E+02
.903920E+02 .937289E+02 .916661E+02 .935889E+02 .969607E+02 .982429E+02 .97984E+02 .977679E+02 .979903E+02 .983643E+02
.988598E+02 .995036E+02 .100351E+03 .102522E+03 .102466E+03 .102804E+03 .103374E+03 .104060E+03 .104795E+03 .105548E+03
.106308E+03 .107070E+03 .107832E+03 .108594E+03 .109357E+03 .110119E+03 .110881E+03 .111643E+03 .112406E+03 .113168E+03
.113930E+03 .114693E+03 .115455E+03 .116217E+03 .116980E+03 .117742E+03 .118504E+03 .119266E+03 .120029E+03 .983808E+02
.980420E+02 .977756E+02 .975838E+02 .974681E+02
(DN(I), I=1, NV)=
.6937056E-01 .7100000E-01 .6757000E-01 .6550000E-01 .6550000E-01 .6924000E-01 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .7037097E-01 .1000000E+03 .1000000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .7001000E-01 .6770000E-01 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
.1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03 .1450000E+03
(QP(I), I=1, NP)=
.2468350E+05 .2067047E+05 .2478770E+03 .1079468E+05 .7980756E+04 .29663C+E+03 .6813412E+04 .5653724E+04 .4397639E+04 .1398073E+04
.5297529E+04 .7970668E+04 .3767587E+04 .3152626E+04 .1010800E+05 .5977731E+04 .4891105E+04 .1765045E+05 .3304157E+04 .2518977E+04
.3023896E+04 .9974154E+04 .6632860E+04 .8331559E+04 .0000000E+00 .3029789E+05 .3276937E+05 .1325944E+05 .787198E+04 .4673783E+04
.3082026E+04 .2387725E+04 .2095593E+04 .1921308E+04 .1706856E+04 .1354506E+04 .3165333E+03 .1213334E+03 .3911310E+04 .1557494E+04
.4447557E+03 .3381060E+01 .1470360E+03 .1917224E+03 .2031104E+03 .2053428E+03 .2E+6045E+03 .2058149E+03 .2063131E+03 .3517687E+04
.1963103E+04 .1023267E+04 .4945331E+03 .1020925E+03 .4394491E+03 .1430413E+04 .3 .3081E+04 .7097759E+04 .2003347E+04 .1114639E+04
.4386938E+03 .2581125E+03 .1307325E+04 .5029768E+04 .5558138E+04 .8633053E+04 .2809968E+04 .1342281E+04 .1860050E+03 .9931486E+03
.2762345E+04 .5667908E+04 .9938898E+04 .1514460E+05 .1099282E+04 .7544292E+02 .5501439E+03 .9248464E+03 .1225368E+04 .1501971E+04
.2095853E+04 .2714140E+04 .6152298E+03 .3696951E+04 .6233826E+04 .7493167E+04 .8032641E+04 .8235685E+04 .8303801E+04 .8324390E+04
.8330001E+04 .8331315E+04 .8331481E+04 .8331387E+04 .8331328E+04 .8331404E+04 .8331571E+04 .8331737E+04 .8331849E+04 .8331889E+04
.8331850E+04 .8331742E+04 .8331583E+04 .8331425E+04 .8331355E+04 .8331406E+04 .8331501E+04 .8331552E+04 .2513510E+05 .1976233E+05

.1622854E+05 .8581685E+04 .2867935E+04

AFTER TAKING STEP NO.	390,	XA=	.30000000E+01,	NRJCTD=	4,	XACD=	.7942478E-02,	AND	(TF(I), I=1, NV)=
.115422E+03	.850000E+02	.131000E+03	.150000E+03	.150000E+03	.150000E+03	.116000E+03	.912109E+02	.843147E+02	.110574E+03
.110033E+03	.925604E+02	.900056E+02	.108349E+03	.126604E+03	.127902E+03	.910457E+02	.100420E+03	.944959E-02	.104223E+03
.100067E+03	.101769E+03	.103905E+03	.129791E+03	.978718E+02	.991662E+02	.109000E+03	.130000E+03	.890999E+02	.875735E+02
.865368E+02	.858578E+02	.854093E+02	.854750E+02	.848554E+02	.846611E+02	.845042E+02	.843888E+02	.843231E+02	.110312E+03
.110152E+03	.110065E+03	.110024E+03	.110009E+03	.11003E+03	.110007E+03	.110012E+03	.110017E+03	.110022E+03	.110028E+03
.906197E+02	.892501E+02	.883663E+02	.878573E+02	.876358E+02	.876758E+02	.880167E+02	.887757E+02	.127212E+03	.889360E+02
.874795E+02	.866473E+02	.864347E+02	.869238E+02	.863106E+02	.908715E+02	.948681E+02	.928045E+02	.917006E+02	.911525E+02
.911498E+02	.917595E+02	.934918E+02	.955577E+02	.992134E+02	.989966E+02	.983925E+02	.981823E+02	.982747E+02	.985951E+02
.991035E+02	.997940E+02	.100679E+03	.103243E+03	.103026E+03	.103174E+03	.103587E+03	.104168E+03	.104844E+03	.105569E+03
.106316E+03	.107072E+03	.107833E+03	.102595E+03	.109357E+03	.110119E+03	.110881E+03	.111643E+03	.112406E+03	.113168E+03
.113930E+03	.114693E+03	.115455E+03	.116217E+03	.116980E+03	.117422E+03	.118504E+03	.119266E+03	.120029E+03	.987777E+02
.981553E+02	.982016E+02	.980189E+02	.979067E+02						

