AFWL-TR-
68-143,
Vol. II

DISTENDED MATERIAL MODEL DEVELOPMENT

Volume II

Test Runs of the SRI PUFF 1 Computer Code

L. Seaman

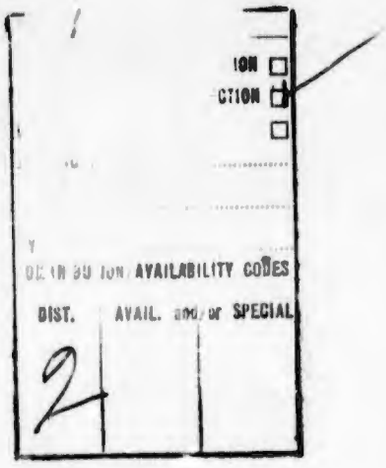
Stanford Research Institute
Menlo Park, California 94025

Contract No. F29601-67-C-0073

TECHNICAL REPORT NO. AFWL-TR-68-143, Vol. II

May 1969

AIR FORCE WEAPONS LABORATORY
Air Force Systems Command
Kirtland Air Force Base
New Mexico



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FOREWORD

This report was prepared by Stanford Research Institute, Menlo Park, California, under Contract F29601-67-C-0073. The research was prepared under Program Element 6.16.46.01H, Project 5710, Subtasks 15.018 and 15.025, and was funded by the Defense Atomic Support Agency (DASA).

Inclusive dates of research were 21 April 1967 through 1 March 1969. The report was submitted 2 April 1969 by the Air Force Weapons Laboratory Project Officer, Capt Joseph B. Webster, III (WLRP).

The contractor's account reference number is SRI Project PGU 6586.

The project supervisor was Dr. R. K. Linde of Poulter Laboratory and Dr. L. Seaman was project leader. The author wishes to acknowledge the advice of Drs. George Duvall of Washington State University and of R. K. Linde in the development of the theoretical model. The author is also indebted to Betty Jo Murrell, who wrote the flow charts, the section on Input-Output, and major portions of the computer program.

Volume I contains a physical description of the SRI PUFF 1 code, as well as comparisons of experimental data and computed predictions based on the model. This volume contains test runs of the new computer code.

This technical report has been reviewed and is approved.

JOSEPH B. WEBSTER, III
Captain, USAF
Project Officer

HARRY F. RIZZO
Lt Colonel, USAF
Chief, Physics Branch

CLAUDE K. STAMBAUGH
Colonel, USAF
Chief, Research Division

ABSTRACT

(Distribution Limitation Statement No. 2)

This volume contains results of the computer runs performed for comparison of the analytical descriptions developed with actual experimental observations.

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SECTION I

INTRODUCTION

This volume presents test routines and results that can be used to validate the use of the SRI PUFF 1 computer code on computers other than those at SRI. The code was developed on a CDC 3200 and modified to run on the CDC 6400 at SRI.

Any difficulties encountered in using the code on other machines will probably arise from differences in interpretation of some FORTRAN statements. Usually these differences will trigger machine diagnostic statements or they will result in catastrophic errors. In the case of diagnostics, the error is located by the machine, and it can then be corrected. For catastrophic errors, the programmer needs some assistance in locating the source of the error. We have tried to provide this assistance in two ways: inclusion of data for test runs that will exercise all major portions of the code, and insertion of prints from each subroutine. The test runs include impact and radiation deposition problems and rezoning problems for solid and porous materials. The prints in each subroutine indicate the route taken through the subroutine (i.e., which branch of each IF statement is used) and list the main input and output quantities of the subroutine. These prints are triggered by presetting the constant MAXPR in each subroutine (except the subroutines GENRAT, EDIT, FMELT, and REZONE) to the number of prints desired from the subroutine.

Five test problems are described in the following pages. The first problem has been run in three versions: a short test with triggering of prints from each subroutine, a short test with slightly altered data, and a full run with normal printout only. Some output from all three of these runs are given. For the other four test problems, only the full run was made. For all of the runs the major part of the output is given in the form of plots.

This volume is intended to accompany and supplement Volume 1 and is therefore not complete in itself. The results of some computer runs and comparisons of computed results with experimental results are presented in Volume 1.

SECTION II

DISCUSSION OF TEST PROBLEMS

1. Radiation Deposition in Porous Aluminum

A sample problem in which porous alumirum is heated by radiation is run in three versions labeled 101, 102, and 103. In the first two, the computation is continued for only five time increments with printouts from each subroutine. The subprograms GENRAT, EDIT, HYDRO, SSCAL, JSTRESS, HAFSTEP, POREQST, EQST, and FMELT are exercised in tests 101 and 102. Run number 103 is a full run and therefore exercises all of these subprograms plus REZONE.

The stress histories at points deep into the porous material are fairly smooth. The histories could be related to gage records at comparable depths. The stresses in the vapor region are very large initially and then go to zero as the material expands.

2. Porous Aluminum Impact

The second test problem, IDENT 200, corresponds to an experiment conducted at SRI in which a solid aluminum flyer impacted a porous aluminum target. A stress history was recorded by a quartz gage behind the porous target. Hence the result of chief interest is stress history (listed by the subroutine SCRIBE) for the second interface (titled S23 in the printout). The run exercises all subprograms except SSCAL and the deposition portion of GENRAT.

3. REZONE Test

Test problem number 300 is purely an exercise of the capabilities of the subroutines REZONE and GENRAT. It is a deposition problem in which six materials with arbitrary properties are used. REZONE is called following deposition of radiation in the materials. As usual, REZONE prints out all of its operations so if anything goes wrong, the error can be traced quickly.

4. PUFF 66 Test Run

It was intended that the new version of PUFF should retain the full capabilities of PUFF 66* on which it was based. Therefore the radiation deposition problem accompanying the PUFF 66 manual* was repeated. In the problem, (Test 400), radiation is deposited on 0.3 cm of a low-density composite material backed by 4 cm of aluminum. The problem exercises GENRAT, SSCAL, HYDRO, JSTRESS, HAFSTEP, EQST, REZONE, and EDIT.

The problem was calculated using two different sets of conditions. The first set corresponded with those in PUFF 66: no spalling was allowed and the material had a large yield strength even while molten or vaporized. The results from this first computation (not listed here) showed marked stress oscillations in the vaporized material and near the interface between materials, and, in particular, large tensile stresses in the vaporized and molten material. These computed stresses compared well with the results computed by PUFF 66, but they do not appear to adequately represent physical behavior.

In the second computation spalling was permitted and realistic spall strengths were used for both materials. The yield strength of the aluminum varied with energy and was zero above the melting energy. Molten or vaporized material was not allowed to sustain a tensile stress; instead the stress was set to zero. The second computation showed that melting occurred in the front surfaces of both materials. Spalls occurred at the interface between materials and in the nearly-molten aluminum adjacent to the molten zone. The situation long after deposition shows a stress wave traveling back and forth in the unmelted surface material and a compressive stress wave traveling back into the aluminum. This second wave has the same shape and magnitude as the wave computed by PUFF 66.

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*Brodie, R. N., and Hormuth, J. E., The PUFF 66 and P PUFF 66 Computer Programs, Tech. Rept. No. AFWL-TR-66-48, Air Force Weapons Laboratory, Kirtland Air Force Base, New Mexico, May 1966.

5. P PUFF 66 Test Run

The P PUFF 66 problem (Test 500) is an impact of a thin (0.1 cm thick) aluminum flyer onto a 2.5-cm-thick aluminum plate. Behind the target plate is a quartz gage. The problem exercises HYDRO, JSTRESS, HAFSTEP, EQST, REZONE, EDIT, and a portion of GENRAT.

The results are given as a series of plots. The shapes and magnitudes are similar to those from the PUFF 66 manual.* The present results are somewhat different from those obtained with P PUFF 66, mainly because fewer cells were employed in the present run.

*Ibid.

SECTION III

INPUT AND OUTPUT OF TEST PROBLEMS

1. Test No. 101

Problem 101 is a short test run of radiation deposition in porous aluminum. The listings which follow include the input data (which is listed essentially as it appears on the data cards), and the initial layout of the coordinate grid, test prints, the final EDIT, and the stress histories.

```
**** SRI PUFF 1 (6400 VERSION) ****

MDATE= 11/15/40     IDENT= 101  PUFF TEST OF POROUS ALUMINUM (WITH PRINTOUTS)



       * * *   SRI PUFF1 TEST RUN OF POROUS ALUMINUM   * * *
1 NTEDT =          13  NJEDT =            6 NREZON=              3 NSEPRAT=          -0
2 TEDITS= 5.000E-09 1.000E-08 2.000E-08 5.000E-08 7.000E-08 1.000E-07 2.000E-07
          5.000E-07 8.000E-07 1.000E-06 1.200E-06 1.500E-06 1.800E-06
3 JEDITS=    5   20   50   80  110  140
4 NTH =      1    4    8
5 JREZON=  110  130  160
6 NEDTM=          300 NEDIT=        10000 NPERN=               1 MAXPRN =           11
MAXPR =      5    5    5    5    5    5    5    5    5    5    5
7 STOPS            JCYCS =            5  CKS =     3.000E+00  TS =       2.000E-06
8 NMTHLS=           1  MATFL =            0  UZERO =   0.          IPLOT =             -0

POROUS ALUMINUM       RHOS=    2.717E+00 NSR =    0 NYAM =  3 NPOR =  3 NCON =  1
 EOSTC =  7.300E+11  EOSTD =  1.720E+12  EOSTE =  1.200E+11  EOSTG =  2.130E+00
 EOSTM =  2.500E-01  EOSTS =  4.000E+11 EOSTN=     1.051E+00 EOSTA=     7.920E-12
COSO =    2.000E+00         C1=  2.000E-01        C2=  0.
TENS(1)= -1.000E+11 TENS(2)= -1.000E+09 TENS(3)= -1.000E+10
YOS =     3.200E+09    MU   =  2.740E+11  YADD   =  7.780E+09
PMELT =   6.590E+09 2.400E+09 1.500E-01 2.500E-01 1.000E-01
 RHOP=    2.090E+00 2.210E+00 2.550E+00 2.740E+00 2.740E+00 2.780E+00
 COSO =      2.0000    2.0000    2.0000    2.0000    2.0000
 C1=          .2000     .2000     .2000     .2000     .2000
1   P2 =  7.000E+08  DELP =    1.000E+08  YADD =    4.000E+08
2   P2 =  1.900E+09  DELP =    3.200E+08  YADD =    3.000E+07
3   P2 =  8.000E+09  DELP =    9.220E+08  YADD =    1.700E+09
 AK=      2.000E+11  MUP =     1.000E+11  YO=       1.000E+07
   NOE= 6     RHOC = 2.000E+00
FUGFS=    1.559E+00 3.009E+01 4.132E+01 4.950E+01 6.190E+01 8.264E+01
AA=       9.267E+02 1.535E+04 3.161E+03 8.951E+02 1.723E+02 2.703E+01 2.591E+00
B=       -2.600E+00-2.780E+00-2.323E+00-1.904E+00-1.562E+00-1.121E+00-5.876E-01
NZONES= 2         100 CELLS IN  2.000E-02 CM. DELX= 1.000E-04          -0.
                   50 CELLS IN  3.400E-02 CM. DELX= 3.500E-04          -0.
NSPFC=  1 ANGLE=     0.
         * * *    SPECTRUM NO. 1. 1 BLACK BODY    * * *
NNNUE    0 NNM=     1 NAMH=    0 START=    0.            STOP=      5.000E-09
         * * *    TABLE OF HNU VALUES FOR BLACK BODY ENERGY   * * *
6.287E-01 8.118E-01 9.444E-01 1.058E+00 1.155E+00 1.242E+00 1.322E+00 1.397E+00
1.468E+00 1.535E+00 1.599E+00 1.660E+00 1.720E+00 1.777E+00 1.833E+00 1.888E+00
1.942E+00 1.994E+00 2.046E+00 2.096E+00 2.146E+00 2.196E+00 2.244E+00 2.292E+00
2.340E+00 2.388E+00 2.435E+00 2.481E+00 2.528E+00 2.574E+00 2.620E+00 2.666E+00
2.712E+00 2.757E+00 2.803E+00 2.849E+00 2.895E+00 2.940E+00 2.986E+00 3.032E+00
3.078E+00 3.124E+00 3.171E+00 3.217E+00 3.264E+00 3.311E+00 3.359E+00 3.406E+00
3.454E+00 3.503E+00 3.552E+00 3.601E+00 3.651E+00 3.701E+00 3.752E+00 3.804E+00
3.856E+00 3.908E+00 3.962E+00 4.016E+00 4.071E+00 4.127E+00 4.184E+00 4.242E+00
4.300E+00 4.360E+00 4.421E+00 4.484E+00 4.548E+00 4.613E+00 4.680E+00 4.748E+00
4.818E+00 4.891E+00 4.965E+00 5.042E+00 5.121E+00 5.203E+00 5.288E+00 5.376E+00
5.468E+00 5.563E+00 5.664E+00 5.769E+00 5.880E+00 5.997E+00 6.122E+00 6.255E+00
6.398E+00 6.553E+00 6.723E+00 6.909E+00 7.119E+00 7.357E+00 7.634E+00 7.960E+00
8.390E+00 8.972E+00 9.942E+00 1.009E+01 1.025E+01 1.043E+01 1.064E+01 1.080E+01
1.118E+01 1.157E+01 1.210E+01 1.303E+01 1.500E+01
TEMP=     1.000E+00    SCALE=    2.900E+01
```

• • • SHI HIFFI TEST RUN OF POROUS ALUMINUM • • •

J	DX CM	X(J) CM	FJG ERGS/CM	SIMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZM(J) GM/CM2	MATERIAL	COND	J
1	1.000E-04	0.	5.374E+11	2.000E+00	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.000E-04	POROUS ALUMINUM	P S A	1
2	1.000E-04	1.000E-04	3.915E+11	4.474E+00	6.667E+04	3.995E+05	2.090E+00-1.090E+11		2.172E-04	POROUS ALUMINUM	P N A	2
3	1.000E-04	2.000E-04	2.971E+11	6.217E+00	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.174E-04	POROUS ALUMINUM	P N A	3
4	1.000E-04	3.000E-04	2.340E+11	7.661E+00	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.217E-04	POROUS ALUMINUM	P N A	4
5	1.000E-04	4.000E-04	1.914E+11	8.694E+00	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.259E-04	POROUS ALUMINUM	P N A	5
6	1.000E-04	5.000E-04	1.598E+11	9.372E+00	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.301E-04	POROUS ALUMINUM	P N A	6
7	1.000E-04	6.000E-04	1.358E+11	1.013E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.343E-04	POROUS ALUMINUM	P N A	7
8	1.000E-04	7.000E-04	1.171E+11	1.080E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.386E-04	POROUS ALUMINUM	P N A	8
9	1.000E-04	8.000E-04	1.021E+11	1.139E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.428E-04	POROUS ALUMINUM	P N A	9
10	1.000E-04	9.000E-04	8.948E+10	1.192E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.470E-04	POROUS ALUMINUM	P N A	10
11	1.000E-04	1.000E-03	7.944E+10	1.240E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.512E-04	POROUS ALUMINUM	P N A	11
12	1.000E-04	1.100E-03	7.109E+10	1.283E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.554E-04	POROUS ALUMINUM	P N A	12
13	1.000E-04	1.200E-03	6.378E+10	1.323E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.597E-04	POROUS ALUMINUM	P N A	13
14	1.000E-04	1.300E-03	5.750E+10	1.359E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.639E-04	POROUS ALUMINUM	P N A	14
15	1.000E-04	1.400E-03	5.204E+10	1.392E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.681E-04	POROUS ALUMINUM	P N A	15
16	1.000E-04	1.500E-03	4.730E+10	1.423E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.723E-04	POROUS ALUMINUM	P N A	16
17	1.000E-04	1.600E-03	4.313E+10	1.452E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.766E-04	POROUS ALUMINUM	P N A	17
18	1.000E-04	1.700E-03	3.945E+10	1.478E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.808E-04	POROUS ALUMINUM	P N A	18
19	1.000E-04	1.800E-03	3.616E+10	1.503E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.850E-04	POROUS ALUMINUM	P N A	19
20	1.000E-04	1.900E-03	3.322E+10	1.526E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.892E-04	POROUS ALUMINUM	P N A	20
21	1.000E-04	2.000E-03	3.060E+10	1.547E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.934E-04	POROUS ALUMINUM	P N A	21
22	1.000E-04	2.100E-03	2.825E+10	1.567E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		2.977E-04	POROUS ALUMINUM	P N A	22
23	1.000E-04	2.200E-03	2.613E+10	1.586E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.019E-04	POROUS ALUMINUM	P N A	23
24	1.000E-04	2.300E-03	2.421E+10	1.604E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.061E-04	POROUS ALUMINUM	P N A	24
25	1.000E-04	2.400E-03	2.246E+10	1.621E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.103E-04	POROUS ALUMINUM	P N A	25
26	1.000E-04	2.500E-03	2.086E+10	1.636E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.146E-04	POROUS ALUMINUM	P N A	26
27	1.000E-04	2.600E-03	1.940E+10	1.651E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.188E-04	POROUS ALUMINUM	P N A	27
28	1.000E-04	2.700E-03	1.805E+10	1.665E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.230E-04	POROUS ALUMINUM	P N A	28
29	1.000E-04	2.800E-03	1.680E+10	1.678E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.272E-04	POROUS ALUMINUM	P N A	29
30	1.000E-04	2.900E-03	1.564E+10	1.691E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.314E-04	POROUS ALUMINUM	P N A	30
31	1.000E-04	3.000E-03	1.456E+10	1.703E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.357E-04	POROUS ALUMINUM	P N A	31
32	1.000E-04	3.100E-03	1.355E+10	1.714E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.399E-04	POROUS ALUMINUM	P N A	32
33	1.000E-04	3.200E-03	1.260E+10	1.725E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.441E-04	POROUS ALUMINUM	P N A	33
34	1.000E-04	3.300E-03	1.171E+10	1.735E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.483E-04	POROUS ALUMINUM	P N A	34
35	1.000E-04	3.400E-03	1.087E+10	1.745E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.526E-04	POROUS ALUMINUM	P N A	35
36	1.000E-04	3.500E-03	1.008E+10	1.754E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.568E-04	POROUS ALUMINUM	P N A	36
37	1.000E-04	3.600E-03	9.353E+09	1.763E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.610E-04	POROUS ALUMINUM	P N A	37
38	1.000E-04	3.700E-03	8.677E+09	1.771E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.652E-04	POROUS ALUMINUM	P N A	38
39	1.000E-04	3.800E-03	8.048E+09	1.779E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.694E-04	POROUS ALUMINUM	P N A	39
40	1.000E-04	3.900E-03	7.463E+09	1.787E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.737E-04	POROUS ALUMINUM	P N A	40
41	1.000E-04	4.000E-03	6.919E+09	1.794E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.779E-04	POROUS ALUMINUM	P N A	41
42	1.000E-04	4.100E-03	6.415E+09	1.801E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.821E-04	POROUS ALUMINUM	P N A	42
43	1.000E-04	4.200E-03	5.947E+09	1.808E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.863E-04	POROUS ALUMINUM	P N A	43
44	1.000E-04	4.300E-03	5.513E+09	1.814E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.906E-04	POROUS ALUMINUM	P N A	44
45	1.000E-04	4.400E-03	5.111E+09	1.820E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.948E-04	POROUS ALUMINUM	P N A	45
46	1.000E-04	4.500E-03	4.738E+09	1.826E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		3.990E-04	POROUS ALUMINUM	P N A	46
47	1.000E-04	4.600E-03	4.392E+09	1.832E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		4.032E-04	POROUS ALUMINUM	P N A	47
48	1.000E-04	4.700E-03	4.072E+09	1.837E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		4.074E-04	POROUS ALUMINUM	P N A	48
49	1.000E-04	4.800E-03	3.776E+09	1.843E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		4.117E-04	POROUS ALUMINUM	P N A	49
50	1.000E-04	4.900E-03	3.502E+09	1.848E+01	6.667E+04	3.995E+05	2.090E+00-1.080E+11		4.159E-04	POROUS ALUMINUM	P N A	50