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OP(1), i=1, NP)=
.2415338E+05 .2114895E+05 .2083463E+03 .1212951E+05 .9737494E+04 .2056304E+03 .6669422E+04 .5795390E+04 .4940945E+04 .4940614E+04
-.5301940E+04 -.6374054E+04 .3679489E+04 .3191002E+04 .9482254E+04 .750667E+04 .4985923E+04 .1661454E+05 .3248525E+04 .2647523E+04
-.2935502E+04 .9784470E+04 .7232185E+04 .8331554E+04 .0000000E+00 .2862001E+05 .3114720E+05 .1529335E+05 .1038576E+05 .6803310E+04
.4493448E+04 .3148323E+04 .2401427E+04 .1946235E+04 .1572067E+04 .1157619E+04 .6564818E+03 .8409903E+02 .591857E+04 .5214877E+04
.1524413E+04 .5877042E+03 .759E+03 .7997919E+02 .1620660E+03 .1919067E+03 .2018567E+03 .2050453E+03 .2062364E+03 .4090112E+04
.2639327E+04 .1520067E+04 .9226E+03 .1133785E+03 .1026006E+04 .2266651E+04 .3935721E+04 .6023709E+04 .2202822E+04 .1258698E+04
.3216510E+03 .7397354E+03 .2097543E+04 .3873488E+04 .601705E+04 .8396504E+04 .3253839E+04 .1615792E+04 .7734870F+01 .1797258E+04
.4095941E+04 .7099866E+04 .1077589E+05 .1476595E+05 .1493777E+04 .5199371E+03 .2286470E+03 .7922508E+03 .1257244E+04 .1707615E+04
.2188981E+04 .2696666E+04 .2378077E+04 .1624220E+04 .4510420E+04 .6347762E+04 .7389927E+04 .7921308E+04 .8166850E+04 .8270414E+04
.8310517E+06 .83262817E+06 .8320509E+04 .8330913E+06 .8331314E+04 .8331465E+04 .8331578E+04 .8331683E+04 .8331761E+04 .8331790E+04

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Calc. No. JC-0290-001
Revision: 1
Page: A28
Project No. 8726-17

Program KITTY1a-PC (03.7.3715.1) Program file: KITTY1a.EXE Created: 02/27/92 15:11:00
Input File: metr2.inp Output File: metr2.out 05/12/92 10:17:00

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-.8331765E+04 -.8331692E+04 -.8331597E+04 -.8331511E+04 -.8331465E+04 -.8331461E+04 -.8331467E+04 -.2392047E+05 .1681717E+05

AFTER AKING STEP NO.	X=	Y=	Z=	WJCTD=	WACD=	WF(1,1)=
-115907E+03	.850000E+02	-131000E-03	-150000E+03	.150000E+03	.150000E+03	.116000E+03
-119233E+03	.93341BE+02	.909984E+02	-109669E+03	.128348E+03	.129590E+03	.919477E+02
-106720E+03	-102035E+03	-104528E+03	-120797E+C3	.982930E+02	.995247E+02	.102302E+03
-875594E+02	.862197E+02	.856392E+02	.852346E+02	.869442E+02	.867293E+02	.844613E+02
-110261E+03	-110138E+03	-110064E+03	-110033E+03	-110017E+03	-110013E+03	-110014E+03
-913929E+02	.895363E+02	.889346E+02	.8853317E+02	.880535E+02	.881780E+02	.895619E+02
-884200E+02	.875312E+02	.875562E+02	.882975E+02	.900018E+02	.928163E+02	.926434E+02
-922504E+02	.920548E+02	.946186E+02	.972663E+02	.101099E+03	.996318E+02	.986336E+02
-993872E+02	-100078E+03	-100963E+03	-103843E+03	-103536E+03	-103562E+03	-104331E+03
-106338E+03	-107082E+03	-107837E+03	-108590E+03	-109357E+03	-110119E+03	-111663E+03
-113930E+03	-114693E+03	-115453E+03	-116217E+03	-116980E+03	-117742E+03	-119266E+03
						081289E+02
						080404E+02
						086332E+02

20+30000576

Calc. No. 3C7-0290-001
Revision: 1
Page: A29
Project No. 8726-17

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Program KITTIA-pc [03.7.37] : i1 program file: KITTY1A.EXE Created: 02/27/92 15:11:09  
Input File: merr2.inp 05/12/92 10:15:04 Output File: merr2.out 05/22/92 10:17:08
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AFTER TAKING STEP NO.	515.	XAY=	.500000000E+01.	NRJCTD=	δ_e	XACD=	.2522370E-01. AND	(F(111, 1 ¹ , WF))=
.116329E+03	.650000E+02	.13100E+03	.15000E+03	.15000E+03	.15000E+03	.15000E+03	.11600E+03	.926773E+02
.110334E+03	.940205E+02	.91715E+02	.11046E+03	.129179E+03	.130587E+03	.928165E+02	.103066E+03	.961027E+02
.101129E+03	.102288E+03	.10596E+03	.120791E+03	.936935E+02	.908664E+02	.109000E+03	.130000E+03	.905547E+02
.877555E+02	.866608E+02	.859156E+02	.854237E+02	.850740E+02	.848251E+02	.845507E+02	.845367E+02	.844763E+02
.110371E+03	.110219E+03	.110123E+03	.110067E+03	.110037E+03	.110024E+03	.110020E+03	.110024E+03	.110020E+03
.920791E+02	.905663E+02	.895282E+02	.886864E+02	.886234E+02	.897575E+02	.892992E+02	.902864E+02	.129773E+03
.894104E+02	.887773E+02	.895797E+02	.897161E+02	.916123E+02	.945772E+02	.906690E+02	.944746E+02	.934184E+02
.932085E+02	.961295E+02	.987835E+02	.102728E+02	.100197E+03	.100197E+03	.994732E+02	.9909963E+02	.990521E+02
.996959E+02	.100365E+03	.101231E+03	.104364E+03	.104001E+03	.103942E+03	.104136E+03	.105520E+03	.105697E+03
.106380E+03	.107194E+03	.107947E+03	.108601E+03	.109350E+03	.110120E+03	.110882E+03	.111644E+03	.112496E+03
.115933E+03	.114653E+03	.115455E+03	.116217E+03	.116900E+03	.117742E+03	.118504E+03	.119256E+03	.120029E+03
.000222E+02	.080926E+02	.098271E+02	.097272E+02					.095144E+02

Calc. No. 3C7-0290-001
Revision: 1
Page: A30
Project No. 8726-17

$2^{453} \cdot 92E+04$ - .2592405E+04 - .3966754E+04 - .6493722E+03 - .2127187E+04 - .4281318E+04 - .564129E+04 - .75386421E+04 - .7914120E+04
 $8.125035E+04$ - .8331644E+04 - .8331570E+04 - .8331568E+04 - .8331564E+04 - .8331562E+04 - .8331539E+04 - .8331528E+04 - .8331515E+04 - .8331503E+04 - .8331490E+04
 $1.227875E+05$ - .7408744E+04 - .2476518E+04

TAKING STEP NO.		$X_A =$	$W_{R,CTD} =$	$\chi_{ACD} =$	$\chi_{F(1), f_1(NV)} =$
547.		-600000000E+01,			
116717E+03	850000E+02	131000E+03	150000E+03	1.0000E+03	116200E+03
110353E+03	946415E+02	111044E+03	129645E+03	130853E+03	936619E+02
101309E+03	102520E+03	105537E+03	120791E+03	1.00075E+02	100192E+03
88047E+02	865988E+02	862171E+02	856466E+02	.852364E+02	.84945E+02
110482E+03	110304E+03	110184E+03	110109E+03	110864E+03	110026E+03
927157E+02	912132E+02	901311E+02	8964681E+02	.892123E+02	.893681E+02
903439E+02	8898537E+02	900532E+02	911192E+02	.931316E+02	.961510E+02
943190E+02	954195E+02	973485E+02	100158E+02	103865E+03	120171E+03
100018E+03	100657E+03	101497E+03	104831E+03	104428E+03	104305E+03
1064415E+03	107139E+03	107867E+03	108611E+03	109353E+03	110122E+03
111930E+03	1146935E+03	115555E+03	116217E+03	116980E+03	117742E+03
095778E+02	993599E+02	992053E+02	992053E+02		991072E+02

Program KITTY1A-PC (03.7.371-5.1.1) Program File: KITTY1A.EVE Created: 02/27/92 15:11:06
Input File: merr2.inp 05/12/92 10:15:04 Output File: merr2.out 05/12/92 10:17:08

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Calc. No. 3C7-0290-001
Revision: 1
Page: A32
Project No. 8726-17

-5685988E-04	-8280763E-04	-1092701E+05	-1347332E+05	-1651697E+04	-1035437E+04	-2775330E+03	-4089951E+03	-1026250E+04	-1579474E+04
-2077997E+04	-2528257E+04	-4401611E+64	-1385986E+04	-1314235E+04	-3671804E+04	-5121988E+04	-6310677E+04	-7118390E+04	-7636595E+04
-7952045E+04	-8113535E+04	-8232801E+04	-8284463E+04	-8310044E+04	-8322161E+04	-8327650E+04	-8320037E+04	-8331034E+04	-8331430E+04
-8331571E+04	-8331606E+04	-53131599E+04	-8331578E+04	-8331558E+04	-8331545E+04	-8331541E+04	-8331534E+04	-8331527E+04	-8331519E+04
-116927E+05	-7054834E-04	-2558153E+04							

CASE ENDED NORMALITY WITH XAGE-XMAX

D, ITG, JERAK, ENAK, XA, XAC, XC, XACD

REMARKS: XACTD=.603000000E+01, NRJCTD=.3178186E-01, AND CTFC(1), I=1, NV)=4.

-116713E+03	.850006E+02	.131020E+03	-150000E+03	.150000E+03	-170000E+03	.170000E+03	-1932687E+02	.8453394E+02	-111361E+03
.110035E+03	-946415E+02	.924377E+02	.11044E+03	.1294648E+03	.130833E+03	.936911E+02	.195231E+03	.968942E+02	.108434E+03
-101809E+03	.72520E+03	.105537E+03	.120791E+03	.990754E+02	.100192E+03	.199029E+03	.130000E+03	.911501E+02	.894172E+02
.866476E+02	.869988E+02	.862171E+02	.856464E+02	.852364E+02	.849465E+02	.2647475E+02	.6646198E+02	.845526E+02	.110756E+03
.110304E+03	.11018E+03	.110109E+03	.110064E+03	.11004E+03	.11004E+03	.110029E+03	.110026E+03	.10027E+03	.110030E+03
.921232E+02	.901331E+02	.694681E+02	.89212E+02	.89212E+02	.89212E+02	.8909475E+02	.9096664E+02	.130234E+03	.917593E+02
.9164399E+02	.898537E+02	.900532E+02	.911192E+02	.931316E+02	.96151E+02	.100197E+03	.953216E+02	.963335E+02	.935979E+02
.963190E+02	.973489E+02	.100158E+03	.103965E+03	.103965E+03	.100711E+03	.999686E+02	.995499E+02	.9946377E+02	.996034E+02
.100018E+03	.100657E+03	.101497E+03	.104833E+02	.104428E+03	.104305E+03	.104262E+03	.104743E+03	.105212E+03	.105789E+03
.108441E+03	.107139E+03	.107867E+03	.108611E+03	.109364E+03	.110122E+03	.110883E+03	.111644E+03	.112406E+03	.113168E+03
.113935E+03	.1146923E+03	.115455E+03	.116211E+03	.116986E+03	.117742E+03	.118504E+03	.119266E+03	.120029E+03	.1209569E+02
.99057975E+02	.99202028E+02	.9925500E+02	.99310275E+02	.9935500E+02	.99410275E+02	.9946500E+02	.99520275E+02	.9957500E+02	.99630275E+02