• • • SHI PIFFI TEST RUN OF POROUS ALUMINUM • • •

J	DX CM	X(J) CM	EOR ERGS/GM	SUMCAL CALS	YHL(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZHL(J) GM/CM2	MATERIAL	COND	J
51	2.010E-04	7.475E-03	4.803E+09	1.852E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.201E-04	POROUS ALUMINUM	P N A	51
52	2.030E-04	7.495E-03	4.572E+09	1.857E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.243E-04	POROUS ALUMINUM	P N A	52
53	2.051E-04	7.879E-03	4.355E+09	1.862E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.286E-04	POROUS ALUMINUM	P N A	53
54	2.071E-04	8.084E-03	4.150E+09	1.866E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.328E-04	POROUS ALUMINUM	P N A	54
55	2.091E-04	8.291E-03	3.954E+09	1.870E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.370E-04	POROUS ALUMINUM	P N A	55
56	2.111E-04	8.500E-03	3.773E+09	1.874E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.412E-04	POROUS ALUMINUM	P N A	56
57	2.131E-04	8.711E-03	3.601E+09	1.878E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.454E-04	POROUS ALUMINUM	P N A	57
58	2.152E-04	8.924E-03	3.438E+09	1.881E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.497E-04	POROUS ALUMINUM	P N A	58
59	2.172E-04	9.139E-03	3.283E+09	1.885E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.539E-04	POROUS ALUMINUM	P N A	59
60	2.192E-04	9.357E-03	3.137E+09	1.888E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.581E-04	POROUS ALUMINUM	P N A	60
61	2.212E-04	9.576E-03	2.998E+09	1.892E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.623E-04	POROUS ALUMINUM	P N A	61
62	2.232E-04	9.797E-03	2.867E+09	1.895E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.666E-04	POROUS ALUMINUM	P N A	62
63	2.253E-04	1.002E-02	2.742E+09	1.898E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.708E-04	POROUS ALUMINUM	P N A	63
64	2.273E-04	1.025E-02	2.624E+09	1.901E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.750E-04	POROUS ALUMINUM	P N A	64
65	2.293E-04	1.047E-02	2.511E+09	1.904E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.792E-04	POROUS ALUMINUM	P N A	65
66	2.313E-04	1.070E-02	2.405E+09	1.907E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.834E-04	POROUS ALUMINUM	P N A	66
67	2.333E-04	1.093E-02	2.303E+09	1.909E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.877E-04	POROUS ALUMINUM	P N A	67
68	2.354E-04	1.117E-02	2.207E+09	1.912E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.919E-04	POROUS ALUMINUM	P N A	68
69	2.374E-04	1.140E-02	2.115E+09	1.914E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.961E-04	POROUS ALUMINUM	P N A	69
70	2.394E-04	1.164E-02	2.028E+09	1.917E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.003E-04	POROUS ALUMINUM	P N A	70
71	2.414E-04	1.188E-02	1.945E+09	1.919E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.046E-04	POROUS ALUMINUM	P N A	71
72	2.434E-04	1.212E-02	1.866E+09	1.922E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.088E-04	POROUS ALUMINUM	P N A	72
73	2.455E-04	1.236E-02	1.790E+09	1.924E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.130E-04	POROUS ALUMINUM	P N A	73
74	2.475E-04	1.261E-02	1.718E+09	1.926E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.172E-04	POROUS ALUMINUM	P N A	74
75	2.495E-04	1.286E-02	1.650E+09	1.928E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.214E-04	POROUS ALUMINUM	P N A	75
76	2.515E-04	1.311E-02	1.584E+09	1.930E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.257E-04	POROUS ALUMINUM	P N A	76
77	2.535E-04	1.336E-02	1.522E+09	1.932E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.299E-04	POROUS ALUMINUM	P N A	77
78	2.556E-04	1.361E-02	1.462E+09	1.934E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.341E-04	POROUS ALUMINUM	P N A	78
79	2.576E-04	1.387E-02	1.405E+09	1.935E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.383E-04	POROUS ALUMINUM	P N A	79
80	2.596E-04	1.412E-02	1.351E+09	1.937E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.426E-04	POROUS ALUMINUM	P N A	80
81	2.616E-04	1.438E-02	1.298E+09	1.939E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.468E-04	POROUS ALUMINUM	P N A	81
82	2.636E-04	1.465E-02	1.249E+09	1.941E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.510E-04	POROUS ALUMINUM	P N A	82
83	2.657E-04	1.491E-02	1.202E+09	1.942E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.552E-04	POROUS ALUMINUM	P N A	83
84	2.677E-04	1.517E-02	1.156E+09	1.944E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.594E-04	POROUS ALUMINUM	P N A	84
85	2.697E-04	1.544E-02	1.113E+09	1.945E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.637E-04	POROUS ALUMINUM	P N A	85
86	2.717E-04	1.571E-02	1.071E+09	1.947E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.679E-04	POROUS ALUMINUM	P N A	86
87	2.737E-04	1.598E-02	1.031E+09	1.948E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.721E-04	POROUS ALUMINUM	P N A	87
88	2.758E-04	1.626E-02	9.929E+08	1.949E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.763E-04	POROUS ALUMINUM	P N A	88
89	2.778E-04	1.653E-02	9.563E+08	1.951E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.806E-04	POROUS ALUMINUM	P N A	89
90	2.798E-04	1.681E-02	9.212E+08	1.952E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.848E-04	POROUS ALUMINUM	P N A	90
91	2.818E-04	1.709E-02	8.877E+08	1.953E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.890E-04	POROUS ALUMINUM	P N A	91
92	2.838E-04	1.737E-02	8.555E+08	1.955E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.932E-04	POROUS ALUMINUM	P N A	92
93	2.859E-04	1.766E-02	8.246E+08	1.956E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.974E-04	POROUS ALUMINUM	P N A	93
94	2.879E-04	1.794E-02	7.950E+08	1.957E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.017E-04	POROUS ALUMINUM	P N A	94
95	2.899E-04	1.823E-02	7.665E+08	1.958E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.059E-04	POROUS ALUMINUM	P N A	95
96	2.919E-04	1.852E-02	7.393E+08	1.959E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.101E-04	POROUS ALUMINUM	P N A	96
97	2.939E-04	1.881E-02	7.131E+08	1.960E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.143E-04	POROUS ALUMINUM	P N A	97
98	2.960E-04	1.911E-02	6.879E+08	1.961E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.186E-04	POROUS ALUMINUM	P N A	98
99	2.980E-04	1.940E-02	6.639E+08	1.962E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.228E-04	POROUS ALUMINUM	P N A	99
100	3.000E-04	1.970E-02	6.407E+08	1.963E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.270E-04	POROUS ALUMINUM	P N A	100

• • • SHOCK TUBE TEST RUN OF POROUS ALUMINUM • • •

J	DX CM	X(J) CM	E/R ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
101	3.500E-04	2.000E-02	6.147E+08	1.944E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		7.315E-04	POROUS ALUMINUM	P N R	101
102	3.535E-04	2.035E-02	5.917E+08	1.945E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		7.387E-04	POROUS ALUMINUM	P N R	102
103	3.569E-04	2.071E-02	5.697E+08	1.946E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		7.459E-04	POROUS ALUMINUM	P N R	103
104	3.604E-04	2.107E-02	5.486E+08	1.947E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		8.140E-04	POROUS ALUMINUM	P N R	104
105	4.039E-04	2.143E-02	5.285E+08	1.948E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		8.441E-04	POROUS ALUMINUM	P N R	105
106	4.173E-04	2.180E-02	4.894E+08	1.949E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		8.723E-04	POROUS ALUMINUM	P N R	106
107	4.308E-04	2.230E-02	4.745E+08	1.970E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		9.004E-04	POROUS ALUMINUM	P N R	107
108	4.443E-04	2.273E-02	4.529E+08	1.971E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		9.286E-04	POROUS ALUMINUM	P N R	108
109	4.578E-04	2.314E-02	4.319E+08	1.972E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		9.547E-04	POROUS ALUMINUM	P N R	109
110	4.712E-04	2.360E-02	4.114E+08	1.973E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		9.849E-04	POROUS ALUMINUM	P N R	110
111	4.847E-04	2.411E-02	3.920E+08	1.974E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.013E-03	POROUS ALUMINUM	P N R	111
112	4.982E-04	2.459E-02	3.731E+08	1.975E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.041E-03	POROUS ALUMINUM	P N R	112
113	5.116E-04	2.509E-02	3.549E+08	1.976E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.069E-03	POROUS ALUMINUM	P N R	113
114	5.251E-04	2.560E-02	3.374E+08	1.977E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.097E-03	POROUS ALUMINUM	P N R	114
115	5.386E-04	2.613E-02	3.204E+08	1.978E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.126E-03	POROUS ALUMINUM	P N R	115
116	5.520E-04	2.666E-02	3.045E+08	1.979E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.154E-03	POROUS ALUMINUM	P N R	116
117	5.655E-04	2.722E-02	2.890E+08	1.980E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.182E-03	POROUS ALUMINUM	P N R	117
118	5.790E-04	2.778E-02	2.742E+08	1.980E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.210E-03	POROUS ALUMINUM	P N R	118
119	5.924E-04	2.836E-02	2.601E+08	1.981E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.238E-03	POROUS ALUMINUM	P N R	119
120	6.059E-04	2.895E-02	2.466E+08	1.982E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.266E-03	POROUS ALUMINUM	P N R	120
121	6.194E-04	2.956E-02	2.337E+08	1.983E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.295E-03	POROUS ALUMINUM	P N R	121
122	6.329E-04	3.018E-02	2.214E+08	1.983E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.323E-03	POROUS ALUMINUM	P N R	122
123	6.463E-04	3.081E-02	2.097E+08	1.984E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.351E-03	POROUS ALUMINUM	P N R	123
124	6.598E-04	3.146E-02	1.986E+08	1.985E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.379E-03	POROUS ALUMINUM	P N R	124
125	6.733E-04	3.212E-02	1.880E+08	1.985E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.407E-03	POROUS ALUMINUM	P N R	125
126	6.867E-04	3.279E-02	1.779E+08	1.986E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.435E-03	POROUS ALUMINUM	P N R	126
127	7.002E-04	3.348E-02	1.683E+08	1.986E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.463E-03	POROUS ALUMINUM	P N R	127
128	7.137E-04	3.418E-02	1.592E+08	1.987E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.492E-03	POROUS ALUMINUM	P N R	128
129	7.271E-04	3.489E-02	1.505E+08	1.988E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.520E-03	POROUS ALUMINUM	P N R	129
130	7.406E-04	3.562E-02	1.423E+08	1.988E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.548E-03	POROUS ALUMINUM	P N R	130
131	7.541E-04	3.636E-02	1.345E+08	1.989E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.576E-03	POROUS ALUMINUM	P N R	131
132	7.676E-04	3.711E-02	1.272E+08	1.989E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.604E-03	POROUS ALUMINUM	P N R	132
133	7.810E-04	3.788E-02	1.202E+08	1.990E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.632E-03	POROUS ALUMINUM	P N R	133
134	7.945E-04	3.866E-02	1.136E+08	1.990E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.660E-03	POROUS ALUMINUM	P N R	134
135	8.080E-04	3.946E-02	1.073E+08	1.991E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.689E-03	POROUS ALUMINUM	P N R	135
136	8.214E-04	4.028E-02	1.013E+08	1.991E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.717E-03	POROUS ALUMINUM	P N R	136
137	8.349E-04	4.112E-02	9.573E+07	1.991E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.745E-03	POROUS ALUMINUM	P N R	137
138	8.484E-04	4.197E-02	9.046E+07	1.992E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.773E-03	POROUS ALUMINUM	P N R	138
139	8.618E-04	4.284E-02	8.545E+07	1.992E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.801E-03	POROUS ALUMINUM	P N R	139
140	8.753E-04	4.373E-02	8.068E+07	1.993E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.829E-03	POROUS ALUMINUM	P N R	140
141	8.888E-04	4.463E-02	7.617E+07	1.993E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.858E-03	POROUS ALUMINUM	P N R	141
142	9.022E-04	4.554E-02	7.189E+07	1.994E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.886E-03	POROUS ALUMINUM	P N R	142
143	9.157E-04	4.647E-02	6.784E+07	1.994E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.914E-03	POROUS ALUMINUM	P N R	143
144	9.292E-04	4.741E-02	6.401E+07	1.994E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.942E-03	POROUS ALUMINUM	P N R	144
145	9.427E-04	4.837E-02	6.039E+07	1.995E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.970E-03	POROUS ALUMINUM	P N R	145
146	9.561E-04	4.934E-02	5.697E+07	1.995E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.998E-03	POROUS ALUMINUM	P N R	146
147	9.696E-04	5.033E-02	5.374E+07	1.995E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.026E-03	POROUS ALUMINUM	P N R	147
148	9.831E-04	5.134E-02	5.069E+07	1.995E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.055E-03	POROUS ALUMINUM	P N R	148
149	9.965E-04	5.236E-02	4.781E+07	1.995E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.083E-03	POROUS ALUMINUM	P N R	149
150	1.010E-03	5.339E-02	4.509E+07	1.995E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.111E-03	POROUS ALUMINUM	P N R	150

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      * * *   SRI PUFF1 TEST RUN OF POROUS ALUMINUM   * * *

  J     UA        X(J)       FRG        SUMCAL     YHL(J)      C(J)       D(J)       T(J)       ZHL(J)         MATERIAL      COND    J
        CM         CM       ERGS/GM      CALS     DYN/CM2    CM/SEC     GM/CM3    DYN/CM2    GM/CM2
151 0.        5.400E-02 0.          1.995E+01 6.667E+06 3.995E+05 2.090E+00-1.000E+10 0.          POROUS ALUMINUM  P L A  151

TIME TO COMPLETE  GENHAT IS      4.418 SECONDS.


HYDRO BEGIN. N=   1 J=   1 H(J,2)=S
    SSCAL= 5.376E+07 L=  0 50
POREQST J=  1 N=   1 M= 1 1 NC= 1 EJ= 5.376E+07 DJ= 2.090E+00 CJ= 3.986E+05 P= 8.575E+06 8.575E+06 8.493E+07 MOD= 1.993E+11 1.328E+11
    D= 2.091E+00 2.747E+00 2.090E+00 TF= 1.000E+00 EOLD= 0.         CSQ= 1.589E+11 L= 12 45 57
  HAFSTEP.  J=  1. N=   1 FH= 5.376E+07 DH= 2.090E+00 PH= 8.575E+06 SDH=-9.033E-04 L=  0  0 40 43 60 67 70  0
    SSCAL= 2.688E+07 L=  5  0
HYDRO DT= 2.056E-10 R= 0.        S= 0.         C= 3.995E+05 D= 2.090E+00 T=-1.000E+11 U=-8.206E-02
      UM= 0.          DM= 2.090E+00 FM= 5.376E+07 PM= 8.575E+06 RM= 8.575E+06 XM= 5.000E-05. L=   0 330   0 800   0

HYDRO BEGIN. N=   1 J=   2 H(J,2)=N
    SSCAL= 3.905E+07 L=  0 50
POREQST J=  2 N=   1 M= 1 1 NC= 1 EJ= 3.905E+07 DJ= 2.090E+00 CJ= 3.980E+05 P= 6.241E+06 6.241E+06 6.174E+07 MOD= 1.995E+11 1.330E+11
    D= 2.091E+00 2.747E+00 2.090E+00 TF= 1.000E+00 EOLD= 0.         CSQ= 1.591E+11 L= 12 45 57
  HAFSTEP.  J=  2. N=   1 FH= 3.905E+07 DH= 2.090E+00 PH= 6.241E+06 SDH=-9.042E-04 L=  0  0 40 43 60 67 70  0
    SSCAL= 1.953E+07 L=  5  0
POREQST J=  2 N=   1 M= 1 1 NC= 1 EJ= 9.282E+07 DJ= 2.090E+00 CJ= 3.980E+05 P= 1.472E+07 1.472E+07 8.050E+07 MOD= 1.987E+11 1.324E+11
    D= 2.092E+00 2.746E+00 2.090E+00 TF= 1.001E+00 EOLD= 4.641E+07 CSQ= 1.584E+11 L= 12 45 57
  JSTRESS NC=1 MJ=1 MPJ=1 QJ= 0.         SDJ=-9.030E-04 F= 9.033E-01TJ=-1.242E+09 L= 40  0  0  0  0 60 65 67 70  0
HYDRO DT= 2.097E-10 R= 1.472E+07 S= 1.472E+07 C= 3.980E+05 D= 2.090E+00 T=-1.000E+11 U= 1.106E-02
      UM= 0.          DM= 2.090E+00 FM= 3.905E+07 PM= 6.241E+06 RM= 6.241E+06 XM= 1.510E-04. L= 102   0   0 800   0

HYDRO BEGIN. N=   1 J=   3 H(J,2)=Y
    SSCAL= 2.971E+07 L=  0 50
POREQST J=  3 N=   1 M= 1 1 NC= 1 EJ= 2.971E+07 DJ= 2.090E+00 CJ= 3.990E+05 P= 4.754E+06 4.754E+06 4.702E+07 MOD= 1.996E+11 1.331E+11
    D= 2.090E+00 2.747E+00 2.090E+00 TF= 1.000E+00 EOLD= 0.         CSQ= 1.592E+11 L= 12 45 57
  HAFSTEP.  J=  3. N=   1 FH= 2.971E+07 DH= 2.090E+00 PH= 4.754E+06 SDH=-9.048E-04 L=  0  0 40 43 60 67 70  0
  JSTRESS NC=1 MJ=1 MPJ=1 QJ= 0.         SDJ=-9.045E-04 F= 9.952E-01TJ=-1.180E+09 L= 40  0  0  0  0 60 65 67 70  0
HYDRO DT= 2.137E-10 R= 1.095E+07 S= 1.095E+07 C= 3.986E+05 D= 2.090E+00 T=-1.000E+11 U= 6.905E-03
      UM= 0.          DM= 2.090E+00 FM= 2.971E+07 PM= 4.754E+06 RM= 4.754E+06 XM= 2.540E-04. L= 102   0   0 800   0

HYDRO BEGIN. N=   1 J=   4 H(J,2)=N
  HAFSTEP.  J=  4. N=   1 FH= 2.349E+07 DH= 2.090E+00 PH= 3.761E+06 SDH=-9.052E-04 L=  0  0 40 43 60 67 70  0
  JSTRESS NC=1 MJ=1 MPJ=1 QJ= 0.         SDJ=-9.050E-04 F= 9.964E-01TJ=-1.130E+09 L= 40  0  0  0  0 60 65 67 70  0
HYDRO DT= 2.179E-10 R= 8.486E+06 S= 8.486E+06 C= 3.986E+05 D= 2.090E+00 T=-1.000E+11 U= 4.521E-03
      UM= 0.          DM= 2.090E+00 FM= 2.349E+07 PM= 3.761E+06 RM= 3.761E+06 XM= 3.591E-04. L= 102   0   0 800   0

HYDRO BEGIN. N=   1 J=   5 H(J,2)=N
  HAFSTEP.  J=  5. N=   1 FH= 1.916E+07 DH= 2.090E+00 PH= 3.067E+06 SDH=-9.055E-04 L=  0  0 40 43 60 67 70  0
  JSTRESS NC=1 MJ=1 MPJ=1 QJ= 0.         SDJ=-9.053E-04 F= 9.971E-01TJ=-1.112E+09 L= 40  0  0  0  0 60 65 67 70  0
HYDRO DT= 2.220E-10 R= 6.910E+06 S= 6.810E+06 C= 3.988E+05 D= 2.090E+00 T=-1.000E+11 U= 3.102E-03
      UM= 0.          DM= 2.090E+00 FM= 1.916E+07 PM= 3.067E+06 RM= 3.067E+06 XM= 4.662E-04. L= 102   0   0 800   0
  JSTRESS NC=1 MJ=1 MPJ=1 QJ= 0.         SDJ=-9.056E-04 F= 9.977E-01TJ=-1.092E+09 L= 40  0  0  0  0 60 65 67 70  0
HYDRO COMPLETE-----N=   1. CALCULATION TIME IS       .654 SECONDS.
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HYDRO COMPLETE------ 2. CALCULATION TIME IS .500 SECONDS.