Program KITTY1A-PC (03.7.371-5.1.1) Program File: KITTY1A.EXE Created: 02/27/92 15:11:09
Input File: mcrtr2.inp 05/12/92 10:15:04 Output File: mcrtr2.out 05/12/92 10:17:08

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.7832164E+04 .5717211E+04 .4107909E+04 .2904843E+04 .1995227E+04 .1277304E+04 .6735315E+03 .1325184E+03 .9415848E+04 .6613561E+04
.4423331E+04 .2798365E+04 .1655681E+04 .8945416E+03 .4141932E+03 .1265071E+03 .3800536E+02 -.1299782E+03 -.1848334E+03 .4487141E+04
.3225500E+04 .1985960E+04 .7636795E+03 -.4653162E+03 -.1729406E+04 -.3043352E+04 -.4394652E+04 -.5222745E+04 .1965445E+04 .8864991E+03
-.3016399E+03 -.1612359E+04 -.3043655E+04 -.4566799E+04 -.6120140E+04 .7612719E+04 .2912448E+04 .1043442E+04 -.1C30615E+04 -.3244055E+04
.5685988E+04 -.8280763E+04 .1092701E+05 .1347322E+05 .1851697E+04 .1035437E+04 .2775330E+03 .4096951E+03 .1026250E+04 .1579414E+04
.2077967E+04 -.2528257E+04 .4401611E+04 .1338596E+04 -.1314235E+04 -.3471504E+04 .5121988E+04 .6310677E+04 .7118390E+04 .7636958E+04
.7952045E+04 -.8133535E+04 -.8232801E+04 -.8284443E+04 -.8310044E+04 -.8322161E+04 -.8327650E+04 -.8330637E+04 -.8331034E+04 .8331430E+04
.8331571E+04 -.8331606E+04 .8331599E+04 .8331578E+04 -.8331558E+04 -.8331545E+04 .8331541E+04 -.8331543E+04 .2064019E+05 .1623380E+05
.1169287E+05 .7054834E+04 .2358150E+04

PLOT FILE GENERATED: mcrtr.plt 05/12/92 10:17:08
END OF FILE ENCOUNTERED IN READING DATA FOR NCASE= 2

Program KITTY1A-PC (037371511) 05/12/92 10:17:11

Last Page of the Output

Calc. No. 3C/11290-001
Revision: 1
Page: A33/33
Project No. 8726-17

Calc. No. 307-0290-001
Revision: 1
Page: B1
Project No. 8726-17

Prepared by

Laura J. Baily

Date 5/11/92

Reviewed by

Tanek Loh

Date 5.11.92

Approved by

Robert J. Patterson

Date 5-12-92

Appendix B
Supporting Hand Calculations

SARGENT & LUNDY

ENGINEERS

Calc. For	
Safety-Related	Non-Safety-Related

Calc. No.	907-0290-001
Rev. I	Date
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Client	C.L.	
Project	LAG	
Proj. No.	9772a-17	Equip. No.

Prepared by	Date
Reviewed by	Date
Approved by	Date

CONTENTS

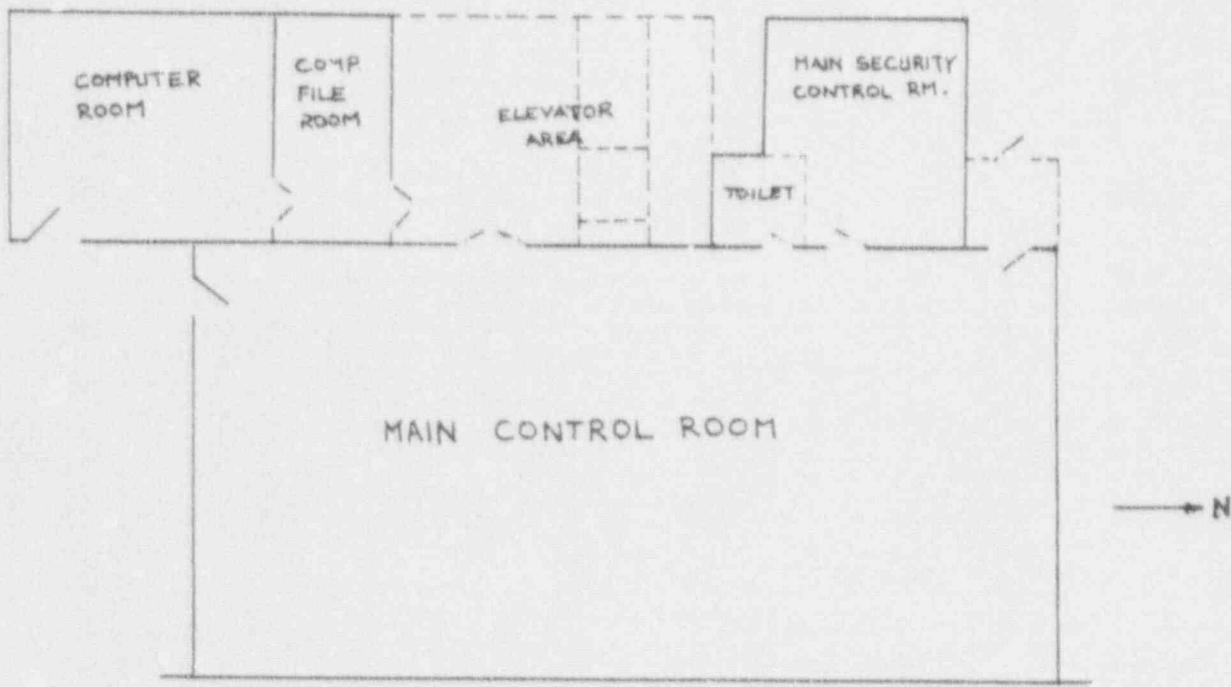
1 MAIN COMPO. DESIGN PLANS	B3
2 NODE - PATH DIAGRAM	B4
3 INPUT DATA	B5
a) NODE DATA	B6
b) PATH DATA	B10
c) HEAT TRANSFER FUNCTIONS	B16
d) SIMPLE FUNCTIONS	B17