HYDRO COMPLETE------ 3. CALCULATION TIME IS .406 SECONDS.

HYDRO COMPLETE------ 4. CALCULATION TIME IS .500 SECONDS.

HYDRO COMPLETE------ 5. CALCULATION TIME IS .406 SECONDS.

**** CRITERION FOR STOP ****

N = 30 JCYCS = 5. TIME = 3.191E-11. TS = 2.000E-06. X(JSMAX) = 3.061E-04. CKS = 3.000E+00. ICATCH = 2. DTMIN = 9.969E-12

MOMENTUM EDIT

CYCLE	TIME	DTNM	JTS	ETOTAL	JFIN	JSTAR	JSMAX	SMAX	X(JSMAX)
5	3.1906E-11	9.9648E-12	6	1.0746E-01	152	151	4	1.4552E+08	3.0606E-04
DTPP	DTPULS	EMVNEG	EMVPOS	EMVPL	EMVPR	EMVPP	EMVRM	PDTPOS	PDTNEG
2.3543E-11	9.8831E-12	-3.4209E-03	3.4209E-03	1.4782E-03	1.9881E-03	3.4263E-03	0.	0.	0.
X(1)	X(JBND1)	X(JBND2)	X(JBND3)	X(JFIN)	JRMAX	RMAX	X(JRMAX)		
-4.8690E-10	5.4000E-02	0.	0.	5.4000E-02	4	1.4552E+08	3.0606E-04		

TIME EDIT NO. 1 AT N = 5. TIME = 3.19059E-11 SECS. JSTAR = 151. CALC TIME IS 7.152 SECS

J CELL	X CM	U CM/SEC	R DYN/CM2	P DYN/CM2	S DYN/CM2	EML ERGS	D GM/CM3	C CM/SEC	J CELL	COND						Y. NM. MU (DYN/CM2	SD OR NT OR 1/CM)
1	-.0000	-33	0.	0.	0.	2.8059E+09	2.0900	3.9949E+05	1	P	S	B	POROUS	ALUMINUM		6.667E+06	-1.721E+05
2	.0001	-0	1.0329E+08	1.0340E+08	1.0329E+08	2.1035E+09	2.0900	2.0489E+05	2	P	N	B	POROUS	ALUMINUM		6.667E+06	-1.630E+02
3	.0002	0	1.1085E+08	1.1084E+08	1.1085E+08	1.6804E+09	2.0900	2.4035E+05	3	P	N	B	POROUS	ALUMINUM		6.667E+06	4.141E+03
4	.0003	2	1.4552E+08	1.4552E+08	1.4552E+08	1.2652E+09	2.0900	3.0774E+05	4	P	N	B	POROUS	ALUMINUM		6.667E+06	4.567E+03
5	.0004	2	1.4409E+08	1.4409E+08	1.4409E+08	1.0312E+09	2.0900	3.3940E+05	5	P	N	B	POROUS	ALUMINUM		6.667E+06	3.649E+03
6	.0005	1	1.3419E+08	1.3415E+08	1.3415E+08	8.6049E+08	2.0900	3.5702E+05	6	P	N	B	POROUS	ALUMINUM		6.667E+06	2.745E+03
7	.0006	1	1.2123E+08	1.2120E+08	1.2120E+08	7.3134E+08	2.0900	3.6786E+05	7	P	N	B	POROUS	ALUMINUM		6.667E+06	2.008E+03
8	.0007	1	1.0872E+08	1.0869E+08	1.0869E+08	6.3053E+08	2.0900	3.7502E+05	8	P	N	B	POROUS	ALUMINUM		6.667E+06	1.479E+03
9	.0009	1	9.7394E+07	9.7372E+07	9.7374E+07	5.4982E+08	2.0900	3.8003E+05	9	P	N	B	POROUS	ALUMINUM		6.667E+06	1.107E+03
10	.0010	1	8.7391E+07	8.7376E+07	8.7375E+07	4.8386E+08	2.0900	3.8361E+05	10	P	N	B	POROUS	ALUMINUM		6.667E+06	8.476E+02
11	.0011	1	7.8621E+07	7.8607E+07	7.8608E+07	4.2905E+08	2.0900	3.8632E+05	11	P	N	B	POROUS	ALUMINUM		6.667E+06	6.521E+02
12	.0012	0	7.0941E+07	7.0931E+07	7.0931E+07	3.8289E+08	2.0900	3.8840E+05	12	P	N	B	POROUS	ALUMINUM		6.667E+06	5.123E+02
13	.0013	0	6.4206E+07	6.4198E+07	6.4198E+07	3.4356E+08	2.0900	3.9003E+05	13	P	N	B	POROUS	ALUMINUM		6.667E+06	4.079E+02
14	.0015	0	5.8282E+07	5.8275E+07	5.8276E+07	3.0973E+08	2.0900	3.9134E+05	14	P	N	B	POROUS	ALUMINUM		6.667E+06	3.286E+02
15	.0016	0	5.3054E+07	5.3048E+07	5.3048E+07	2.8039E+08	2.0900	3.9240E+05	15	P	N	B	POROUS	ALUMINUM		6.667E+06	2.674E+02
16	.0017	0	4.8423E+07	4.8419E+07	4.8419E+07	2.5476E+08	2.0900	3.9327E+05	16	P	N	B	POROUS	ALUMINUM		6.667E+06	2.196E+02
17	.0018	0	4.4307E+07	4.4303E+07	4.4303E+07	2.3224E+08	2.0900	3.9399E+05	17	P	N	B	POROUS	ALUMINUM		6.667E+06	1.819E+02
18	.0020	0	4.0636E+07	4.0633E+07	4.0633E+07	2.1235E+08	2.0900	3.9460E+05	18	P	N	B	POROUS	ALUMINUM		6.667E+06	1.514E+02
19	.0021	0	3.7352E+07	3.7349E+07	3.7349E+07	1.9468E+08	2.0900	3.9512E+05	19	P	N	B	POROUS	ALUMINUM		6.667E+06	1.273E+02
20	.0022	0	3.4403E+07	3.4401E+07	3.4401E+07	1.7893E+08	2.0900	3.9556E+05	20	P	N	B	POROUS	ALUMINUM		6.667E+06	1.075E+02
21	.0024	0	3.1750E+07	3.1747E+07	3.1748E+07	1.6483E+08	2.0900	3.9594E+05	21	P	N	B	POROUS	ALUMINUM		6.667E+06	9.128E+01
22	.0025	0	2.9344E+07	2.9353E+07	2.9353E+07	1.5216E+08	2.0900	3.9627E+05	22	P	N	B	POROUS	ALUMINUM		6.667E+06	7.788E+01
23	.0027	0	2.7187E+07	2.7186E+07	2.7185E+07	1.4074E+08	2.0900	3.9656E+05	23	P	N	B	POROUS	ALUMINUM		6.667E+06	6.677E+01
24	.0028	0	2.5221E+07	2.5219E+07	2.5219E+07	1.3042E+08	2.0900	3.9681E+05	24	P	N	B	POROUS	ALUMINUM		6.667E+06	5.766E+01
25	.0030	0	2.3433E+07	2.3432E+07	2.3432E+07	1.2106E+08	2.0900	3.9703E+05	25	P	N	B	POROUS	ALUMINUM		6.667E+06	4.967E+01
26	.0031	0	2.1805E+07	2.1803E+07	2.1803E+07	1.1256E+08	2.0900	3.9723E+05	26	P	N	B	POROUS	ALUMINUM		6.667E+06	4.305E+01
27	.0033	0	2.0317E+07	2.0317E+07	2.0317E+07	1.0481E+08	2.0900	3.9740E+05	27	P	N	B	POROUS	ALUMINUM		6.667E+06	3.747E+01
28	.0034	0	1.8957E+07	1.8956E+07	1.8957E+07	9.7740E+07	2.0900	3.9756E+05	28	P	N	B	POROUS	ALUMINUM		6.667E+06	3.270E+01
29	.0036	0	1.7711E+07	1.7710E+07	1.7710E+07	9.1269E+07	2.0900	3.9770E+05	29	P	N	B	POROUS	ALUMINUM		6.667E+06	2.862E+01
30	.0037	0	1.6566E+07	1.6566E+07	1.6566E+07	8.5337E+07	2.0900	3.9783E+05	30	P	N	B	POROUS	ALUMINUM		6.667E+06	2.512E+01
31	.0039	0	1.5514E+07	1.5514E+07	1.5514E+07	7.9889E+07	2.0900	3.9794E+05	31	P	N	B	POROUS	ALUMINUM		6.667E+06	2.214E+01
32	.0040	0	1.4545E+07	1.4544E+07	1.4544E+07	7.4877E+07	2.0900	3.9804E+05	32	P	N	B	POROUS	ALUMINUM		6.667E+06	1.951E+01
33	.0042	0	1.3651E+07	1.3650E+07	1.3651E+07	7.0258E+07	2.0900	3.9813E+05	33	P	N	B	POROUS	ALUMINUM		6.667E+06	1.725E+01
34	.0044	0	1.2825E+07	1.2825E+07	1.2825E+07	6.5995E+07	2.0900	3.9822E+05	34	P	N	B	POROUS	ALUMINUM		6.667E+06	1.530E+01
35	.0045	0	1.2061E+07	1.2061E+07	1.2061E+07	6.2054E+07	2.0900	3.9829E+05	35	P	N	B	POROUS	ALUMINUM		6.667E+06	1.356E+01
36	.0047	0	1.1353E+07	1.1353E+07	1.1353E+07	5.8406E+07	2.0900	3.9834E+05	36	P	N	B	POROUS	ALUMINUM		6.667E+06	1.210E+01
37	.0049	0	1.0697E+07	1.0697E+07	1.0697E+07	5.5024E+07	2.0900	3.9843E+05	37	P	N	B	POROUS	ALUMINUM		6.667E+06	1.078E+01
38	.0050	0	1.0087E+07	1.0087E+07	1.0087E+07	5.1885E+07	2.0900	3.9849E+05	38	P	N	B	POROUS	ALUMINUM		6.667E+06	9.621E+00
39	.0052	0	9.5201E+06	9.5201E+06	9.5201E+06	4.8967E+07	2.0900	3.9854E+05	39	P	N	B	POROUS	ALUMINUM		6.667E+06	8.594E+00
40	.0054	0	8.9926E+06	8.9924E+06	8.9924E+06	4.6251E+07	2.0900	3.9859E+05	40	P	N	B	POROUS	ALUMINUM		6.667E+06	7.734E+00
41	.0056	0	8.5008E+06	8.5006E+06	8.5006E+06	4.3721E+07	2.0900	3.9864E+05	41	P	N	B	POROUS	ALUMINUM		6.667E+06	6.924E+00
42	.0058	0	8.0419E+06	8.0417E+06	8.0417E+06	4.1361E+07	2.0900	3.9868E+05	42	P	N	B	POROUS	ALUMINUM		6.667E+06	6.263E+00
43	.0059	0	7.6133E+06	7.6131E+06	7.6132E+06	3.9158E+07	2.0900	3.9872E+05	43	P	N	B	POROUS	ALUMINUM		6.667E+06	5.621E+00
44	.0061	0	7.2126E+06	7.2125E+06	7.2125E+06	3.7098E+07	2.0900	3.9875E+05	44	P	N	B	POROUS	ALUMINUM		6.667E+06	5.091E+00
45	.0063	0	6.8376E+06	6.8375E+06	6.8375E+06	3.5179E+07	2.0900	3.9879E+05	45	P	N	B	POROUS	ALUMINUM		6.667E+06	4.573E+00
46	.0065	0	6.4863E+06	6.4862E+06	6.4862E+06	3.3385E+07	2.0900	3.9882E+05	46	P	N	B	POROUS	ALUMINUM		6.667E+06	4.142E+00
47	.0067	0	6.1569E+06	6.1568E+06	6.1568E+06	3.1672E+07	2.0900	3.9885E+05	47	P	N	B	POROUS	ALUMINUM		6.667E+06	3.753E+00

48	.0069	0	5.8478E+06	5.8477E+06	5.8477E+06	1.0083E+07	2.0900	3.9888E+05	48	P	N	B	POROUS	ALUMINUM	4.667E+06	3.422E+00
49	.0071	0	5.5574E+06	5.5573E+06	5.5573E+06	2.8591E+07	2.0900	3.9890E+05	49	P	N	B	POROUS	ALUMINUM	4.667E+06	3.110E+00
50	.0073	0	5.2844E+06	5.2843E+06	5.2843E+06	2.7189E+07	2.0900	3.9893E+05	50	P	N	B	POROUS	ALUMINUM	4.667E+06	2.814E+00
51	.0075	0	5.0276E+06	5.0275E+06	5.0275E+06	2.5869E+07	2.0900	3.9895E+05	51	P	N	B	POROUS	ALUMINUM	4.667E+06	2.578E+00
52	.0077	0	4.7856E+06	4.7856E+06	4.7856E+06	2.4627E+07	2.0900	3.9897E+05	52	P	N	B	POROUS	ALUMINUM	4.667E+06	2.375E+00
53	.0079	0	4.5578E+06	4.5578E+06	4.5578E+06	2.3456E+07	2.0900	3.9899E+05	53	P	N	B	POROUS	ALUMINUM	4.667E+06	2.197E+00
54	.0081	0	4.3429E+06	4.3428E+06	4.3428E+06	2.2351E+07	2.0900	3.9901E+05	54	P	N	B	POROUS	ALUMINUM	4.667E+06	1.944E+00
55	.0083	0	4.1401E+06	4.1400E+06	4.1400E+06	2.1309E+07	2.0900	3.9902E+05	55	P	N	B	POROUS	ALUMINUM	4.667E+06	1.708E+00
56	.0085	0	3.9486E+06	3.9485E+06	3.9485E+06	2.0325E+07	2.0900	3.9904E+05	56	P	N	B	POROUS	ALUMINUM	4.667E+06	1.496E+00
57	.0087	0	3.7676E+06	3.7675E+06	3.7675E+06	1.9395E+07	2.0900	3.9906E+05	57	P	N	B	POROUS	ALUMINUM	4.667E+06	1.492E+00
58	.0089	0	3.5964E+06	3.5964E+06	3.5964E+06	1.8515E+07	2.0900	3.9907E+05	58	P	N	B	POROUS	ALUMINUM	4.667E+06	1.401E+00
59	.0091	0	3.4344E+06	3.4344E+06	3.4344E+06	1.7683E+07	2.0900	3.9908E+05	59	P	N	B	POROUS	ALUMINUM	4.667E+06	1.281E+00
60	.0094	0	3.2811E+06	3.2811E+06	3.2811E+06	1.6895E+07	2.0900	3.9910E+05	60	P	N	B	POROUS	ALUMINUM	4.667E+06	1.147E+00
61	.0096	0	3.1358E+06	3.1358E+06	3.1358E+06	1.6148E+07	2.0900	3.9911E+05	61	P	N	B	POROUS	ALUMINUM	4.667E+06	1.001E+00
62	.0098	0	2.9982E+06	2.9981E+06	2.9981E+06	1.5441E+07	2.0900	3.9912E+05	62	P	N	B	POROUS	ALUMINUM	4.667E+06	9.828E-01
63	.0100	0	2.8676E+06	2.8675E+06	2.8675E+06	1.4769E+07	2.0900	3.9913E+05	63	P	N	B	POROUS	ALUMINUM	4.667E+06	8.850E-01
64	.0102	0	2.7436E+06	2.7436E+06	2.7436E+06	1.4132E+07	2.0900	3.9914E+05	64	P	N	B	POROUS	ALUMINUM	4.667E+06	8.524E-01
65	.0105	0	2.6260E+06	2.6260E+06	2.6260E+06	1.3527E+07	2.0900	3.9915E+05	65	P	N	B	POROUS	ALUMINUM	4.667E+06	7.809E-01
66	.0107	0	2.5142E+06	2.5142E+06	2.5142E+06	1.2953E+07	2.0900	3.9916E+05	66	P	N	B	POROUS	ALUMINUM	4.667E+06	6.985E-01
67	.0109	0	2.4080E+06	2.4080E+06	2.4080E+06	1.2407E+07	2.0900	3.9917E+05	67	P	N	B	POROUS	ALUMINUM	4.667E+06	7.057E-01
68	.0112	0	2.3070E+06	2.3070E+06	2.3070E+06	1.1887E+07	2.0900	3.9918E+05	68	P	N	B	POROUS	ALUMINUM	4.667E+06	5.849E-01
69	.0114	0	2.2110E+06	2.2109E+06	2.2109E+06	1.1393E+07	2.0900	3.9919E+05	69	P	N	B	POROUS	ALUMINUM	4.667E+06	5.940E-01
70	.0116	0	2.1195E+06	2.1195E+06	2.1195E+06	1.0923E+07	2.0900	3.9919E+05	70	P	N	B	POROUS	ALUMINUM	4.667E+06	5.173E-01
71	.0119	0	2.0325E+06	2.0325E+06	2.0325E+06	1.0475E+07	2.0900	3.9920E+05	71	P	N	B	POROUS	ALUMINUM	4.667E+06	4.603E-01
72	.0121	0	1.9496E+06	1.9496E+06	1.9496E+06	1.0049E+07	2.0900	3.9921E+05	72	P	N	B	POROUS	ALUMINUM	4.667E+06	4.879E-01
73	.0124	0	1.8706E+06	1.8706E+06	1.8706E+06	9.6425E+06	2.0900	3.9921E+05	73	P	N	B	POROUS	ALUMINUM	4.667E+06	4.305E-01
74	.0126	0	1.7953E+06	1.7953E+06	1.7953E+06	9.2551E+06	2.0900	3.9922E+05	74	P	N	B	POROUS	ALUMINUM	4.667E+06	3.991E-01
75	.0129	0	1.7235E+06	1.7235E+06	1.7235E+06	8.8856E+06	2.0900	3.9922E+05	75	P	N	B	POROUS	ALUMINUM	4.667E+06	3.534E-01
76	.0131	0	1.6550E+06	1.6550E+06	1.6550E+06	8.5331E+06	2.0900	3.9923E+05	76	P	N	B	POROUS	ALUMINUM	4.667E+06	3.704E-01
77	.0134	0	1.5896E+06	1.5896E+06	1.5896E+06	8.1967E+06	2.0900	3.9924E+05	77	P	N	B	POROUS	ALUMINUM	4.667E+06	3.008E-01
78	.0136	0	1.5272E+06	1.5272E+06	1.5272E+06	7.8755E+06	2.0900	3.9924E+05	78	P	N	B	POROUS	ALUMINUM	4.667E+06	2.918E-01
79	.0139	0	1.4676E+06	1.4676E+06	1.4676E+06	7.5687E+06	2.0900	3.9925E+05	79	P	N	B	POROUS	ALUMINUM	4.667E+06	3.108E-01
80	.0141	0	1.4107E+06	1.4106E+06	1.4106E+06	7.2757E+06	2.0900	3.9925E+05	80	P	N	B	POROUS	ALUMINUM	4.667E+06	2.447E-01
81	.0144	0	1.3563E+06	1.3562E+06	1.3562E+06	6.9956E+06	2.0900	3.9925E+05	81	P	N	B	POROUS	ALUMINUM	4.667E+06	2.345E-01
82	.0146	0	1.3042E+06	1.3042E+06	1.3042E+06	6.7279E+06	2.0900	3.9926E+05	82	P	N	B	POROUS	ALUMINUM	4.667E+06	2.574E-01
83	.0149	0	1.2545E+06	1.2545E+06	1.2545E+06	6.4718E+06	2.0900	3.9926E+05	83	P	N	B	POROUS	ALUMINUM	4.667E+06	1.944E-01
84	.0152	0	1.2069E+06	1.2069E+06	1.2069E+06	6.2269E+06	2.0900	3.9927E+05	84	P	N	B	POROUS	ALUMINUM	4.667E+06	1.804E-01
85	.0154	0	1.1614E+06	1.1614E+06	1.1614E+06	5.9926E+06	2.0900	3.9927E+05	85	P	N	B	POROUS	ALUMINUM	4.667E+06	2.374E-01
86	.0157	0	1.1179E+06	1.1179E+06	1.1179E+06	5.7682E+06	2.0900	3.9927E+05	86	P	N	B	POROUS	ALUMINUM	4.667E+06	1.233E-01
87	.0160	0	1.0762E+06	1.0762E+06	1.0762E+06	5.5535E+06	2.0900	3.9928E+05	87	P	N	B	POROUS	ALUMINUM	4.667E+06	2.266E-01
88	.0163	0	1.0362E+06	1.0362E+06	1.0362E+06	5.3478E+06	2.0900	3.9928E+05	88	P	N	B	POROUS	ALUMINUM	4.667E+06	1.142E-01
89	.0165	0	9.9801E+05	9.9800E+05	9.9800E+05	5.1508E+06	2.0900	3.9928E+05	89	P	N	B	POROUS	ALUMINUM	4.667E+06	1.431E-01
90	.0168	0	9.6136E+05	9.6135E+05	9.6136E+05	4.9621E+06	2.0900	3.9929E+05	90	P	N	B	POROUS	ALUMINUM	4.667E+06	1.586E-01
91	.0171	0	9.2624E+05	9.2624E+05	9.2624E+05	4.7811E+06	2.0900	3.9929E+05	91	P	N	B	POROUS	ALUMINUM	4.667E+06	1.024E-01
92	.0174	0	8.9258E+05	8.9257E+05	8.9257E+05	4.6077E+06	2.0900	3.9929E+05	92	P	N	B	POROUS	ALUMINUM	4.667E+06	9.970E-02
93	.0177	0	8.6030E+05	8.6029E+05	8.6029E+05	4.4414E+06	2.0900	3.9929E+05	93	P	N	B	POROUS	ALUMINUM	4.667E+06	1.985E-01
94	.0179	0	8.2934E+05	8.2934E+05	8.2934E+05	4.2819E+06	2.0900	3.9930E+05	94	P	N	B	POROUS	ALUMINUM	4.667E+06	9.245E-02
95	.0182	0	7.9964E+05	7.9964E+05	7.9964E+05	4.1288E+06	2.0900	3.9930E+05	95	P	N	B	POROUS	ALUMINUM	4.667E+06	9.044E-02
96	.0185	0	7.7115E+05	7.7114E+05	7.7114E+05	3.9820E+06	2.0900	3.9930E+05	96	P	N	B	POROUS	ALUMINUM	4.667E+06	8.702E-02
97	.0188	0	7.4380E+05	7.4379E+05	7.4379E+05	3.8410E+06	2.0900	3.9930E+05	97	P	N	B	POROUS	ALUMINUM	4.667E+06	8.520E-02
98	.0191	0	7.1755E+05	7.1754E+05	7.1754E+05	3.7057E+06	2.0900	3.9931E+05	98	P	N	B	POROUS	ALUMINUM	4.667E+06	8.158E-02
99	.0194	0	6.9234E+05	6.9233E+05	6.9233E+05	3.5757E+06	2.0900	3.9931E+05	99	P	N	B	POROUS	ALUMINUM	4.667E+06	8.047E-02
100	.0197	0	6.6812E+05	6.6812E+05	6.6812E+05	3.4509E+06	2.0900	3.9931E+05	100	P	N	B	POROUS	ALUMINUM	4.667E+06	2.991E-02
101	.0200	0	6.4389E+05	6.4389E+05	6.4389E+05	3.3217E+06	2.0900	3.9931E+05	101	P	N	B	POROUS	ALUMINUM	4.667E+06	1.106E-01
102	.0204	0	6.1892E+05	6.1891E+05	6.1891E+05	3.1872E+06	2.0900	3.9931E+05	102	P	N	B	POROUS	ALUMINUM	4.667E+06	4.526E-02
103	.0207	0	5.9357E+05	5.9356E+05	5.9356E+05	3.0550E+06	2.0900	3.9932E+05	103	P	N	B	POROUS	ALUMINUM	4.667E+06	2.357E-02
104	.0211	0	5.6870E+05	5.6870E+05	5.6870E+05	2.9255E+06	2.0900	3.9932E+05	104	P	N	B	POROUS	ALUMINUM	4.667E+06	5.982E-02
105	.0215	0	5.4437E+05	5.4437E+05	5.4437E+05	2.7990E+06	2.0900	3.9932E+05	105	P	N	B	POROUS	ALUMINUM	4.667E+06	5.620E-02
106	.0219	0	5.2062E+05	5.2062E+05	5.2062E+05	2.6757E+06	2.0900	3.9932E+05	106	P	N	B	POROUS	ALUMINUM	4.667E+06	5.439E-02
107	.0223	0	4.9748E+05	4.9748E+05	4.9748E+05	2.5557E+06	2.0900	3.9932E+05	107	P	N	B	POROUS	ALUMINUM	4.667E+06	5.147E-02
108	.0227	0	4.7500E+05	4.7500E+05	4.7500E+05	2.4391E+06	2.0900	3.9932E+05	108	P	N	B	POROUS	ALUMINUM	4.667E+06	4.805E-02
109	.0232	0	4.5318E+05	4.5318E+05	4.5318E+05	2.3262E+06	2.0900	3.9933E+05	109	P	N	B	POROUS	ALUMINUM	4.667E+06	1.450E-02

110	.0236	0	4.3206E+05	4.3206E+05	4.3206E+05	2.2169E+06	2.0900	3.9933E+05	110	P	N	8	POROUS	ALUMINUM	6.667E+06	4.442E-02
111	.0241	0	4.1164E+05	4.1163E+05	4.1163E+05	2.1114E+06	2.0900	3.9933E+05	111	P	N	8	POROUS	ALUMINUM	6.667E+06	1.178E-02
112	.0246	0	3.9192E+05	3.9192E+05	3.9192E+05	2.0096E+06	2.0900	3.9933E+05	112	P	N	8	POROUS	ALUMINUM	6.667E+06	4.170E-02
113	.0251	0	3.7293E+05	3.7293E+05	3.7293E+05	1.9116E+06	2.0900	3.9933E+05	113	P	N	8	POROUS	ALUMINUM	6.667E+06	3.989E-02
114	.0256	0	3.5465E+05	3.5464E+05	3.5464E+05	1.8173E+06	2.0900	3.9933E+05	114	P	N	8	POROUS	ALUMINUM	6.667E+06	9.971E-03
115	.0261	0	3.3708E+05	3.3707E+05	3.3707E+05	1.7268E+06	2.0900	3.9934E+05	115	P	N	8	POROUS	ALUMINUM	6.667E+06	3.626E-02
116	.0267	0	3.2021E+05	3.2021E+05	3.2021E+05	1.6400E+06	2.0900	3.9934E+05	116	P	N	8	POROUS	ALUMINUM	6.667E+06	9.045E-03
117	.0272	0	3.0404E+05	3.0404E+05	3.0404E+05	1.5568E+06	2.0900	3.9934E+05	117	P	N	8	POROUS	ALUMINUM	6.667E+06	3.354E-02
118	.0278	0	2.8856E+05	2.8856E+05	2.8856E+05	1.4771E+06	2.0900	3.9934E+05	118	P	N	8	POROUS	ALUMINUM	6.667E+06	7.252E-03
119	.0284	0	2.7375E+05	2.7375E+05	2.7375E+05	1.4010E+06	2.0900	3.9934E+05	119	P	N	8	POROUS	ALUMINUM	6.667E+06	6.346E-03
120	.0290	0	2.5959E+05	2.5959E+05	2.5959E+05	1.3283E+06	2.0900	3.9934E+05	120	P	N	8	POROUS	ALUMINUM	6.667E+06	5.439E-03
121	.0296	0	2.4607E+05	2.4607E+05	2.4607E+05	1.2588E+06	2.0900	3.9934E+05	121	P	N	8	POROUS	ALUMINUM	6.667E+06	2.901E-02
122	.0302	0	2.3318E+05	2.3318E+05	2.3318E+05	1.1927E+06	2.0900	3.9934E+05	122	P	N	8	POROUS	ALUMINUM	6.667E+06	5.439E-03
123	.0308	0	2.2088E+05	2.2088E+05	2.2089E+05	1.1296E+06	2.0900	3.9934E+05	123	P	N	8	POROUS	ALUMINUM	6.667E+06	4.986E-02
124	.0315	0	2.0917E+05	2.0917E+05	2.0917E+05	1.0495E+06	2.0900	3.9935E+05	124	P	N	8	POROUS	ALUMINUM	6.667E+06	4.533E-03
125	.0321	0	1.9803E+05	1.9803E+05	1.9803E+05	1.0124E+06	2.0900	3.9935E+05	125	P	N	8	POROUS	ALUMINUM	6.667E+06	3.626E-03
126	.0328	0	1.8743E+05	1.8742E+05	1.8742E+05	9.5804E+05	2.0900	3.9935E+05	126	P	N	8	POROUS	ALUMINUM	6.667E+06	3.626E-03
127	.0335	0	1.7735E+05	1.7735E+05	1.7735E+05	9.0640E+05	2.0900	3.9935E+05	127	P	N	8	POROUS	ALUMINUM	6.667E+06	2.720E-03
128	.0342	0	1.6777E+05	1.6777E+05	1.6777E+05	8.5735E+05	2.0900	3.9935E+05	128	P	N	8	POROUS	ALUMINUM	6.667E+06	2.720E-03
129	.0349	0	1.5868E+05	1.5868E+05	1.5868E+05	8.1079E+05	2.0900	3.9935E+05	129	P	N	8	POROUS	ALUMINUM	6.667E+06	2.720E-03
130	.0356	0	1.5004E+05	1.5004E+05	1.5004E+05	7.6660E+05	2.0900	3.9935E+05	130	P	N	8	POROUS	ALUMINUM	6.667E+06	4.261E-02
131	.0364	0	1.4186E+05	1.4186E+05	1.4186E+05	7.2470E+05	2.0900	3.9935E+05	131	P	N	8	POROUS	ALUMINUM	6.667E+06	1.813E-03
132	.0371	0	1.3409E+05	1.3409E+05	1.3409E+05	6.8497E+05	2.0900	3.9935E+05	132	P	N	8	POROUS	ALUMINUM	6.667E+06	1.813E-03
133	.0379	0	1.2673E+05	1.2673E+05	1.2673E+05	6.4732E+05	2.0900	3.9935E+05	133	P	N	8	POROUS	ALUMINUM	6.667E+06	1.813E-03
134	.0387	0	1.1976E+05	1.1976E+05	1.1976E+05	6.1171E+05	2.0900	3.9935E+05	134	P	N	8	POROUS	ALUMINUM	6.667E+06	9.065E-04
135	.0395	0	1.1316E+05	1.1316E+05	1.1316E+05	5.7787E+05	2.0900	3.9935E+05	135	P	N	8	POROUS	ALUMINUM	6.667E+06	1.813E-03
136	.0403	0	1.0690E+05	1.0690E+05	1.0690E+05	5.4589E+05	2.0900	3.9935E+05	136	P	N	8	POROUS	ALUMINUM	6.667E+06	9.066E-04
137	.0411	0	1.0098E+05	1.0098E+05	1.0098E+05	5.1563E+05	2.0900	3.9935E+05	137	P	N	8	POROUS	ALUMINUM	6.667E+06	9.066E-04
138	.0419	0	9.5375E+04	9.5375E+04	9.5375E+04	4.8699E+05	2.0900	3.9935E+05	138	P	N	8	POROUS	ALUMINUM	6.667E+06	9.066E-04
139	.0428	0	9.0074E+04	9.0074E+04	9.0074E+04	4.5990E+05	2.0900	3.9935E+05	139	P	N	8	POROUS	ALUMINUM	6.667E+06	9.066E-04
140	.0436	0	8.5060E+04	8.5060E+04	8.5060E+04	4.3428E+05	2.0900	3.9935E+05	140	P	N	8	POROUS	ALUMINUM	6.667E+06	9.066E-04
141	.0445	0	8.0319E+04	8.0318E+04	8.0318E+04	4.1005E+05	2.0900	3.9936E+05	141	P	N	8	POROUS	ALUMINUM	6.667E+06	9.066E-04
142	.0454	0	7.5836E+04	7.5836E+04	7.5836E+04	3.8715E+05	2.0900	3.9936E+05	142	P	N	8	POROUS	ALUMINUM	6.667E+06	9.066E-04
143	.0463	0	7.1598E+04	7.1598E+04	7.1598E+04	3.6550E+05	2.0900	3.9936E+05	143	P	N	8	POROUS	ALUMINUM	6.667E+06	9.066E-04
144	.0472	0	6.7593E+04	6.7593E+04	6.7593E+04	3.4505E+05	2.0900	3.9936E+05	144	P	N	8	POROUS	ALUMINUM	6.667E+06	9.066E-04
145	.0481	0	6.3809E+04	6.3809E+04	6.3809E+04	3.2572E+05	2.0900	3.9936E+05	145	P	N	8	POROUS	ALUMINUM	6.667E+06	9.066E-04
146	.0491	0	6.0233E+04	6.0233E+04	6.0233E+04	3.0746E+05	2.0900	3.9936E+05	146	P	N	8	POROUS	ALUMINUM	6.667E+06	-1.723E-08
147	.0500	0	5.6855E+04	5.6855E+04	5.6855E+04	2.9021E+05	2.0900	3.9936E+05	147	P	N	8	POROUS	ALUMINUM	6.667E+06	-1.630E-08
148	.0510	0	5.3665E+04	5.3665E+04	5.3665E+04	2.7392E+05	2.0900	3.9936E+05	148	P	N	8	POROUS	ALUMINUM	6.667E+06	-2.095E-09
149	.0520	0	5.0652E+04	5.0652E+04	5.0652E+04	2.5853E+05	2.0900	3.9936E+05	149	P	N	8	POROUS	ALUMINUM	6.667E+06	-1.863E-09
150	.0530	0	4.7806E+04	4.7806E+04	4.7806E+04	2.4400E+05	2.0900	3.9936E+05	150	P	N	8	POROUS	ALUMINUM	6.667E+06	-5.050E-01
151	.0540	0	0.	0.	0.	0.	2.0900	3.9949E+05	151	P	L	8	POROUS	ALUMINUM	6.667E+06	0.

SCHIME OUTPUT, TIME IN MICROSECS, S IN KBARS, DTNH IN NANOSECS, DELTIM IN SECS

N	TIME	S12/SDJ1	S23/SDJ2	S34/SDJ3	S(5)	S(20)	S(50)	S(80)	S(110)	S(140)	JTS	DTNH	DELTIM
1	.000	-.000	-.000	-.000	.0078	.0018	.0008	.0008	.0008	.0008	1	.001	5.078
2	.000	.000	.000	.000	.0448	.0078	.0019	.0008	.0008	.0009	1	.006	.502
3	.000	.000	.000	.000	.0848	.0158	.0028	.0018	.0008	.0008	3	.007	.502
4	.000	.000	.000	.000	.1218	.0248	.0048	.0018	.0008	.0009	5	.008	.504
5	.000	.000	.000	.000	.1458	.0348	.0058	.0018	.0008	.0008	6	.010	.506

TIME IN SCHIME = .048
COMPUTING TIME = 8.404
PLOTTING TIME = 0.000
TOTAL TIME = 8.404

2. Test No. 102

Problem 102 is a short test run of radiation deposition in porous aluminum. The data is altered by 0.1% from that of Test No. 101. As for Test No. 101, test prints are triggered from most subroutines. The following listing includes the input data, the initial layout of coordinates, the test prints, the final EDIT, and the stress histories printed by SCRIBE.

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**** SNI PUFF 1 (6600 VERSION) ****

MDATE= 11/18/68     IDENT= 102  PUFF TEST OF POROUS ALUMINUM
 (ALL DATA WERE ALTERED BY 0.1 PER CENT FROM THAT USED FOR IDENT 101)



      * * *   SNI PUFF1 TEST RUN OF POROUS ALUMINUM   * * *
NTEDIT=           12 NJEDIT=            6 NREZON=            NONSEPRAT=            -0
2 TEDITS= 1.001E-09 1.502E-09 2.002E-09 2.503E-09 3.003E-09 4.004E-09 5.005E-09
          6.006E-09 7.007E-09 8.008E-09 9.009E-09 1.001E-08
3 JEDITS=    5   20    40    60    80   100
MEDIT=          1000 NEDIT=          1000 NPERN=              1 MAXPRN =          11
MAXPH =     5     5     5     5     5     5     5     5     5     5     5
4 STOPS               JCYCS =           5  CKS =     3.003E+00  TS =      2.002E-08
5 NMTHLS=           1  MATFL =          0  UZERO =   0.         IPLOT =           -0