NOTE THE GEOMETRY INFORMATION WAS TAKEN FROM
REF 7.

Calcs. For	
Safety-Related	Non-Safety-Related

Calc. No.	367-0240-00
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Client	Prepared by	Date
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Proj. No. 8726-17	Equip. No.	Approved by



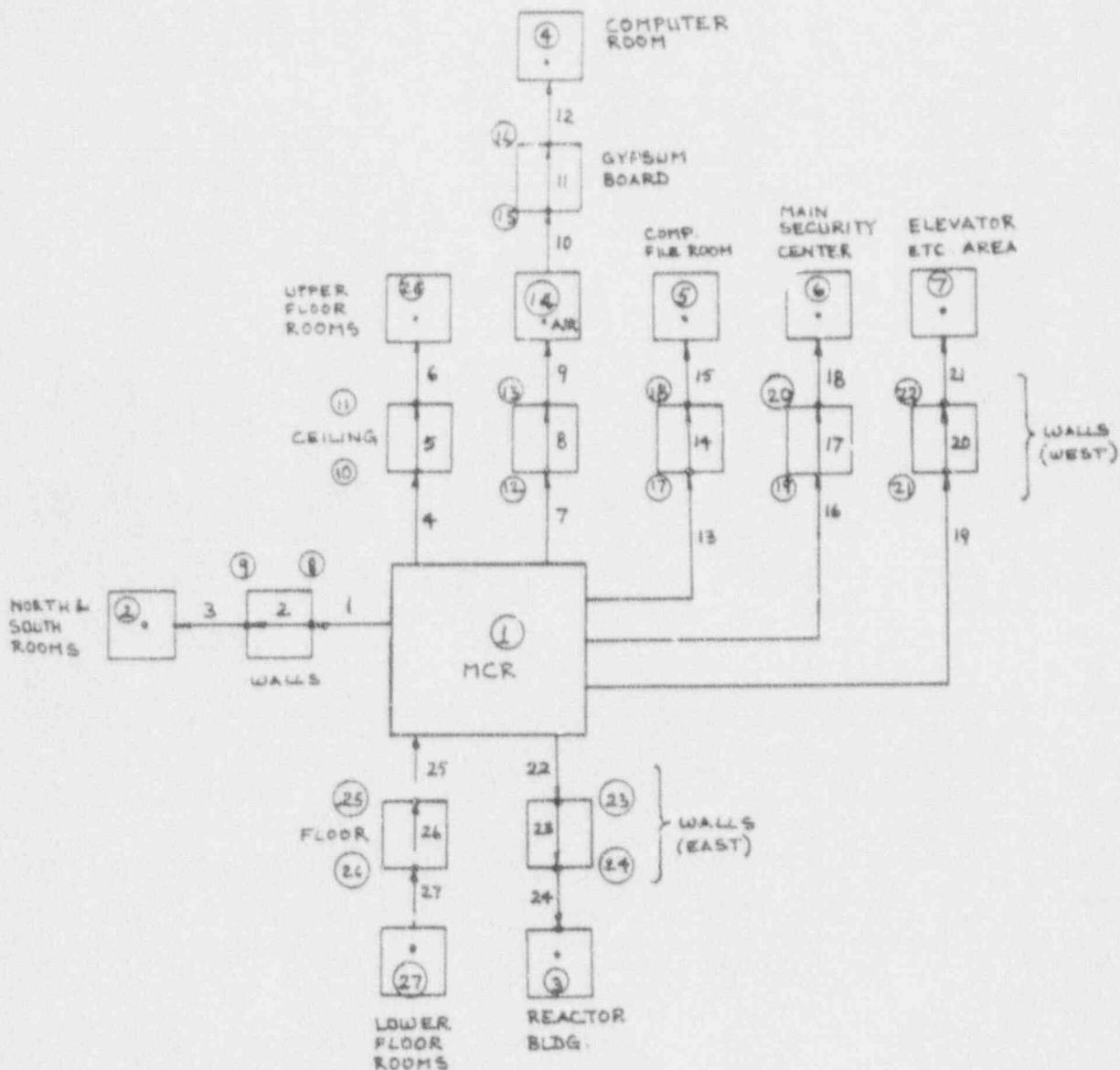
MAIN CONTROL ROOM PLAN

Calc. For	
Safety-Related	Non-Safety-Related

Calc. No 3C7-0290-001
Rev. I Date
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Client	Prepared by
Project	Reviewed by
Proj. No. 8726-17 Equip. No.	Approved by

Date
Date
Date



NODE-PATH DIAGRAM

Note: Plain numbers and Circled numbers indicate the paths and the nodes, respectively.