POROUS ALUMINUM       RHOS =    2.720E+00 NSR =    0 NYAM =   3 NPOH =   3 NCON =   1
 EQSTC =  7.307E+11  EQSTD =  1.722E+12  EQSTE =   1.201E+11  EQSTG =   2.132E+00
 EQSTH =  2.503E-01  EQSTS =  4.004E+11             1.049E+00            7.936E-12
COSQ =    2.002E+00        C1=  2.002E-01        C2=  0.
TENS(1)= -1.001E+11 TENS(2)= -1.000E+09 TENS(3)= -1.000E+09
YOS =     3.203E+09   MU  =    2.743E-11  YADD  =  7.708E+09
FMELT =   6.597E+09 2.402E+09 1.502E-01 2.503E-01 1.001E-01
 RHOP =   2.093E+00 2.212E+00 2.553E+00 2.751E+00 2.751E+00 2.783E+00
 COSW =      2.0020     2.0020     2.0020     2.0020     2.0020
C1 =          .2002      .2002      .2002      .2002      .2002
1   P2 =  7.007E+08  UELP =    1.001E+08  YADD =    4.004E+08
2   P2 =  1.902E+09  UELP =    3.203E+08  YADU =    3.003E+07
3   P2 =  8.008E+09  UELP =    9.229E+08  YADU =    1.702E+09
 AK =     2.002E+11 MUP =      1.001E+11  YO =      1.001E+07
   NOE= 0     RHOC = 2.093E+00
FDGES=    1.561E+00 3.102E+01 4.136E+01 4.963E+01 6.204E+01 8.272E+01
AA =      9.270E+02 1.537E+04 3.164E+03 8.960E+02 1.725E+02 2.796E+01 2.584E+00
R =      -2.011E+00-2.743E+00-2.325E+00-1.906E+00-1.564E+00-1.122E+00-6.882E-01
NZONES= 2          100 CELLS IN  2.002E-02 CM. DELX= 1.001E-04                -0.
                    50 CELLS IN  3.403E-02 CM. DELX= 3.504E-04                -0.
NSPEC=  1 ANGLES=     0.
          * * *       SPECTRUM NO. 1. 1 BLACK BODY     * * *
NHNU=   0 NOD=     1 NAKA=    0 START=      0.              STOP=      5.005E-09
          * * *    TABLE OF HNU VALUES FOR BLACK BODY ENERGY    * * *
8.273E-01 8.120E-01 9.473E-01 1.059E+00 1.156E+00 1.243E+00 1.323E+00 1.398E+00
1.469E+00 1.537E+00 1.601E+00 1.662E+00 1.722E+00 1.779E+00 1.835E+00 1.895E+00
1.946E+00 1.996E+00 2.046E+00 2.096E+00 2.148E+00 2.198E+00 2.246E+00 2.294E+00
2.342E+00 2.390E+00 2.437E+00 2.483E+00 2.531E+00 2.577E+00 2.625E+00 2.669E+00
2.715E+00 2.760E+00 2.806E+00 2.852E+00 2.898E+00 2.943E+00 2.989E+00 3.035E+00
3.081E+00 3.127E+00 3.174E+00 3.220E+00 3.267E+00 3.314E+00 3.362E+00 3.409E+00
3.457E+00 3.507E+00 3.556E+00 3.605E+00 3.655E+00 3.705E+00 3.756E+00 3.808E+00
3.860E+00 3.912E+00 3.965E+00 4.020E+00 4.075E+00 4.131E+00 4.189E+00 4.246E+00
4.304E+00 4.364E+00 4.425E+00 4.488E+00 4.553E+00 4.618E+00 4.685E+00 4.753E+00
4.823E+00 4.896E+00 4.970E+00 5.047E+00 5.126E+00 5.208E+00 5.293E+00 5.381E+00
5.473E+00 5.569E+00 5.670E+00 5.775E+00 5.886E+00 6.003E+00 6.128E+00 6.261E+00
6.404E+00 6.560E+00 6.730E+00 6.918E+00 7.126E+00 7.364E+00 7.642E+00 7.976E+00
8.398E+00 8.961E+00 9.952E+00 1.010E+01 1.026E+01 1.044E+01 1.065E+01 1.089E+01
1.117E+01 1.150E+01 1.211E+01 1.304E+01 1.502E+01
TEMP=     1.301E+00    FCAL=    2.012E+01
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• • • SHI PUFFI TEST HIM OF POROUS ALUMINUM • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	VHL(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZHL(J) GM/CM2	MATERIAL	COND	J
1	1.001E-04	0.	5.348E+11	2.677E+00	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.009E-04	POROUS ALUMINUM	P S B	1
2	1.021E-04	1.001E-04	3.849E+11	4.662E+00	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.197E-04	POROUS ALUMINUM	P N B	2
3	1.041E-04	2.022E-04	2.941E+11	6.204E+00	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.188E-04	POROUS ALUMINUM	P N B	3
4	1.062E-04	3.064E-04	2.342E+11	7.447E+00	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.222E-04	POROUS ALUMINUM	P N B	4
5	1.082E-04	4.125E-04	1.909E+11	8.480E+00	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.244E-04	POROUS ALUMINUM	P N B	5
6	1.102E-04	5.207E-04	1.594E+11	9.358E+00	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.307E-04	POROUS ALUMINUM	P N B	6
7	1.122E-04	6.309E-04	1.355E+11	1.012E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.349E-04	POROUS ALUMINUM	P N B	7
8	1.143E-04	7.432E-04	1.168E+11	1.079E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.391E-04	POROUS ALUMINUM	P N B	8
9	1.163E-04	8.574E-04	1.019E+11	1.138E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.434E-04	POROUS ALUMINUM	P N B	9
10	1.183E-04	9.737E-04	8.994E+10	1.191E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.476E-04	POROUS ALUMINUM	P N B	10
11	1.203E-04	1.092E-03	7.954E+10	1.239E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.518E-04	POROUS ALUMINUM	P N B	11
12	1.223E-04	1.214E-03	7.099E+10	1.282E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.561E-04	POROUS ALUMINUM	P N B	12
13	1.244E-04	1.338E-03	6.371E+10	1.322E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.603E-04	POROUS ALUMINUM	P N B	13
14	1.264E-04	1.464E-03	5.749E+10	1.358E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.645E-04	POROUS ALUMINUM	P N B	14
15	1.284E-04	1.593E-03	5.201E+10	1.391E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.688E-04	POROUS ALUMINUM	P N B	15
16	1.304E-04	1.724E-03	4.727E+10	1.422E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.730E-04	POROUS ALUMINUM	P N B	16
17	1.325E-04	1.856E-03	4.316E+10	1.451E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.772E-04	POROUS ALUMINUM	P N B	17
18	1.345E-04	1.977E-03	3.941E+10	1.477E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.815E-04	POROUS ALUMINUM	P N B	18
19	1.365E-04	2.111E-03	3.614E+10	1.502E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.857E-04	POROUS ALUMINUM	P N B	19
20	1.385E-04	2.248E-03	3.322E+10	1.525E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.899E-04	POROUS ALUMINUM	P N B	20
21	1.405E-04	2.386E-03	3.061E+10	1.546E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.942E-04	POROUS ALUMINUM	P N B	21
22	1.426E-04	2.527E-03	2.826E+10	1.567E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		2.984E-04	POROUS ALUMINUM	P N B	22
23	1.446E-04	2.669E-03	2.614E+10	1.586E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.026E-04	POROUS ALUMINUM	P N B	23
24	1.466E-04	2.814E-03	2.423E+10	1.603E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.069E-04	POROUS ALUMINUM	P N B	24
25	1.486E-04	2.961E-03	2.249E+10	1.620E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.111E-04	POROUS ALUMINUM	P N B	25
26	1.507E-04	3.109E-03	2.092E+10	1.636E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.153E-04	POROUS ALUMINUM	P N B	26
27	1.527E-04	3.260E-03	1.948E+10	1.651E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.196E-04	POROUS ALUMINUM	P N B	27
28	1.547E-04	3.412E-03	1.817E+10	1.665E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.238E-04	POROUS ALUMINUM	P N B	28
29	1.567E-04	3.567E-03	1.697E+10	1.678E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.280E-04	POROUS ALUMINUM	P N B	29
30	1.587E-04	3.724E-03	1.587E+10	1.691E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.323E-04	POROUS ALUMINUM	P N B	30
31	1.608E-04	3.883E-03	1.486E+10	1.702E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.365E-04	POROUS ALUMINUM	P N B	31
32	1.628E-04	4.044E-03	1.393E+10	1.714E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.407E-04	POROUS ALUMINUM	P N B	32
33	1.648E-04	4.206E-03	1.307E+10	1.725E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.449E-04	POROUS ALUMINUM	P N B	33
34	1.668E-04	4.371E-03	1.228E+10	1.735E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.492E-04	POROUS ALUMINUM	P N B	34
35	1.689E-04	4.538E-03	1.154E+10	1.745E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.534E-04	POROUS ALUMINUM	P N B	35
36	1.709E-04	4.707E-03	1.087E+10	1.754E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.576E-04	POROUS ALUMINUM	P N B	36
37	1.729E-04	4.878E-03	1.024E+10	1.763E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.619E-04	POROUS ALUMINUM	P N B	37
38	1.749E-04	5.050E-03	9.656E+09	1.771E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.661E-04	POROUS ALUMINUM	P N B	38
39	1.769E-04	5.225E-03	9.114E+09	1.779E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.703E-04	POROUS ALUMINUM	P N B	39
40	1.790E-04	5.402E-03	8.610E+09	1.787E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.746E-04	POROUS ALUMINUM	P N B	40
41	1.810E-04	5.581E-03	8.140E+09	1.794E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.788E-04	POROUS ALUMINUM	P N B	41
42	1.830E-04	5.762E-03	7.702E+09	1.801E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.830E-04	POROUS ALUMINUM	P N B	42
43	1.850E-04	5.945E-03	7.292E+09	1.808E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.873E-04	POROUS ALUMINUM	P N B	43
44	1.871E-04	6.130E-03	6.909E+09	1.815E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.915E-04	POROUS ALUMINUM	P N B	44
45	1.891E-04	6.317E-03	6.551E+09	1.821E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		3.957E-04	POROUS ALUMINUM	P N B	45
46	1.911E-04	6.506E-03	6.215E+09	1.827E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.000E-04	POROUS ALUMINUM	P N B	46
47	1.931E-04	6.698E-03	5.901E+09	1.832E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.042E-04	POROUS ALUMINUM	P N B	47
48	1.951E-04	6.891E-03	5.605E+09	1.838E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.084E-04	POROUS ALUMINUM	P N B	48
49	1.972E-04	7.086E-03	5.328E+09	1.843E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.127E-04	POROUS ALUMINUM	P N B	49
50	1.992E-04	7.283E-03	5.067E+09	1.848E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.169E-04	POROUS ALUMINUM	P N B	50

• • • SHI MIFFI TEST RUN OF POROUS ALUMINUM • • •

J	JA CM	X(J) CM	FPR ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
51	2.012E-04	7.482E-03	4.822E+09	1.853E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.211E-04	POROUS ALUMINUM	P N A	51
52	2.032E-04	7.663E-03	4.591E+09	1.858E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.254E-04	POROUS ALUMINUM	P N A	52
53	2.053E-04	7.887E-03	4.373E+09	1.862E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.296E-04	POROUS ALUMINUM	P N A	53
54	2.073E-04	8.092E-03	4.197E+09	1.866E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.338E-04	POROUS ALUMINUM	P N A	54
55	2.093E-04	8.299E-03	3.974E+09	1.871E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.381E-04	POROUS ALUMINUM	P N A	55
56	2.113E-04	8.508E-03	3.790E+09	1.875E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.423E-04	POROUS ALUMINUM	P N A	56
57	2.133E-04	8.720E-03	3.617E+09	1.879E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.465E-04	POROUS ALUMINUM	P N A	57
58	2.154E-04	8.933E-03	3.454E+09	1.883E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.508E-04	POROUS ALUMINUM	P N A	58
59	2.174E-04	9.149E-03	3.299E+09	1.888E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.550E-04	POROUS ALUMINUM	P N A	59
60	2.194E-04	9.366E-03	3.152E+09	1.892E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.592E-04	POROUS ALUMINUM	P N A	60
61	2.214E-04	9.585E-03	3.013E+09	1.896E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.635E-04	POROUS ALUMINUM	P N A	61
62	2.235E-04	9.807E-03	2.881E+09	1.896E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.677E-04	POROUS ALUMINUM	P N A	62
63	2.255E-04	1.003E-02	2.754E+09	1.899E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.719E-04	POROUS ALUMINUM	P N A	63
64	2.275E-04	1.026E-02	2.634E+09	1.902E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.762E-04	POROUS ALUMINUM	P N A	64
65	2.295E-04	1.048E-02	2.519E+09	1.905E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.804E-04	POROUS ALUMINUM	P N A	65
66	2.315E-04	1.071E-02	2.410E+09	1.908E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.846E-04	POROUS ALUMINUM	P N A	66
67	2.335E-04	1.094E-02	2.306E+09	1.910E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.889E-04	POROUS ALUMINUM	P N A	67
68	2.356E-04	1.118E-02	2.206E+09	1.913E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.931E-04	POROUS ALUMINUM	P N A	68
69	2.376E-04	1.141E-02	2.112E+09	1.915E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		4.973E-04	POROUS ALUMINUM	P N A	69
70	2.396E-04	1.165E-02	2.022E+09	1.918E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.016E-04	POROUS ALUMINUM	P N A	70
71	2.417E-04	1.189E-02	1.936E+09	1.920E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.058E-04	POROUS ALUMINUM	P N A	71
72	2.437E-04	1.213E-02	1.853E+09	1.923E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.100E-04	POROUS ALUMINUM	P N A	72
73	2.457E-04	1.238E-02	1.774E+09	1.925E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.143E-04	POROUS ALUMINUM	P N A	73
74	2.477E-04	1.262E-02	1.698E+09	1.927E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.185E-04	POROUS ALUMINUM	P N A	74
75	2.497E-04	1.287E-02	1.626E+09	1.929E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.227E-04	POROUS ALUMINUM	P N A	75
76	2.518E-04	1.312E-02	1.556E+09	1.931E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.269E-04	POROUS ALUMINUM	P N A	76
77	2.538E-04	1.337E-02	1.489E+09	1.933E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.312E-04	POROUS ALUMINUM	P N A	77
78	2.558E-04	1.362E-02	1.425E+09	1.935E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.354E-04	POROUS ALUMINUM	P N A	78
79	2.578E-04	1.388E-02	1.365E+09	1.937E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.396E-04	POROUS ALUMINUM	P N A	79
80	2.599E-04	1.414E-02	1.307E+09	1.938E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.439E-04	POROUS ALUMINUM	P N A	80
81	2.619E-04	1.440E-02	1.252E+09	1.940E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.481E-04	POROUS ALUMINUM	P N A	81
82	2.639E-04	1.466E-02	1.199E+09	1.942E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.523E-04	POROUS ALUMINUM	P N A	82
83	2.659E-04	1.492E-02	1.149E+09	1.943E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.566E-04	POROUS ALUMINUM	P N A	83
84	2.679E-04	1.519E-02	1.101E+09	1.945E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.608E-04	POROUS ALUMINUM	P N A	84
85	2.700E-04	1.546E-02	1.055E+09	1.946E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.650E-04	POROUS ALUMINUM	P N A	85
86	2.720E-04	1.573E-02	1.011E+09	1.948E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.693E-04	POROUS ALUMINUM	P N A	86
87	2.740E-04	1.600E-02	9.690E+08	1.949E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.735E-04	POROUS ALUMINUM	P N A	87
88	2.760E-04	1.627E-02	9.285E+08	1.951E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.777E-04	POROUS ALUMINUM	P N A	88
89	2.781E-04	1.655E-02	8.896E+08	1.952E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.820E-04	POROUS ALUMINUM	P N A	89
90	2.801E-04	1.683E-02	8.524E+08	1.953E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.862E-04	POROUS ALUMINUM	P N A	90
91	2.821E-04	1.711E-02	8.166E+08	1.955E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.904E-04	POROUS ALUMINUM	P N A	91
92	2.841E-04	1.739E-02	8.822E+08	1.956E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.947E-04	POROUS ALUMINUM	P N A	92
93	2.861E-04	1.767E-02	8.312E+08	1.957E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		5.989E-04	POROUS ALUMINUM	P N A	93
94	2.882E-04	1.796E-02	8.016E+08	1.958E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		6.031E-04	POROUS ALUMINUM	P N A	94
95	2.902E-04	1.825E-02	7.724E+08	1.959E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		6.074E-04	POROUS ALUMINUM	P N A	95
96	2.922E-04	1.854E-02	7.454E+08	1.960E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		6.116E-04	POROUS ALUMINUM	P N A	96
97	2.942E-04	1.883E-02	7.191E+08	1.961E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		6.158E-04	POROUS ALUMINUM	P N A	97
98	2.963E-04	1.913E-02	6.938E+08	1.963E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		6.201E-04	POROUS ALUMINUM	P N A	98
99	2.983E-04	1.942E-02	6.695E+08	1.964E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		6.243E-04	POROUS ALUMINUM	P N A	99
100	3.003E-04	1.972E-02	6.462E+08	1.964E+01	6.673E+06	3.994E+05	2.093E+00-1.081E+11		6.285E-04	POROUS ALUMINUM	P N A	100

• • • SHI DIFFI TEST RUN OF POROUS ALUMINUM • • •

J	DX CM	X(J) CM	EPG ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
101	3.504E-04	2.004E-02	6.221E+08	1.966E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	7.334E-04	POROUS ALUMINUM	P N B	101
102	3.654E-04	2.037E-02	5.940E+08	1.967E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	7.616E-04	POROUS ALUMINUM	P N B	102
103	3.774E-04	2.073E-02	5.722E+08	1.968E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	7.898E-04	POROUS ALUMINUM	P N B	103
104	3.908E-04	2.111E-02	5.498E+08	1.969E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	8.190E-04	POROUS ALUMINUM	P N B	104
105	4.043E-04	2.150E-02	5.244E+08	1.970E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	8.482E-04	POROUS ALUMINUM	P N B	105
106	4.178E-04	2.191E-02	5.013E+08	1.971E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	8.744E-04	POROUS ALUMINUM	P N B	106
107	4.313E-04	2.232E-02	4.748E+08	1.972E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	9.026E-04	POROUS ALUMINUM	P N B	107
108	4.447E-04	2.276E-02	4.511E+08	1.973E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	9.308E-04	POROUS ALUMINUM	P N B	108
109	4.582E-04	2.320E-02	4.266E+08	1.974E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	9.591E-04	POROUS ALUMINUM	P N B	109
110	4.717E-04	2.366E-02	4.156E+08	1.975E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	9.873E-04	POROUS ALUMINUM	P N B	110
111	4.852E-04	2.413E-02	3.898E+08	1.976E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.015E-03	POROUS ALUMINUM	P N B	111
112	4.987E-04	2.462E-02	3.748E+08	1.977E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.044E-03	POROUS ALUMINUM	P N B	112
113	5.121E-04	2.511E-02	3.585E+08	1.978E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.072E-03	POROUS ALUMINUM	P N B	113
114	5.256E-04	2.563E-02	3.409E+08	1.979E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.100E-03	POROUS ALUMINUM	P N B	114
115	5.391E-04	2.615E-02	3.239E+08	1.980E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.128E-03	POROUS ALUMINUM	P N B	115
116	5.526E-04	2.669E-02	3.077E+08	1.980E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.157E-03	POROUS ALUMINUM	P N B	116
117	5.660E-04	2.724E-02	2.921E+08	1.981E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.185E-03	POROUS ALUMINUM	P N B	117
118	5.795E-04	2.781E-02	2.772E+08	1.982E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.213E-03	POROUS ALUMINUM	P N B	118
119	5.930E-04	2.839E-02	2.629E+08	1.983E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.241E-03	POROUS ALUMINUM	P N B	119
120	6.065E-04	2.898E-02	2.493E+08	1.984E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.269E-03	POROUS ALUMINUM	P N B	120
121	6.200E-04	2.959E-02	2.363E+08	1.984E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.298E-03	POROUS ALUMINUM	P N B	121
122	6.334E-04	3.021E-02	2.239E+08	1.985E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.326E-03	POROUS ALUMINUM	P N B	122
123	6.469E-04	3.084E-02	2.121E+08	1.986E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.354E-03	POROUS ALUMINUM	P N B	123
124	6.604E-04	3.149E-02	2.009E+08	1.986E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.382E-03	POROUS ALUMINUM	P N B	124
125	6.739E-04	3.215E-02	1.902E+08	1.987E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.410E-03	POROUS ALUMINUM	P N B	125
126	6.873E-04	3.282E-02	1.800E+08	1.988E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.439E-03	POROUS ALUMINUM	P N B	126
127	7.008E-04	3.351E-02	1.703E+08	1.988E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.467E-03	POROUS ALUMINUM	P N B	127
128	7.143E-04	3.421E-02	1.611E+08	1.989E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.495E-03	POROUS ALUMINUM	P N B	128
129	7.278E-04	3.493E-02	1.524E+08	1.989E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.523E-03	POROUS ALUMINUM	P N B	129
130	7.412E-04	3.565E-02	1.441E+08	1.990E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.551E-03	POROUS ALUMINUM	P N B	130
131	7.547E-04	3.639E-02	1.363E+08	1.990E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.580E-03	POROUS ALUMINUM	P N B	131
132	7.682E-04	3.715E-02	1.288E+08	1.991E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.608E-03	POROUS ALUMINUM	P N B	132
133	7.817E-04	3.792E-02	1.217E+08	1.991E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.636E-03	POROUS ALUMINUM	P N B	133
134	7.952E-04	3.870E-02	1.151E+08	1.992E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.664E-03	POROUS ALUMINUM	P N B	134
135	8.086E-04	3.949E-02	1.087E+08	1.992E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.692E-03	POROUS ALUMINUM	P N B	135
136	8.221E-04	4.030E-02	1.027E+08	1.993E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.721E-03	POROUS ALUMINUM	P N B	136
137	8.356E-04	4.113E-02	9.715E+07	1.993E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.749E-03	POROUS ALUMINUM	P N B	137
138	8.491E-04	4.198E-02	9.187E+07	1.993E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.777E-03	POROUS ALUMINUM	P N B	138
139	8.626E-04	4.285E-02	8.689E+07	1.994E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.805E-03	POROUS ALUMINUM	P N B	139
140	8.760E-04	4.374E-02	8.178E+07	1.994E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.834E-03	POROUS ALUMINUM	P N B	140
141	8.895E-04	4.465E-02	7.723E+07	1.995E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.862E-03	POROUS ALUMINUM	P N B	141
142	9.030E-04	4.558E-02	7.293E+07	1.995E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.890E-03	POROUS ALUMINUM	P N B	142
143	9.165E-04	4.654E-02	6.884E+07	1.995E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.918E-03	POROUS ALUMINUM	P N B	143
144	9.299E-04	4.752E-02	6.502E+07	1.995E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.946E-03	POROUS ALUMINUM	P N B	144
145	9.434E-04	4.851E-02	6.139E+07	1.996E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	1.975E-03	POROUS ALUMINUM	P N B	145
146	9.569E-04	4.953E-02	5.794E+07	1.996E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	2.003E-03	POROUS ALUMINUM	P N B	146
147	9.704E-04	5.057E-02	5.472E+07	1.996E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	2.031E-03	POROUS ALUMINUM	P N B	147
148	9.838E-04	5.163E-02	5.166E+07	1.997E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	2.059E-03	POROUS ALUMINUM	P N B	148
149	9.973E-04	5.270E-02	4.876E+07	1.997E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	2.087E-03	POROUS ALUMINUM	P N B	149
150	1.011E-03	5.380E-02	4.603E+07	1.997E+01	6.673E+06	3.994E+05	2.093E+00	-1.081E+11	2.116E-03	POROUS ALUMINUM	P N B	150

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    * * *   SRI PUFF1 TEST RUN OF POROUS ALUMINUM   * * *

  J    JA       X(J)       EPG        SUMCAL      YHL(J)      C(J)       D(J)       T(J)       ZHL(J)          MATERIAL        COND    J
       CM       CM         ERGS/GM    CALS        DYN/CM2     CM/SEC     GM/CM3     DYN/CM2    GM/CM2
151 0.        5.605E-02 0.           1.997E+01 6.673E+06 3.994E+05 2.093E+00-1.000E+09 0.            POROUS ALUMINUM  P L R  151

TIME TO COMPLETE  GENMAT IS      4.108 SECONDS.


HYDRO BEGIN, N=   1 J=    1 H(J+2)=S
    SSCAL= 5.343E+07 L=   0 50
POREUST J=  1 N=    1 M= 1 1 NC= 1 EJ= 5.343E+07 DJ= 2.093E+00 CJ= 3.986E+05 P= 8.619E+06 8.619E+06 8.459E+07 MOD= 1.995E+11 1.330E+11
    D= 2.094E+00 2.750E+00 2.093E+00 TF= 1.000E+00 EOLD= 0.          CSQ= 1.548E+11 L= 12 45 57
  HAFSTEP,  J=  1, N=    1 EM= 5.343E+07 DM= 2.093E+00 PM= 8.619E+06 SDM=-9.029E-04 L=  0  0 40 43 60 67 70  0
    SSCAL= 2.671E+07 L=   5  0
HYDRO UI= 1.000E+00 W= 0.            S= 0.            C= 3.994E+05 D= 2.093E+00 T=-1.081E+11 U=-8.227E-02
      JM= 0.          UM= 2.093E+00 EM= 5.343E+07 PM= 8.619E+06 HM= 8.619E+06 XM= 5.005E-05, L=   0 330   0 800   0

HYDRO BEGIN, N=   1 J=    2 H(J+2)=N
    SSCAL= 3.885E+07 L=   0 50
POREUST J=  2 N=    1 M= 1 1 NC= 1 EJ= 3.885E+07 DJ= 2.093E+00 CJ= 3.988E+05 P= 6.279E+06 6.279E+06 6.154E+07 MOD= 1.997E+11 1.331E+11
    D= 2.094E+00 2.750E+00 2.093E+00 TF= 1.000E+00 EOLD= 0.          CSQ= 1.590E+11 L= 12 45 57
  HAFSTEP,  J=  2, N=    1 EM= 3.885E+07 DM= 2.093E+00 PM= 6.279E+06 SDM=-9.039E-04 L=  0  0 40 43 60 67 70  0
    SSCAL= 1.942E+07 L=   5  0
POREUST J=  2 N=    1 M= 1 1 NC= 1 EJ= 9.227E+07 DJ= 2.093E+00 CJ= 3.980E+05 P= 1.481E+07 1.481E+07 8.027E+07 MOD= 1.989E+11 1.326E+11
    D= 2.095E+00 2.749E+00 2.093E+00 TF= 1.001E+00 EOLD= 4.614E+07 CSQ= 1.584E+11 L= 12 45 57
  JSTRESS NC=1 MJ=1 MPJ=1 QJ= 0.          SDJ=-9.034E-04 F= 9.934E-01TJ=-1.241E+09 L= 40  0  0  0  0 60 65 67 70  0
HYDRO UI= 2.099E-10 W= 1.481E+07 S= 1.481E+07 C= 3.980E+05 D= 2.093E+00 T=-1.081E+11 U= 1.186E-02
      UM= 0.          DM= 2.093E+00 EM= 3.885E+07 PM= 6.279E+06 HM= 6.279E+06 XM= 1.512E-04, L= 102   0   0 800   0

HYDRO BEGIN, N=   1 J=    3 H(J+2)=N
    SSCAL= 2.958E+07 L=   0 50
POREUST J=  3 N=    1 M= 1 1 NC= 1 EJ= 2.958E+07 DJ= 2.093E+00 CJ= 3.989E+05 P= 4.786E+06 4.786E+06 4.690E+07 MOD= 1.998E+11 1.332E+11
    D= 2.093E+00 2.750E+00 2.093E+00 TF= 1.000E+00 EOLD= 0.          CSQ= 1.591E+11 L= 12 45 57
  HAFSTEP,  J=  3, N=    1 EM= 2.958E+07 DM= 2.093E+00 PM= 4.786E+06 SDM=-9.045E-04 L=  0  0 40 43 60 67 70  0
  JSTRESS NC=1 MJ=1 MPJ=1 QJ= 0.          SDJ=-9.042E-04 F= 9.953E-01TJ=-1.179E+09 L= 40  0  0  0  0 60 65 67 70  0
HYDRO UI= 2.140E-10 W= 1.102E+07 S= 1.102E+07 C= 3.983E+05 D= 2.093E+00 T=-1.081E+11 U= 6.915E-03
      JM= 0.          DM= 2.093E+00 EM= 2.958E+07 PM= 4.786E+06 HM= 4.786E+06 XM= 2.543E-04, L= 102   0   0 800   0

HYDRO BEGIN, N=   1 J=    4 H(J+2)=N
  HAFSTEP,  J=  4, N=    1 EM= 2.339E+07 DM= 2.093E+00 PM= 3.789E+06 SDM=-9.048E-04 L=  0  0 40 43 60 67 70  0
  JSTRESS NC=1 MJ=1 MPJ=1 QJ= 0.          SDJ=-9.046E-04 F= 9.964E-01TJ=-1.139E+09 L= 40  0  0  0  0 60 65 67 70  0
HYDRO UI= 2.191E-10 W= 8.546E+06 S= 8.546E+06 C= 3.986E+05 D= 2.093E+00 T=-1.081E+11 U= 4.533E-03
      UM= 0.          UM= 2.093E+00 EM= 2.339E+07 PM= 3.789E+06 HM= 3.789E+06 XM= 3.594E-04, L= 102   0   0 800   0

HYDRO BEGIN, N=   1 J=    5 H(J+2)=N
  HAFSTEP,  J=  5, N=    1 EM= 1.907E+07 DM= 2.093E+00 PM= 3.091E+06 SDM=-9.051E-04 L=  0  0 40 43 60 67 70  0
  JSTRESS NC=1 MJ=1 MPJ=1 QJ= 0.          SDJ=-9.050E-04 F= 9.972E-01TJ=-1.112E+09 L= 40  0  0  0  0 60 65 67 70  0
HYDRO UI= 2.222E-10 W= 6.861E+06 S= 6.860E+06 C= 3.987E+05 D= 2.093E+00 T=-1.081E+11 U= 3.113E-03
      UM= 0.          UM= 2.093E+00 EM= 1.907E+07 PM= 3.091E+06 HM= 3.091E+06 XM= 4.666E-04, L= 102   0   0 800   0
  JSTRESS NC=1 MJ=1 MPJ=1 QJ= 0.          SDJ=-9.052E-04 F= 9.977E-01TJ=-1.092E+09 L= 40  0  0  0  0 60 65 67 70  0
HYDRO COMPLETE-----N=   1, CALCULATION TIME IS      .656 SECONDS.
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HYDRO COMPLETE-----N=   2, CALCULATION TIME IS       .502 SECONDS.

HYDRO COMPLETE-----N=   3, CALCULATION TIME IS       .502 SECONDS.

HYDRO COMPLETE-----N=   4, CALCULATION TIME IS       .498 SECONDS.

 EQST, J=  1, N=   5, CSQ=  .        , EJ= 2.935E+09, DJ= 2.093E+00, PJ=-1.486E+11
 EQST, J=  2, N=   5, CSQ=  .        , EJ= 3.003E+09, DJ= 2.093E+00, PJ=-1.483E+11
HYDRO COMPLETE-----N=   5, CALCULATION TIME IS       .508 SECONDS.



  **** CRITERION FOR STOP ****

N =   5, JCYCS =   5, TIME = 3.255E-11, TS = 2.002E-08, X(JSMAX) = 4.125E-04, CKS = 3.003E+00, ISWTCH =  2, DTNM = 1.015E-11
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MOMENTUM EXIT

CYCLE	TIME	DTNM	JTS	ETOTAL	JFIN	JSTAR	JSMAX	SMAX	X(JSMAX)
5	3.2545E-11	1.0155E-11	0	1.0940F-01	152	151	6	1.4722F+08	4.1253E-04
DTPP	DTPULS	EMVNEG	EMVPOS	EMVPL	EMVPR	EMVPP	EMVRM	POTPOS	POTNEG
2.3914E-11	1.1480F-11	-3.5002E-03	3.5002E-03	1.0902F-03	1.8312E-03	3.5214E-03	0.	0.	0.
X(1)	X(JBND1)	X(JBND2)	X(JBND3)	X(JFIN)	JRMAX	RMAX	X(JRMAX)		
-0.6906E-10	5.4050E-02	0.	0.	5.0050F-02	5	1.4720E+08	4.1243E-04		

TIME EXIT NO. 1 AT N = 6, TIME = 3.2545IE-11 SECS. JSTAR = 151. CALC TIME IS 6.856 SECS

J CELL	X CM	U CM/SEC	Q DYN/CM2	P DYN/CM2	S DYN/CM2	EMF ERGS	D GM/CM3	C CM/SEC	J CELL	COND					V, NM, MU (DYN/CM2	SD OR NT OR 1/CM)
1	-.0000	-24	0.	0.	0.	2.935nE+09	2.0930	3.9940E+05	1	P	S	B	POROUS	ALUMINUM	6.673E+06	0.
2	.0001	-5	0.	0.	0.	2.1341E+09	2.0930	2.6123E+05	2	P	N	B	POROUS	ALUMINUM	6.673E+06	-4.315E+02
3	.0002	0	1.0941E+08	1.0941E+08	1.0941E+08	1.6248E+09	2.0930	2.3503E+05	3	P	N	B	POROUS	ALUMINUM	6.673E+06	4.199E+03
4	.0003	2	1.4653E+08	1.4653E+08	1.4653E+08	1.2451E+09	2.0930	3.0505E+05	4	P	N	B	POROUS	ALUMINUM	6.673E+06	4.729E+03
5	.0006	2	1.4722E+08	1.4722E+08	1.4722E+08	1.0477E+09	2.0930	3.3772E+05	5	P	N	B	POROUS	ALUMINUM	6.673E+06	3.859E+03
6	.0005	2	1.3691E+08	1.3691E+08	1.3691E+08	8.7455E+08	2.0930	3.5586E+05	6	P	N	B	POROUS	ALUMINUM	6.673E+06	2.988E+03
7	.0006	1	1.2393E+08	1.2393E+08	1.2393E+08	7.4344E+08	2.0930	3.6701E+05	7	P	N	B	POROUS	ALUMINUM	6.673E+06	2.120E+03
8	.0007	1	1.1131E+08	1.1129E+08	1.1129E+08	6.4111E+08	2.0930	3.7436E+05	8	P	N	B	POROUS	ALUMINUM	6.673E+06	1.565E+03
9	.0009	1	9.9833E+07	9.9812E+07	9.9812E+07	5.5916E+08	2.0930	3.7947E+05	9	P	N	B	POROUS	ALUMINUM	6.673E+06	1.173E+03
10	.0010	1	8.9655E+07	8.9638E+07	8.9638E+07	4.9217E+08	2.0930	3.8318E+05	10	P	N	B	POROUS	ALUMINUM	6.673E+06	8.937E+02
11	.0011	1	8.0711E+07	8.0698E+07	8.0698E+07	4.3651E+08	2.0930	3.8595E+05	11	P	N	B	POROUS	ALUMINUM	6.673E+06	6.922E+02
12	.0012	1	7.2848E+07	7.2857E+07	7.2857E+07	3.8961E+08	2.0930	3.8808E+05	12	P	N	B	POROUS	ALUMINUM	6.673E+06	5.442E+02
13	.0013	0	6.5981E+07	6.5972E+07	6.5972E+07	3.4965E+08	2.0930	3.8975E+05	13	P	N	B	POROUS	ALUMINUM	6.673E+06	4.335E+02
14	.0015	0	5.9917E+07	5.9910E+07	5.9910E+07	3.1528E+08	2.0930	3.9109E+05	14	P	N	B	POROUS	ALUMINUM	6.673E+06	3.443E+02
15	.0016	0	5.4562E+07	5.4556E+07	5.4556E+07	2.8546E+08	2.0930	3.9217E+05	15	P	N	B	POROUS	ALUMINUM	6.673E+06	2.844E+02
16	.0017	0	4.9816E+07	4.9811E+07	4.9811E+07	2.5942E+08	2.0930	3.9307E+05	16	P	N	B	POROUS	ALUMINUM	6.673E+06	2.337E+02
17	.0018	0	4.5595E+07	4.5590E+07	4.5591E+07	2.3653E+08	2.0930	3.9381E+05	17	P	N	B	POROUS	ALUMINUM	6.673E+06	1.975E+02
18	.0020	0	4.1825E+07	4.1825E+07	4.1825E+07	2.1430E+08	2.0930	3.9443E+05	18	P	N	B	POROUS	ALUMINUM	6.673E+06	1.614E+02
19	.0021	0	3.8454E+07	3.8454E+07	3.8454E+07	1.9834E+08	2.0930	3.9496E+05	19	P	N	B	POROUS	ALUMINUM	6.673E+06	1.355E+02
20	.0022	0	3.5430E+07	3.5427E+07	3.5427E+07	1.8232E+08	2.0930	3.9541E+05	20	P	N	B	POROUS	ALUMINUM	6.673E+06	1.145E+02
21	.0024	0	3.2704E+07	3.2702E+07	3.2702E+07	1.6797E+08	2.0930	3.9580E+05	21	P	N	B	POROUS	ALUMINUM	6.673E+06	9.725E+01
22	.0025	0	3.0243E+07	3.0241E+07	3.0241E+07	1.5509E+08	2.0930	3.9613E+05	22	P	N	B	POROUS	ALUMINUM	6.673E+06	8.297E+01
23	.0027	0	2.8016E+07	2.8014E+07	2.8014E+07	1.4347E+08	2.0930	3.9643E+05	23	P	N	B	POROUS	ALUMINUM	6.673E+06	7.117E+01
24	.0028	0	2.5995E+07	2.5993E+07	2.5993E+07	1.3297E+08	2.0930	3.9668E+05	24	P	N	B	POROUS	ALUMINUM	6.673E+06	6.124E+01
25	.0030	0	2.4157E+07	2.4155E+07	2.4156E+07	1.2344E+08	2.0930	3.9691E+05	25	P	N	B	POROUS	ALUMINUM	6.673E+06	5.297E+01
26	.0031	0	2.2482E+07	2.2481E+07	2.2481E+07	1.1479E+08	2.0930	3.9711E+05	26	P	N	B	POROUS	ALUMINUM	6.673E+06	4.587E+01
27	.0033	0	2.0952E+07	2.0951E+07	2.0951E+07	1.0690E+08	2.0930	3.9729E+05	27	P	N	B	POROUS	ALUMINUM	6.673E+06	3.995E+01
28	.0034	0	1.9553E+07	1.9552E+07	1.9552E+07	9.9704E+07	2.0930	3.9744E+05	28	P	N	B	POROUS	ALUMINUM	6.673E+06	3.488E+01
29	.0036	0	1.8270E+07	1.8269E+07	1.8269E+07	9.3116E+07	2.0930	3.9759E+05	29	P	N	B	POROUS	ALUMINUM	6.673E+06	3.056E+01
30	.0037	0	1.7092E+07	1.7092E+07	1.7092E+07	8.7075E+07	2.0930	3.9771E+05	30	P	N	B	POROUS	ALUMINUM	6.673E+06	2.679E+01
31	.0039	0	1.6009E+07	1.6009E+07	1.6009E+07	8.1527E+07	2.0930	3.9783E+05	31	P	N	B	POROUS	ALUMINUM	6.673E+06	2.362E+01
32	.0040	0	1.5011E+07	1.5011E+07	1.5011E+07	7.6423E+07	2.0930	3.9793E+05	32	P	N	B	POROUS	ALUMINUM	6.673E+06	2.092E+01
33	.0042	0	1.4090E+07	1.4090E+07	1.4090E+07	7.1710E+07	2.0930	3.9803E+05	33	P	N	B	POROUS	ALUMINUM	6.673E+06	1.863E+01
34	.0044	0	1.3240E+07	1.3240E+07	1.3240E+07	6.7375E+07	2.0930	3.9811E+05	34	P	N	B	POROUS	ALUMINUM	6.673E+06	1.670E+01
35	.0045	0	1.2453E+07	1.2453E+07	1.2453E+07	6.3359E+07	2.0930	3.9819E+05	35	P	N	B	POROUS	ALUMINUM	6.673E+06	1.451E+01
36	.0047	0	1.1726E+07	1.1726E+07	1.1726E+07	5.9642E+07	2.0930	3.9826E+05	36	P	N	B	POROUS	ALUMINUM	6.673E+06	1.290E+01
37	.0049	0	1.1047E+07	1.1047E+07	1.1047E+07	5.6195E+07	2.0930	3.9833E+05	37	P	N	B	POROUS	ALUMINUM	6.673E+06	1.169E+01
38	.0051	0	1.0419E+07	1.0419E+07	1.0419E+07	5.2995E+07	2.0930	3.9839E+05	38	P	N	B	POROUS	ALUMINUM	6.673E+06	1.070E+01
39	.0052	0	9.8362E+06	9.8349E+06	9.8349E+06	5.0021E+07	2.0930	3.9844E+05	39	P	N	B	POROUS	ALUMINUM	6.673E+06	9.203E+00
40	.0054	0	9.2912E+06	9.2910E+06	9.2910E+06	4.7253E+07	2.0930	3.9849E+05	40	P	N	B	POROUS	ALUMINUM	6.673E+06	8.251E+00
41	.0056	0	8.7842E+06	8.7839E+06	8.7839E+06	4.4673E+07	2.0930	3.9854E+05	41	P	N	B	POROUS	ALUMINUM	6.673E+06	7.419E+00
42	.0058	0	8.3110E+06	8.3104E+06	8.3104E+06	4.2267E+07	2.0930	3.9858E+05	42	P	N	B	POROUS	ALUMINUM	6.673E+06	6.644E+00
43	.0059	0	7.8693E+06	7.8684E+06	7.8684E+06	4.0019E+07	2.0930	3.9862E+05	43	P	N	B	POROUS	ALUMINUM	6.673E+06	6.012E+00
44	.0061	0	7.4557E+06	7.4557E+06	7.4557E+06	3.7918E+07	2.0930	3.9866E+05	44	P	N	B	POROUS	ALUMINUM	6.673E+06	5.427E+00
45	.0063	0	7.0689E+06	7.0689E+06	7.0689E+06	3.5952E+07	2.0930	3.9869E+05	45	P	N	B	POROUS	ALUMINUM	6.673E+06	4.913E+00
46	.0065	0	6.7065E+06	6.7065E+06	6.7065E+06	3.4111E+07	2.0930	3.9872E+05	46	P	N	B	POROUS	ALUMINUM	6.673E+06	4.490E+00
47	.0067	0	6.3667E+06	6.3667E+06	6.3667E+06	3.2384E+07	2.0930	3.9875E+05	47	P	N	B	POROUS	ALUMINUM	6.673E+06	4.099E+00