<input checked="" type="checkbox"/> Safety-Related	Non-Safety-Related
Client	Prepared by
Project 4AC	Reviewed by

Proj. No. 8726-17	Equip. No.	Approved by	Date
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RECORD #1 : Case Number & Definition

RECORD #2

of Nodes : 28 (User supplied nodes)

of Paths : 27 (User supplied paths)

of Heat Transfer Functions (HTF) : 2

of Simple Functions (SF) : 13

Maximum Time (XMAX) : 6 Hours

Indicator for Temp. Vector via Record #5A : Q (None)

RECORD #3 : Non existent

RECORD #4 : (Temperature Vector Printout Times, Hours)

13, .0167, 0.0833, 0.1667, 0.25, 0.333, 0.5, 1, 1.5,
2, 3, 4, 5, 6, 1/4
(FOR TRANSIENT CASE)

1, 0.0, 1/4 (FOR SS INITIALIZATION CASE)

Calcs. For	
Safety-Related	Non-Safety-Related

Calc. No 3C7-0290-001	
Rev 1	Date
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Client	
Project LAS	
Proj. No. 8726-17	Equip. No.

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RECORD #5 (NODAL DATA)

NODE 1 (BI for initialization case, AI for transient case, AIR)

2 * 0 1 /5-1 CONT. RM (SS INITIALIZATION CASE)

1 88700. * 1.1273E-5 0 13 1 /5-1 (TRANS. CASE)
80% of Gross Volume Ref. 7

NODE 2 (BI node, North & South rooms, Air)

2 * 0 1 /5-2 BI RM., AIR

NODE 3 (BI node, East, Air)

2 * 0 1 /5-3 BI, EAST, REAC. BLDG AIR

NODE 4 (BI node, West, Air, Comp. Rm.)

2 * 0 1 /5-4 BI, WEST, COMP. RM, AIR

NODE 5 (BI node, West, Air, Computer File/Storage Rm.)

2 * 0 1 /5-5 BI, WEST, COMP FILE/STO. RM, AIR

Calc. For			
		Safety-Related	Non-Safety-Related
Client		Prepared by	Date
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RECORD #5, NODAL DATA CONT'D

NODE 6 (BI, Main Security Control Room, West, Air)
& Toilet

2 * 0 1 / 5-6 BI, MSC RM, West, Air

NODE 7 (BI, Elevator Entrance Hall, etc., West)

2 * 0 1 / 5-7 BI, Elev., etc., West, Air

NODES 8,9 (North & South Walls, Tail & Head, Concrete)

6 0. 0 0 5 / 5-8 Tail N/S walls

7 / 5-9 Head

NODES 10,11 (Ceiling, Tail & Head, Concrete)

6 0. 0 0 5 / 5-10 Tail, Ceiling

7 / 5-11 Head

NODES 12, 13 (Wall, Comp. Rm. Wall, Concrete)

6 0. 0 0 5 / 5-12 Tail, Comp. Rm. Wall, West, Concrete

7 / 5-13 Head

* See Fig. 1

Calc. For		Calc. No 347-0290-001
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RECORD #5, Nodal Data, CONT'D

NODE 14 (West Wall to Comp. Room (Node 4), Air between Concrete & Gypsum)

1 31. 84.6 0. 0 0 1 /5-14 (Air) { TEMPERATURE 84.6°F
WAS DETERMINED BY A PRELIMINARY RUN

wall Area = 541 ft^2 (See page B-2), Air Gap = $7/8" = 0.0729 \text{ ft}$
Gross Air Volume = $541 \times 0.0729 \times 0.80 \approx 31.4 \text{ ft}^3$ (Reduced to 80% for uncertainties)

NODES 15,16 (West Wall to Comp. Room, Gypsum Board)

6 0. 0 0 9 /5-15 (Gypsum), Tail
7 /5-16 Head

NODES 17,18 (West Wall to Comp. File Rm. (Node 5), Concrete)

6 0. 0 0 5 /5-17 Tail, Comp. File, West, Concrete
7 /5-18 Head

NODES 19,20 (West Wall to Main Sec. Cont. Rm, Tail & Head, Concrete)

6 0. 0 0 5 /5-19 Tail, MSC Rm, West Wall.
7 /5-20 Head.

NODES 21,22 (West Wall to Elevator Ent. Area Etc., Conc., Tail & Head)

6 0. 0 0 5 /5-21 Tail, Elev Ent., Concrete, West Wall.
7 /5-22 Head

SARGENT & LUNDY

ENGINEERS

Calc. For		
Safety-Related		Non-Safety-Related

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RECORD #5, NODAL DATA CONT'D

NODES 23,24 (Wall, East to Reactor Bldg, Concrete, Tail & Head)

6 0. 0 0 5 /5-23 Tail, R. Bldg., Conc., East

7 /5-24 Head

NODES 25,26 (Floor, Concrete, Tail & Head)

6 0. 0 0 5 /5-26 (Concrete Floor), Tail

7 /5-25 Head

NODE 27 (LOWER ROOMS, BI node, Air)

2 * 0 1 /5-27 ROOMS BELOW, AIR

NODE 28 (UPPER ROOMS, BI node, Air)

2 * 0 1 /5-28 ROOMS ABOVE, AIR

* SEE FIGURE 4

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Safety-Related

Non-Safety-Related

RECORD #6

PATH DATA

PATH 1 (TO NORTH & SOUTH WALLS, AIR, CONVECTION)

2 1 8 1 1815 / G-1 MCR TO N/S WALLS, CONV.
 ceiling area
 P.AIA, Ref. 7
 (minus door) $24924 - \frac{(4'-5") \times (7'-4.5")}{\text{Door A-190, Rev. AM}} \approx 1815.$

PATH 2 (THRU N/S WALLS, CONCRETE, CONDUCTION)

8 8 9 12 1815. 2. / G-2 THRU WALLS, COND.
 wall thickness
 P.AIA, Ref. 7

PATH 3 (N/S WALLS EXT. SURFACE TO AIR, CONV.)

2 9 2 1 1815. / G-3 TO AIR ADJ. ROOMS, CONV.

PATH 4 (MCR TO CEILING, AIR, CONV.)

TR. 2	1	10	2	6720. / G-4 (CONV. HGT. 2)
SS 2	1	10	3	6720 / G-4 ? Surface Area: $6720 \cdot \frac{2}{4}$ P.N.S

Thickness: $2 \frac{1}{4}$ Reg. 7
 CONDUCTION
 THROUGH STRATIFIED AIR

PATH 5 (AIR CEILING, COND.)

8 10 11 12 6720. 2. / G-5 (COND COND.)

PATH 6 (CEILING TO AIR ABOVE, CONV.)

TR 2	11	28	2	6720. / G-6 (CONV. HGT. 2)
SS 2	11	28	3	6720 / G-6 Air Thermal Stratified Air

Safety-Related

Non-Safety-Related

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Client

Prepared by

Date

Project LAS

Reviewed by

Date

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Approved by

Date

RECORD #6, PATH DATA CONT'D

PATH 7 (MCR TO WEST WALL, COMP. RM. CONV.)

2 1 12 1 541. / 6-7 MCR TO CR, CONV. VERT.
(Area Area = 541 ft², P.A14, Ref.7)

PATH 8 (COND. THRU COMP. RM. CONC. WALL)

8 12 13 9 541. 1.5 / 6-8 COND. THRU CR WALL, WEST
wall thickness = 18 in. P.A14, Ref.7

PATH 9 (CONC. WALL EXT. SURFACE TO AIR GAP, CONVECTION)

2 13 14 1 541. / 6-9 CR WALL TO AIR GAP, CONV. VERT.,
WEST

PATH 10 (AIR GAP (MCR WALL TO GYPSUM), CONV. VERT.)

2 14 15 1 541. / 6-10 AIR GAP TO GYPSUM,
CONV. VERT., WEST

PATH 11 (THRU GYPSUM, COND.)

8 15 16 2 541. 0.052083 / 6-11, COND. GYPSUM, WEST

PATH 12 (CONV. GYPSUM TO AIR IN CR, VERT.)

2 16 4 1 541. / 6-12 GYPSUM TO AIR, CONV., VERT., WEST

Calcs. For		
Safety-Related	Non-Safety-Related	

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RECORD #6, PATH DATA CONT'D

PATH 13 (MCR TO COMP. F/S RM WALL, CONV., VERT., WEST)

2 1 17 1 274. / G-13 MCR TO CF/S RM WALL,
P.A14, Ref.7 VERT. CONV., WEST

PATH 14 (COND. THRU CONC. COMP. F/S RM WALL, WEST)

8 17 18 9 274. 1.5 / G-14 CONC. WALL, COND., WEST.
Thickness, P.A14, Ref.7

PATH 15 (CONV. FROM COMP. F/S RM WALL TO AIR, WEST)

2 16 5 1 274. / G-15 VERT. CONV. TO 5, WEST

PATH 16 (CONV. TO CONC. WALL OF MSC RM., WEST)

2 1 19 1 534. / G-16 VERT. CONV. TO WALL OF MSCRM,
WEST

WALL GROSS AREA = 580.8 ft² (P. A14, Ref.7)

However, there are two doors per Drawing A-191, Rev. AP.

$$(2'-11") \times (7'-4\frac{1}{2}") = 2.917 \times 7.375 = 21.51 \text{ ft}^2 \text{ (Toilet Door)}$$

$$(3'-5") \times (7'-4\frac{1}{2}") = 3.42 \times 7.375 = 25.2 \text{ ft}^2 \text{ (MSC.RM. Door)}$$

$$\text{Net Wall area} = 580.8 - 21.51 - 25.2 = 534 \text{ ft}^2$$

Client	Safety-Related	Design Data, Related	Date
Project LAS			
Proj. No. 872.6-17	Equip. No.		

RECORD #6, PATH DATA CONT'D

PATH 17 (COND. THRU WALL OF MSC RM, CONCRETE, WEST)

8 19 20 9 534. 1.5 /6-17 COND. MSCRM, WEST

Wall thickness = 18 in. per p.A14, Ref. 7

PATH 18 (CONV., FROM MSCRM WALL TO MSCRM AIR, WEST)

2 20 6 1 534. /6-18 CONV. TO MSCRM AIR, WEST

PATH 19 (CONV. TO WALL OF ELEV. AREA, WEST)

2 1 21 1 448. /6-19 CONV. TO ELEV. AREA WALL, WEST

WALL GROSS AREA = 514 ft^2
WALL THICKNESS = 18 inches } P A14, Ref. 7

$$\begin{aligned} \text{NET WALL AREA} &= \text{GROSS AREA} - \text{DOOR} \quad (\text{Drawing A-190, Rev. AH}) \\ &= 514 - ((6' \cdot 5") \times (10' - 2.5")) \approx 448. \text{ ft}^2 \end{aligned}$$

65.5

PATH 20 (COND. THRU ELEV. AREA WALL, WEST)