48	.0089	0	6.0477E+06	6.0477E+06	6.0477E+06	3.0763E+07	2.0930	3.9878E+05	48	P	N	B	POROUS	ALUMINUM	6.673E+06	3.644E+00
49	.0091	0	5.7481E+06	5.7481E+06	5.7481E+06	2.9240E+07	2.0930	3.9881E+05	49	P	N	B	POROUS	ALUMINUM	6.673E+06	3.307E+00
50	.0093	0	5.4663E+06	5.4663E+06	5.4663E+06	2.7809E+07	2.0930	3.9883E+05	50	P	N	B	POROUS	ALUMINUM	6.673E+06	3.021E+00
51	.0095	0	5.2012E+06	5.2012E+06	5.2013E+06	2.6462E+07	2.0930	3.9886E+05	51	P	N	B	POROUS	ALUMINUM	6.673E+06	2.733E+00
52	.0097	0	4.9516E+06	4.9516E+06	4.9516E+06	2.5194E+07	2.0930	3.9888E+05	52	P	N	B	POROUS	ALUMINUM	6.673E+06	2.548E+00
53	.0099	0	4.7163E+06	4.7163E+06	4.7163E+06	2.3998E+07	2.0930	3.9890E+05	53	P	N	B	POROUS	ALUMINUM	6.673E+06	2.248E+00
54	.0101	0	4.4944E+06	4.4944E+06	4.4944E+06	2.2871E+07	2.0930	3.9891E+05	54	P	N	B	POROUS	ALUMINUM	6.673E+06	2.106E+00
55	.0103	0	4.2850E+06	4.2850E+06	4.2850E+06	2.1807E+07	2.0930	3.9893E+05	55	P	N	B	POROUS	ALUMINUM	6.673E+06	1.919E+00
56	.0105	0	4.0872E+06	4.0872E+06	4.0872E+06	2.0802E+07	2.0930	3.9895E+05	56	P	N	B	POROUS	ALUMINUM	6.673E+06	1.799E+00
57	.0107	0	3.9003E+06	3.9003E+06	3.9003E+06	1.9852E+07	2.0930	3.9896E+05	57	P	N	B	POROUS	ALUMINUM	6.673E+06	1.603E+00
58	.0109	0	3.7236E+06	3.7235E+06	3.7235E+06	1.8954E+07	2.0930	3.9898E+05	58	P	N	B	POROUS	ALUMINUM	6.673E+06	1.507E+00
59	.0091	0	3.5562E+06	3.5562E+06	3.5562E+06	1.8104E+07	2.0930	3.9899E+05	59	P	N	B	POROUS	ALUMINUM	6.673E+06	1.351E+00
60	.0094	0	3.3978E+06	3.3978E+06	3.3978E+06	1.7299E+07	2.0930	3.9901E+05	60	P	N	B	POROUS	ALUMINUM	6.673E+06	1.267E+00
61	.0096	0	3.2477E+06	3.2477E+06	3.2477E+06	1.6536E+07	2.0930	3.9902E+05	61	P	N	B	POROUS	ALUMINUM	6.673E+06	1.194E+00
62	.0098	0	3.1055E+06	3.1054E+06	3.1054E+06	1.5813E+07	2.0930	3.9903E+05	62	P	N	B	POROUS	ALUMINUM	6.673E+06	1.011E+00
63	.0100	0	2.9705E+06	2.9705E+06	2.9705E+06	1.5127E+07	2.0930	3.9904E+05	63	P	N	B	POROUS	ALUMINUM	6.673E+06	1.009E+00
64	.0103	0	2.8424E+06	2.8424E+06	2.8424E+06	1.4476E+07	2.0930	3.9905E+05	64	P	N	B	POROUS	ALUMINUM	6.673E+06	9.082E-01
65	.0105	0	2.7208E+06	2.7208E+06	2.7208E+06	1.3857E+07	2.0930	3.9906E+05	65	P	N	B	POROUS	ALUMINUM	6.673E+06	8.122E-01
66	.0107	0	2.6052E+06	2.6052E+06	2.6052E+06	1.3270E+07	2.0930	3.9907E+05	66	P	N	B	POROUS	ALUMINUM	6.673E+06	8.150E-01
67	.0109	0	2.4954E+06	2.4954E+06	2.4954E+06	1.2712E+07	2.0930	3.9908E+05	67	P	N	B	POROUS	ALUMINUM	6.673E+06	6.927E-01
68	.0112	0	2.3910E+06	2.3910E+06	2.3910E+06	1.2181E+07	2.0930	3.9909E+05	68	P	N	B	POROUS	ALUMINUM	6.673E+06	6.443E-01
69	.0114	0	2.2917E+06	2.2917E+06	2.2917E+06	1.1676E+07	2.0930	3.9910E+05	69	P	N	B	POROUS	ALUMINUM	6.673E+06	6.149E-01
70	.0117	0	2.1972E+06	2.1971E+06	2.1971E+06	1.1195E+07	2.0930	3.9910E+05	70	P	N	B	POROUS	ALUMINUM	6.673E+06	5.633E-01
71	.0119	0	2.1071E+06	2.1071E+06	2.1071E+06	1.0737E+07	2.0930	3.9911E+05	71	P	N	B	POROUS	ALUMINUM	6.673E+06	5.452E-01
72	.0121	0	2.0214E+06	2.0214E+06	2.0214E+06	1.0301E+07	2.0930	3.9912E+05	72	P	N	B	POROUS	ALUMINUM	6.673E+06	4.664E-01
73	.0124	0	1.9397E+06	1.9397E+06	1.9397E+06	9.8854E+06	2.0930	3.9912E+05	73	P	N	B	POROUS	ALUMINUM	6.673E+06	4.809E-01
74	.0126	0	1.8618E+06	1.8618E+06	1.8618E+06	9.4891E+06	2.0930	3.9913E+05	74	P	N	B	POROUS	ALUMINUM	6.673E+06	4.366E-01
75	.0129	0	1.7875E+06	1.7875E+06	1.7875E+06	9.1112E+06	2.0930	3.9914E+05	75	P	N	B	POROUS	ALUMINUM	6.673E+06	3.632E-01
76	.0131	0	1.7166E+06	1.7166E+06	1.7166E+06	8.7505E+06	2.0930	3.9914E+05	76	P	N	B	POROUS	ALUMINUM	6.673E+06	4.103E-01
77	.0134	0	1.6489E+06	1.6489E+06	1.6489E+06	8.4063E+06	2.0930	3.9915E+05	77	P	N	B	POROUS	ALUMINUM	6.673E+06	3.348E-01
78	.0136	0	1.5843E+06	1.5843E+06	1.5843E+06	8.0777E+06	2.0930	3.9915E+05	78	P	N	B	POROUS	ALUMINUM	6.673E+06	2.908E-01
79	.0139	0	1.5227E+06	1.5227E+06	1.5227E+06	7.7638E+06	2.0930	3.9916E+05	79	P	N	B	POROUS	ALUMINUM	6.673E+06	2.809E-01
80	.0141	0	1.4637E+06	1.4637E+06	1.4637E+06	7.4639E+06	2.0930	3.9916E+05	80	P	N	B	POROUS	ALUMINUM	6.673E+06	3.849E-01
81	.0144	0	1.4074E+06	1.4074E+06	1.4074E+06	7.1772E+06	2.0930	3.9917E+05	81	P	N	B	POROUS	ALUMINUM	6.673E+06	2.717E-01
82	.0147	0	1.3536E+06	1.3536E+06	1.3536E+06	6.9032E+06	2.0930	3.9917E+05	82	P	N	B	POROUS	ALUMINUM	6.673E+06	2.074E-01
83	.0149	0	1.3021E+06	1.3021E+06	1.3021E+06	6.6411E+06	2.0930	3.9917E+05	83	P	N	B	POROUS	ALUMINUM	6.673E+06	2.292E-01
84	.0152	0	1.2528E+06	1.2528E+06	1.2528E+06	6.3903E+06	2.0930	3.9918E+05	84	P	N	B	POROUS	ALUMINUM	6.673E+06	2.219E-01
85	.0155	0	1.2057E+06	1.2057E+06	1.2057E+06	6.1504E+06	2.0930	3.9918E+05	85	P	N	B	POROUS	ALUMINUM	6.673E+06	2.437E-01
86	.0157	0	1.1606E+06	1.1606E+06	1.1606E+06	5.9207E+06	2.0930	3.9919E+05	86	P	N	B	POROUS	ALUMINUM	6.673E+06	1.821E-01
87	.0160	0	1.1174E+06	1.1174E+06	1.1174E+06	5.7008E+06	2.0930	3.9919E+05	87	P	N	B	POROUS	ALUMINUM	6.673E+06	1.776E-01
88	.0163	0	1.0760E+06	1.0760E+06	1.0760E+06	5.4902E+06	2.0930	3.9919E+05	88	P	N	B	POROUS	ALUMINUM	6.673E+06	1.721E-01
89	.0165	0	1.0364E+06	1.0364E+06	1.0364E+06	5.2884E+06	2.0930	3.9919E+05	89	P	N	B	POROUS	ALUMINUM	6.673E+06	1.676E-01
90	.0168	0	9.9845E+05	9.9844E+05	9.9844E+05	5.0950E+06	2.0930	3.9920E+05	90	P	N	B	POROUS	ALUMINUM	6.673E+06	1.006E-01
91	.0171	0	9.6206E+05	9.6205E+05	9.6205E+05	4.9097E+06	2.0930	3.9920E+05	91	P	N	B	POROUS	ALUMINUM	6.673E+06	1.585E-01
92	.0174	0	9.2718E+05	9.2717E+05	9.2717E+05	4.7320E+06	2.0930	3.9920E+05	92	P	N	B	POROUS	ALUMINUM	6.673E+06	1.073E-01
93	.0177	0	8.9372E+05	8.9372E+05	8.9372E+05	4.5616E+06	2.0930	3.9921E+05	93	P	N	B	POROUS	ALUMINUM	6.673E+06	9.875E-02
94	.0180	0	8.6164E+05	8.6163E+05	8.6163E+05	4.3981E+06	2.0930	3.9921E+05	94	P	N	B	POROUS	ALUMINUM	6.673E+06	1.994E-01
95	.0182	0	8.3086E+05	8.3085E+05	8.3085E+05	4.2413E+06	2.0930	3.9921E+05	95	P	N	B	POROUS	ALUMINUM	6.673E+06	9.241E-02
96	.0185	0	8.0132E+05	8.0131E+05	8.0132E+05	4.0904E+06	2.0930	3.9921E+05	96	P	N	B	POROUS	ALUMINUM	6.673E+06	8.870E-02
97	.0188	0	7.7297E+05	7.7296E+05	7.7296E+05	3.9453E+06	2.0930	3.9922E+05	97	P	N	B	POROUS	ALUMINUM	6.673E+06	8.870E-02
98	.0191	0	7.4575E+05	7.4575E+05	7.4575E+05	3.8077E+06	2.0930	3.9922E+05	98	P	N	B	POROUS	ALUMINUM	6.673E+06	1.741E-01
99	.0194	0	7.1961E+05	7.1961E+05	7.1961E+05	3.6744E+06	2.0930	3.9922E+05	99	P	N	B	POROUS	ALUMINUM	6.673E+06	8.335E-02
100	.0197	0	6.9450E+05	6.9450E+05	6.9450E+05	3.5454E+06	2.0930	3.9922E+05	100	P	N	B	POROUS	ALUMINUM	6.673E+06	3.242E-02
101	.0200	0	6.6947E+05	6.6947E+05	6.6947E+05	3.4160E+06	2.0930	3.9922E+05	101	P	N	B	POROUS	ALUMINUM	6.673E+06	6.976E-02
102	.0204	0	6.4347E+05	6.4347E+05	6.4347E+05	3.2760E+06	2.0930	3.9923E+05	102	P	N	B	POROUS	ALUMINUM	6.673E+06	1.079E-01
103	.0207	0	6.1717E+05	6.1717E+05	6.1717E+05	3.1405E+06	2.0930	3.9923E+05	103	P	N	B	POROUS	ALUMINUM	6.673E+06	6.433E-02
104	.0211	0	5.9138E+05	5.9138E+05	5.9138E+05	3.0077E+06	2.0930	3.9923E+05	104	P	N	B	POROUS	ALUMINUM	6.673E+06	2.245E-02
105	.0215	0	5.6613E+05	5.6613E+05	5.6613E+05	2.8779E+06	2.0930	3.9923E+05	105	P	N	B	POROUS	ALUMINUM	6.673E+06	5.849E-02
106	.0219	0	5.4149E+05	5.4149E+05	5.4149E+05	2.7514E+06	2.0930	3.9923E+05	106	P	N	B	POROUS	ALUMINUM	6.673E+06	5.527E-02
107	.0223	0	5.1749E+05	5.1749E+05	5.1749E+05	2.6283E+06	2.0930	3.9924E+05	107	P	N	B	POROUS	ALUMINUM	6.673E+06	5.255E-02
108	.0228	0	4.9415E+05	4.9415E+05	4.9415E+05	2.5087E+06	2.0930	3.9924E+05	108	P	N	B	POROUS	ALUMINUM	6.673E+06	4.983E-02
109	.0232	0	4.7151E+05	4.7151E+05	4.7151E+05	2.3928E+06	2.0930	3.9924E+05	109	P	N	B	POROUS	ALUMINUM	6.673E+06	1.671E-02

110	.0237	0	4.4459E+05	4.4459E+05	4.4459E+05	2.2807E+05	2.0930	3.9924E+05	110	P	N	B	POROUS	ALUMINUM	6.673E+06	4.621E-02
111	.0241	0	4.2839E+05	4.2839E+05	4.2839E+05	2.1724E+06	2.0930	3.9924E+05	111	P	N	B	POROUS	ALUMINUM	6.673E+06	4.448E-02
112	.0246	0	4.0792E+05	4.0792E+05	4.0792E+05	2.0479E+06	2.0930	3.9924E+05	112	P	N	B	POROUS	ALUMINUM	6.673E+06	1.178E-02
113	.0251	0	3.8820E+05	3.8820E+05	3.8820E+05	1.9473E+06	2.0930	3.9924E+05	113	P	N	B	POROUS	ALUMINUM	6.673E+06	3.987E-02
114	.0256	0	3.6922E+05	3.6922E+05	3.6922E+05	1.8705E+06	2.0930	3.9925E+05	114	P	N	B	POROUS	ALUMINUM	6.673E+06	3.806E-02
115	.0262	0	3.5097E+05	3.5097E+05	3.5097E+05	1.7776E+06	2.0930	3.9925E+05	115	P	N	B	POROUS	ALUMINUM	6.673E+06	9.967E-03
116	.0267	0	3.3346E+05	3.3345E+05	3.3345E+05	1.6884E+06	2.0930	3.9925E+05	116	P	N	B	POROUS	ALUMINUM	6.673E+06	3.536E-02
117	.0272	0	3.1666E+05	3.1666E+05	3.1666E+05	1.6030E+06	2.0930	3.9925E+05	117	P	N	B	POROUS	ALUMINUM	6.673E+06	8.155E-03
118	.0276	0	3.0057E+05	3.0057E+05	3.0057E+05	1.5212E+06	2.0930	3.9925E+05	118	P	N	B	POROUS	ALUMINUM	6.673E+06	3.262E-02
119	.0281	0	2.8518E+05	2.8518E+05	2.8518E+05	1.4430E+06	2.0930	3.9925E+05	119	P	N	B	POROUS	ALUMINUM	6.673E+06	7.269E-03
120	.0290	0	2.7047E+05	2.7047E+05	2.7047E+05	1.3683E+06	2.0930	3.9925E+05	120	P	N	B	POROUS	ALUMINUM	6.673E+06	5.437E-03
121	.0296	0	2.5643E+05	2.5643E+05	2.5643E+05	1.2970E+06	2.0930	3.9926E+05	121	P	N	B	POROUS	ALUMINUM	6.673E+06	6.343E-03
122	.0302	0	2.4302E+05	2.4302E+05	2.4302E+05	1.2289E+06	2.0930	3.9926E+05	122	P	N	B	POROUS	ALUMINUM	6.673E+06	2.899E-02
123	.0308	0	2.3025E+05	2.3025E+05	2.3025E+05	1.1641E+06	2.0930	3.9926E+05	123	P	N	B	POROUS	ALUMINUM	6.673E+06	4.984E-02
124	.0315	0	2.1807E+05	2.1807E+05	2.1807E+05	1.1026E+06	2.0930	3.9926E+05	124	P	N	B	POROUS	ALUMINUM	6.673E+06	4.531E-03
125	.0321	0	2.0648E+05	2.0648E+05	2.0648E+05	1.0436E+06	2.0930	3.9926E+05	125	P	N	B	POROUS	ALUMINUM	6.673E+06	4.531E-03
126	.0328	0	1.9546E+05	1.9546E+05	1.9546E+05	9.8778E+05	2.0930	3.9926E+05	126	P	N	B	POROUS	ALUMINUM	6.673E+06	2.718E-03
127	.0335	0	1.8498E+05	1.8497E+05	1.8497E+05	9.3468E+05	2.0930	3.9926E+05	127	P	N	B	POROUS	ALUMINUM	6.673E+06	2.718E-03
128	.0342	0	1.7501E+05	1.7501E+05	1.7501E+05	8.8424E+05	2.0930	3.9926E+05	128	P	N	B	POROUS	ALUMINUM	6.673E+06	2.718E-03
129	.0349	0	1.6555E+05	1.6555E+05	1.6555E+05	8.3635E+05	2.0930	3.9926E+05	129	P	N	B	POROUS	ALUMINUM	6.673E+06	1.812E-03
130	.0357	0	1.5657E+05	1.5657E+05	1.5657E+05	7.9090E+05	2.0930	3.9926E+05	130	P	N	B	POROUS	ALUMINUM	6.673E+06	1.812E-03
131	.0364	0	1.4805E+05	1.4805E+05	1.4805E+05	7.4779E+05	2.0930	3.9926E+05	131	P	N	B	POROUS	ALUMINUM	6.673E+06	1.812E-03
132	.0371	0	1.3997E+05	1.3997E+05	1.3997E+05	7.0691E+05	2.0930	3.9926E+05	132	P	N	B	POROUS	ALUMINUM	6.673E+06	3.987E-02
133	.0379	0	1.3231E+05	1.3231E+05	1.3231E+05	6.6816E+05	2.0930	3.9926E+05	133	P	N	B	POROUS	ALUMINUM	6.673E+06	1.812E-03
134	.0387	0	1.2506E+05	1.2506E+05	1.2506E+05	6.3151E+05	2.0930	3.9927E+05	134	P	N	B	POROUS	ALUMINUM	6.673E+06	9.062E-04
135	.0395	0	1.1818E+05	1.1818E+05	1.1818E+05	5.9668E+05	2.0930	3.9927E+05	135	P	N	B	POROUS	ALUMINUM	6.673E+06	1.812E-03
136	.0403	0	1.1166E+05	1.1166E+05	1.1166E+05	5.6376E+05	2.0930	3.9927E+05	136	P	N	B	POROUS	ALUMINUM	6.673E+06	9.062E-04
137	.0411	0	1.0549E+05	1.0549E+05	1.0549E+05	5.3259E+05	2.0930	3.9927E+05	137	P	N	B	POROUS	ALUMINUM	6.673E+06	9.062E-04
138	.0420	0	9.9658E+04	9.9658E+04	9.9658E+04	5.0310E+05	2.0930	3.9927E+05	138	P	N	B	POROUS	ALUMINUM	6.673E+06	9.062E-04
139	.0428	0	9.4135E+04	9.4135E+04	9.4135E+04	4.7520E+05	2.0930	3.9927E+05	139	P	N	B	POROUS	ALUMINUM	6.673E+06	9.062E-04
140	.0437	0	8.8911E+04	8.8911E+04	8.8911E+04	4.4880E+05	2.0930	3.9927E+05	140	P	N	B	POROUS	ALUMINUM	6.673E+06	9.062E-04
141	.0445	0	8.3970E+04	8.3970E+04	8.3970E+04	4.2384E+05	2.0930	3.9927E+05	141	P	N	B	POROUS	ALUMINUM	6.673E+06	9.062E-04
142	.0454	0	7.9298E+04	7.9298E+04	7.9298E+04	4.0024E+05	2.0930	3.9927E+05	142	P	N	B	POROUS	ALUMINUM	6.673E+06	-3.027E-09
143	.0463	0	7.4880E+04	7.4880E+04	7.4880E+04	3.7793E+05	2.0930	3.9927E+05	143	P	N	B	POROUS	ALUMINUM	6.673E+06	-2.704E-09
144	.0473	0	7.0705E+04	7.0705E+04	7.0705E+04	3.5685E+05	2.0930	3.9927E+05	144	P	N	B	POROUS	ALUMINUM	6.673E+06	-2.541E-09
145	.0482	0	6.6758E+04	6.6758E+04	6.6758E+04	3.3692E+05	2.0930	3.9927E+05	145	P	N	B	POROUS	ALUMINUM	6.673E+06	-1.886E-08
146	.0491	0	6.3029E+04	6.3029E+04	6.3029E+04	3.1809E+05	2.0930	3.9927E+05	146	P	N	B	POROUS	ALUMINUM	6.673E+06	-2.328E-09
147	.0501	0	5.9505E+04	5.9505E+04	5.9505E+04	3.0030E+05	2.0930	3.9927E+05	147	P	N	B	POROUS	ALUMINUM	6.673E+06	-1.676E-08
148	.0511	0	5.6177E+04	5.6177E+04	5.6177E+04	2.8350E+05	2.0930	3.9927E+05	148	P	N	B	POROUS	ALUMINUM	6.673E+06	-2.095E-09
149	.0520	0	5.3033E+04	5.3033E+04	5.3033E+04	2.6762E+05	2.0930	3.9927E+05	149	P	N	B	POROUS	ALUMINUM	6.673E+06	-2.095E-09
150	.0530	0	5.0062E+04	5.0063E+04	5.0062E+04	2.5263E+05	2.0930	3.9927E+05	150	P	N	B	POROUS	ALUMINUM	6.673E+06	-5.592E-01
151	.0540	0	0.	0.	0.	0.	2.0930	3.9940E+05	151	P	L	B	POROUS	ALUMINUM	6.673E+06	0.