8 21 22 9 448. 1.5 /6-20 COND. ELEV. AREA WALL, WEST

PATH 21 (CONV. TO ELEV. AREA AIR, WEST)

2 22 7 1 448. /6-21 CONV. TO ELEV. AREA AIR, WEST

Calcs. For		
Safety-Related		Non-Safety-Related
Client	Prepared by	Date
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Rev. 1
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RECORD #6, PATH DATA CONT'D

PATH 22 (CONV. TO REAC. BLDG WALL, EAST)

2 1 23 1 1980. / 6-22 (CONV. TO REAC. BLDG WALL,
EAST)

$$\begin{aligned} \text{NET WALL AREA} &= 1980 \text{ ft}^2 \\ \text{WALL THICKNESS} &= 54'' = 4.5 \text{ ft} \end{aligned} \quad \left. \begin{array}{l} \text{P.A14, Ref. 7} \\ \text{P.A14, Ref. 7} \end{array} \right\}$$

PATH 23 (COND. THRU REAC. BLDG WALL, EAST)

8 23 24 27 1980. 4.5 / 6-23 (COND. REAC. BLDG
WALL, EAST)

PATH 24 (CONV. TO REAC. BLDG AIR, EAST)

2 24 3 1 1980. / 6-24 (CONV. TO REAC. BLDG
AIR, EAST)

PATH 25 (CONV. FROM MCR FLOOR TO AIR)

2 25 1 2 6720. / 6-25 (MCR FLOOR TO MCR AIR)

$$\begin{aligned} \text{FLOOR AREA} &= 6720 \text{ ft}^2 \\ \text{FLOOR THICKNESS} &= 0.5 \text{ ft.} \end{aligned} \quad \left. \begin{array}{l} \text{P.A15, Ref. 7} \\ \text{P.A15, Ref. 7} \end{array} \right\}$$

PATH 26 (COND. THRU FLOOR)

8 26 25 6 6720. 0.5 / 6-26 (COND. THRU MCR FLOOR)

SARGENT & LUNDY

ENGINEERS

Calcs. For	
Safety-Related	
Programmed/Initiated	
Client	Prepared by
Project LAS	Reviewed by
Proj. No. 8726-17	Approved by
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	Date
	Date

Calc. No. 867-0290-001

File 1

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RECORD #6, PATH DATA CONT'D

PATH 27 (CONV. FROM SWGR RH AIR BELOW TO MCR FLOOR ABOVE)

2 27 26 2 6720. /6-27 (CONV. TO MCR FLOOR
BOTTOM SURFACE)

Calls For

SL-5290-001

Safety-Related

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Project LAS	Reviewed by	Date
Proj. No. 8726-17 Equip. No.	Approved by	Date

RECORD #7

HEAT TRANSFER FUNCTIONS INPUT DATA

HTF 1 (AIR TO WALL, VERTICAL CONVECTION)

3 0 0 0.19 0.33333 / 7-1 NC, VERTICAL

$$h = 0.19 \Delta T^{1/3} \quad \left\{ \begin{array}{l} \text{FROM p.3.12, Ref. 2, NATURAL CONVECTION - TURBULENT} \\ \text{AS SHED} \end{array} \right\}$$

HTF 2 (AIR TO CEILING / FLOOR TO AIR, HORIZONTAL CONVECTION)

5 0 0 0.22 0.33333 / 7-2 NC, HORIZONTAL

$$h = 0.22 \Delta T^{1/3} \quad \left\{ \begin{array}{l} \text{FROM p.3.12, REF. 2, NATURAL CONVECTION - TURB.} \\ \text{ASSUMED} \end{array} \right\}$$

HTF 3 (CONDUCTION THROUGH STRATIFIED AIR; (SS CASE ONLY))

1 14 0 1

Client		Planned by	Date
Project LAS		Reviewed by	Date
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RECORDS # 3

SIMPLE FUNCTIONS INPUT DATA

SF 1-4 (AIR PROPERTIES)

2 100 0.071	200 0.060	/ ρ ($@ 141^{\circ}\text{F}$)
2 100 0.71	200 0.172	/ C_v
2 100 0.0154	200 0.0174	/ k (NOT USED)
2 100 0.240	200 0.241	/ C_p (NOT USED)

Reference 9.

SF 5-8 (CONCRETE PROPERTIES)

1 0.0 145.	/ ρ	from Ref. 5
1 0.0 0.156	/ C_v , not used	
1 0.0 0.92	/ k	
1 0.0 0.156	/ C_p	

SF 9-12 (GYPSUM PROPERTIES)

1 0.0 100.	/ ρ	from p. 26.15, Ref. 2
1 0.0 0.2	/ C_v	
1 0.0 0.42	/ k	
1 0.0 0.2	/ C_p	

SF 13 (HEAT GENERATION RATE INSIDE CONTROL ROOM)

1 73. 0.0 / 8-13 For SS initialization case only.

1 73. 06,093 / 8-13 For transient case only.
 $19,365 \text{ W} \times 3.413 \frac{\text{BTU/h}}{\text{W}} = 66,093 \text{ BTU/HR}$ (Ref. 1)

L1075

$$\rho \left[\frac{\text{lbm}}{\text{ft}^3} \right], k \left[\frac{\text{Btu}}{\text{ft} \cdot \text{hr} \cdot ^{\circ}\text{F}} \right], C \left[\frac{\text{Btu}}{\text{lbm} \cdot ^{\circ}\text{F}} \right]$$

SF 14. CONSTRUCTION THICKNESS DRAUGHT AIR (SS ONLY)

2 100 0.001 200 0.001 (ex x 10 feet)