SCRIBE OUTPUT. TIME IN MICROSECS. S IN KBARS. DTNM IN NANOSECS. DELTIM IN SECS

N	TIME	S12/SDJ1	S23/SDJ2	S34/SDJ3	S(5)	S(20)	S(40)	S(60)	S(80)	S(100)	JTS	DTNM	DELTIM
1	.000	-.000	-.000	-.000	.007M	.001M	.000M	.000M	.000M	.000M	2	.001	4.74M
2	.000	.000	.000	.000	.045M	.008M	.002M	.001M	.000M	.000M	2	.006	.5M4
3	.000	.000	.000	.000	.084M	.015M	.004M	.001M	.001M	.000M	3	.007	.5M8
4	.000	.000	.000	.000	.143M	.025M	.006M	.002M	.001M	.000M	5	.008	.5M2
5	.000	.000	.000	.000	.197M	.035M	.009M	.003M	.001M	.001M	6	.010	.5M4

TIME IN SCRIBE = .04M
COMPUTING TIME = M.102
PLOTTING TIME = 0.000
TOTAL TIME = M.102

3. Test No. 103

Problem 103 is a complete computation with the same data as the trial run, Test No. 101. The listing included in the following pages contains the input data, the initial layout, and two pages of the stress histories. In addition, graphs of the EDITs (stress as a function of coordinate location) and of the stress histories at one coordinate point near the radiated surface are given.

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                    **** SRI PUFF 1 (6400 VERSION) ****

MDATE= 11/13/6*    IDENT= 143  PUFF TEST OF POROUS ALUMINUM

RADIATION DEPOSITION IN 0.02 CM OF POROUS ALUMINUM.  THE RADIATION SOURCE
IS A BLACK BODY WITH A TEMPERATURE OF 1 KEV, RADIATING 20 CALORIES OVER A
PERIOD OF 5 NANOSECS.  THE POROUS ALUMINUM HAS THE SAME PROPERTIES AS ONE
TESTED EXPERIMENTALLY AT SRI AND EMPLOYED IN THE IMPACT CALCULATION.
PROBLEM 200.


        * * *   SRI PUFF1 TEST RUN OF POROUS ALUMINUM   * * *
1 NTEDT =         13  NJEDT =          6 NREZON=          3 NSEPPAT=         -1
2 TEDITS= 5.000E-09 1.000E-08 2.000E-08 5.000E-08 7.000E-08 1.000E-07 2.000E-07
          5.000E-07 8.000E-07 1.000E-06 1.200E-06 1.500E-06 1.800E-06
3 JEDITS=    5   20   50   80  110  140
4 NTR =      1    4    8
5 JREZON=  110  130  160
6 NEDIT=     300 NEDIT=       10000 NPERN=          1 MAXPRN =         -0
7 STOPS          JCYCS =       2000  CKS =   3.000E+00  TS =     2.000E-06
8 NMTRLS=        1  MATFL =        0  UZERO =  0.       IPLOT =         -1

POROUS ALUMINUM      RHOS=    2.717E+00 NSR =   0 NYAM =  3 NPOR =  3 NCON =  1
 EQSTC =  7.300E+11  EQSTD =  1.720E+12  EQSTE =  1.200E+11  EQSTG =  2.130E+00
 EQSTH =  2.300E-01  EQSTS =  4.000E+11 EQSTN=    1.051E+00 EQSTA=    7.928E-12
COSU =    2.000E+00      C1=  2.000E-01      C2=  0.
TENS(1)= -1.000E+11 TENS(2)= -1.000E+09 TENS(3)= -1.000E+10
YOS =     3.200E+09   MU  =   2.740E+11  YADD =   7.780E+09
FMELT =   6.590E+09 2.400E+00 1.500E-01 2.500E-01 1.000E-01
 RMOP=    2.090E+00 2.210E+00 2.550E+00 2.740E+00 2.740E+00 2.780E+00
 COSU =      2.0000    2.0000    2.0000    2.0000    2.0000
 C1=          .2000     .2000     .2000     .2000     .2000
1   P2 =  7.000E+08  DELP =   1.000E+08  YADD =   4.000E+08
2   P2 =  1.900E+09  DELP =   3.200E+08  YADD =   3.000E+07
3   P2 =  8.000E+09  DELP =   9.220E+08  YADD =   1.700E+09
 AK=      2.000E+11  MUP =    1.000E+11  YO=      1.000E+07
   NOE= 0    RMOC = 2.090E+00
EDGES=    1.559E+00 3.099E+01 4.132E+01 4.958E+01 6.198E+01 8.264E+01
AA=       9.267E+02 1.535E+04 3.161E+03 8.951E+02 1.723E+02 2.793E+01 2.581E+00
P=       -2.600E+00-2.780E+00-2.323E+00-1.984E+00-1.562E+00-1.121E+00-5.876E-01
NZONES= 2       100 CELLS IN  2.000E-02 CM, DELX= 1.000E-04          -0.
                 50 CELLS IN  3.400E-02 CM, DELX= 3.500E-04          -0.

NSPEC=  1 ANGLE=    0.
          * * *   SPECTRUM NO. 1, 1 BLACK BODY   * * *
NMNU=   0 NNU=     1 NARR=    0 START=    0.      STOP=     5.000E-09
          * * *   TABLE OF NNU VALUES FOR BLACK BODY ENERGY   * * *
6.287E-01 8.118E-01 9.464E-01 1.058E+00 1.155E+00 1.242E+00 1.322E+00 1.397E+00
1.468E+00 1.535E+00 1.599E+00 1.660E+00 1.720E+00 1.777E+00 1.831E+00 1.888E+00
1.942E+00 1.994E+00 2.040E+00 2.090E+00 2.140E+00 2.190E+00 2.244E+00 2.292E+00
2.340E+00 2.388E+00 2.435E+00 2.481E+00 2.528E+00 2.574E+00 2.620E+00 2.666E+00
2.712E+00 2.757E+00 2.803E+00 2.849E+00 2.895E+00 2.940E+00 2.986E+00 3.032E+00
3.078E+00 3.124E+00 3.171E+00 3.217E+00 3.264E+00 3.311E+00 3.359E+00 3.406E+00
3.454E+00 3.503E+00 3.552E+00 3.601E+00 3.651E+00 3.701E+00 3.752E+00 3.804E+00
3.856E+00 3.908E+00 3.962E+00 4.016E+00 4.071E+00 4.127E+00 4.184E+00 4.242E+00
4.300E+00 4.360E+00 4.421E+00 4.484E+00 4.548E+00 4.613E+00 4.680E+00 4.748E+00
4.818E+00 4.891E+00 4.965E+00 5.042E+00 5.121E+00 5.203E+00 5.288E+00 5.376E+00
5.468E+00 5.563E+00 5.664E+00 5.769E+00 5.880E+00 5.997E+00 6.122E+00 6.255E+00
6.398E+00 6.553E+00 6.723E+00 6.909E+00 7.119E+00 7.357E+00 7.634E+00 7.960E+00
8.390E+00 8.972E+00 9.942E+00 1.009E+01 1.025E+01 1.043E+01 1.064E+01 1.088E+01
1.118E+01 1.157E+01 1.210E+01 1.303E+01 1.500E+01
TEMP=     1.000E+00   SCAL=   2.000E-01

AGAINST
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• • • SHI PUFF1 TEST RUN OF POROUS ALUMINUM • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
1	1.000E-04	0.	5.374E+11	2.684E+00	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.000E-04	POROUS ALUMINUM	P S B	1
2	1.020E-04	1.000E-04	3.905E+11	4.674E+00	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.132E-04	POROUS ALUMINUM	P N B	2
3	1.040E-04	2.020E-04	2.971E+11	6.217E+00	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.174E-04	POROUS ALUMINUM	P N B	3
4	1.061E-04	3.061E-04	2.349E+11	7.661E+00	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.217E-04	POROUS ALUMINUM	P N A	4
5	1.081E-04	4.121E-04	1.914E+11	8.994E+00	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.259E-04	POROUS ALUMINUM	P N A	5
6	1.101E-04	5.202E-04	1.598E+11	9.372E+00	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.301E-04	POROUS ALUMINUM	P N A	6
7	1.121E-04	6.303E-04	1.358E+11	1.013E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.343E-04	POROUS ALUMINUM	P N B	7
8	1.141E-04	7.424E-04	1.171E+11	1.080E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.386E-04	POROUS ALUMINUM	P N B	8
9	1.162E-04	8.566E-04	1.021E+11	1.139E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.428E-04	POROUS ALUMINUM	P N A	9
10	1.182E-04	9.727E-04	8.983E+10	1.192E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.470E-04	POROUS ALUMINUM	P N A	10
11	1.202E-04	1.091E-03	7.966E+10	1.240E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.512E-04	POROUS ALUMINUM	P N A	11
12	1.222E-04	1.211E-03	7.100E+10	1.283E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.554E-04	POROUS ALUMINUM	P N B	12
13	1.242E-04	1.333E-03	6.370E+10	1.323E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.597E-04	POROUS ALUMINUM	P N A	13
14	1.263E-04	1.458E-03	5.750E+10	1.359E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.639E-04	POROUS ALUMINUM	P N B	14
15	1.283E-04	1.584E-03	5.206E+10	1.392E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.681E-04	POROUS ALUMINUM	P N A	15
16	1.303E-04	1.712E-03	4.730E+10	1.423E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.723E-04	POROUS ALUMINUM	P N A	16
17	1.323E-04	1.842E-03	4.312E+10	1.452E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.766E-04	POROUS ALUMINUM	P N B	17
18	1.343E-04	1.975E-03	3.942E+10	1.478E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.808E-04	POROUS ALUMINUM	P N A	18
19	1.364E-04	2.109E-03	3.614E+10	1.503E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.850E-04	POROUS ALUMINUM	P N A	19
20	1.384E-04	2.245E-03	3.322E+10	1.526E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.892E-04	POROUS ALUMINUM	P N A	20
21	1.404E-04	2.384E-03	3.060E+10	1.547E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.934E-04	POROUS ALUMINUM	P N A	21
22	1.424E-04	2.524E-03	2.825E+10	1.567E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.977E-04	POROUS ALUMINUM	P N A	22
23	1.444E-04	2.667E-03	2.613E+10	1.586E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.019E-04	POROUS ALUMINUM	P N A	23
24	1.465E-04	2.811E-03	2.421E+10	1.604E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.061E-04	POROUS ALUMINUM	P N A	24
25	1.485E-04	2.958E-03	2.248E+10	1.621E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.103E-04	POROUS ALUMINUM	P N A	25
26	1.505E-04	3.108E-03	2.090E+10	1.636E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.146E-04	POROUS ALUMINUM	P N A	26
27	1.525E-04	3.257E-03	1.946E+10	1.651E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.188E-04	POROUS ALUMINUM	P N A	27
28	1.545E-04	3.409E-03	1.815E+10	1.665E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.230E-04	POROUS ALUMINUM	P N A	28
29	1.566E-04	3.564E-03	1.694E+10	1.678E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.272E-04	POROUS ALUMINUM	P N A	29
30	1.586E-04	3.720E-03	1.584E+10	1.691E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.314E-04	POROUS ALUMINUM	P N A	30
31	1.606E-04	3.879E-03	1.483E+10	1.703E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.357E-04	POROUS ALUMINUM	P N B	31
32	1.626E-04	4.039E-03	1.390E+10	1.714E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.399E-04	POROUS ALUMINUM	P N A	32
33	1.646E-04	4.202E-03	1.304E+10	1.725E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.441E-04	POROUS ALUMINUM	P N A	33
34	1.667E-04	4.367E-03	1.225E+10	1.735E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.483E-04	POROUS ALUMINUM	P N A	34
35	1.687E-04	4.533E-03	1.152E+10	1.745E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.526E-04	POROUS ALUMINUM	P N B	35
36	1.707E-04	4.702E-03	1.084E+10	1.754E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.568E-04	POROUS ALUMINUM	P N A	36
37	1.727E-04	4.873E-03	1.022E+10	1.763E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.610E-04	POROUS ALUMINUM	P N A	37
38	1.747E-04	5.045E-03	9.633E+09	1.771E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.652E-04	POROUS ALUMINUM	P N A	38
39	1.768E-04	5.220E-03	9.091E+09	1.779E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.694E-04	POROUS ALUMINUM	P N A	39
40	1.788E-04	5.397E-03	8.587E+09	1.787E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.737E-04	POROUS ALUMINUM	P N A	40
41	1.808E-04	5.576E-03	8.117E+09	1.794E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.779E-04	POROUS ALUMINUM	P N B	41
42	1.828E-04	5.757E-03	7.679E+09	1.801E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.821E-04	POROUS ALUMINUM	P N A	42
43	1.848E-04	5.939E-03	7.270E+09	1.808E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.863E-04	POROUS ALUMINUM	P N A	43
44	1.869E-04	6.124E-03	6.887E+09	1.814E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.906E-04	POROUS ALUMINUM	P N B	44
45	1.889E-04	6.311E-03	6.530E+09	1.820E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.948E-04	POROUS ALUMINUM	P N A	45
46	1.909E-04	6.500E-03	6.194E+09	1.826E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		3.990E-04	POROUS ALUMINUM	P N A	46
47	1.929E-04	6.691E-03	5.880E+09	1.832E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.032E-04	POROUS ALUMINUM	P N A	47
48	1.949E-04	6.884E-03	5.585E+09	1.837E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.074E-04	POROUS ALUMINUM	P N A	48
49	1.970E-04	7.079E-03	5.308E+09	1.843E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.117E-04	POROUS ALUMINUM	P N B	49
50	1.990E-04	7.276E-03	5.048E+09	1.848E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.159E-04	POROUS ALUMINUM	P N A	50

• • • SHI PHFF1 TEST RUN OF POROUS ALUMINUM • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
51	2.010E-04	7.475E-03	4.873E+09	1.852E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.201E-04	POROUS ALUMINUM	P N A	51
52	2.030E-04	7.470E-03	4.572E+09	1.857E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.243E-04	POROUS ALUMINUM	P N A	52
53	2.051E-04	7.879E-03	4.355E+09	1.862E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.286E-04	POROUS ALUMINUM	P N A	53
54	2.071E-04	8.084E-03	4.150E+09	1.866E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.328E-04	POROUS ALUMINUM	P N A	54
55	2.091E-04	8.291E-03	3.956E+09	1.870E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.370E-04	POROUS ALUMINUM	P N A	55
56	2.111E-04	8.500E-03	3.773E+09	1.874E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.412E-04	POROUS ALUMINUM	P N A	56
57	2.131E-04	8.711E-03	3.601E+09	1.878E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.454E-04	POROUS ALUMINUM	P N A	57
58	2.152E-04	8.924E-03	3.438E+09	1.881E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.497E-04	POROUS ALUMINUM	P N A	58
59	2.172E-04	9.139E-03	3.283E+09	1.885E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.539E-04	POROUS ALUMINUM	P N A	59
60	2.192E-04	9.357E-03	3.137E+09	1.888E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.581E-04	POROUS ALUMINUM	P N A	60
61	2.212E-04	9.576E-03	2.998E+09	1.892E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.623E-04	POROUS ALUMINUM	P N A	61
62	2.232E-04	9.797E-03	2.867E+09	1.895E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.666E-04	POROUS ALUMINUM	P N A	62
63	2.253E-04	1.002E-02	2.742E+09	1.898E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.708E-04	POROUS ALUMINUM	P N A	63
64	2.273E-04	1.025E-02	2.624E+09	1.901E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.750E-04	POROUS ALUMINUM	P N A	64
65	2.293E-04	1.047E-02	2.511E+09	1.904E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.792E-04	POROUS ALUMINUM	P N A	65
66	2.313E-04	1.070E-02	2.405E+09	1.907E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.834E-04	POROUS ALUMINUM	P N A	66
67	2.333E-04	1.093E-02	2.303E+09	1.909E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.877E-04	POROUS ALUMINUM	P N A	67
68	2.354E-04	1.117E-02	2.207E+09	1.912E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.919E-04	POROUS ALUMINUM	P N A	68
69	2.374E-04	1.140E-02	2.115E+09	1.914E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		4.961E-04	POROUS ALUMINUM	P N A	69
70	2.394E-04	1.164E-02	2.028E+09	1.917E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.003E-04	POROUS ALUMINUM	P N A	70
71	2.414E-04	1.188E-02	1.945E+09	1.919E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.046E-04	POROUS ALUMINUM	P N A	71
72	2.434E-04	1.212E-02	1.866E+09	1.922E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.088E-04	POROUS ALUMINUM	P N A	72
73	2.455E-04	1.236E-02	1.790E+09	1.924E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.130E-04	POROUS ALUMINUM	P N A	73
74	2.475E-04	1.261E-02	1.718E+09	1.926E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.172E-04	POROUS ALUMINUM	P N A	74
75	2.495E-04	1.286E-02	1.650E+09	1.928E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.214E-04	POROUS ALUMINUM	P N A	75
76	2.515E-04	1.311E-02	1.584E+09	1.930E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.257E-04	POROUS ALUMINUM	P N A	76
77	2.535E-04	1.336E-02	1.522E+09	1.932E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.299E-04	POROUS ALUMINUM	P N A	77
78	2.556E-04	1.361E-02	1.462E+09	1.934E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.341E-04	POROUS ALUMINUM	P N A	78
79	2.576E-04	1.387E-02	1.405E+09	1.935E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.383E-04	POROUS ALUMINUM	P N A	79
80	2.596E-04	1.412E-02	1.351E+09	1.937E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.426E-04	POROUS ALUMINUM	P N A	80
81	2.616E-04	1.438E-02	1.299E+09	1.939E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.468E-04	POROUS ALUMINUM	P N A	81
82	2.636E-04	1.465E-02	1.249E+09	1.941E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.510E-04	POROUS ALUMINUM	P N A	82
83	2.657E-04	1.491E-02	1.202E+09	1.942E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.552E-04	POROUS ALUMINUM	P N A	83
84	2.677E-04	1.517E-02	1.156E+09	1.944E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.594E-04	POROUS ALUMINUM	P N A	84
85	2.697E-04	1.544E-02	1.113E+09	1.945E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.637E-04	POROUS ALUMINUM	P N A	85
86	2.717E-04	1.571E-02	1.071E+09	1.947E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.679E-04	POROUS ALUMINUM	P N A	86
87	2.737E-04	1.598E-02	1.031E+09	1.948E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.721E-04	POROUS ALUMINUM	P N A	87
88	2.758E-04	1.626E-02	9.929E+08	1.949E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.763E-04	POROUS ALUMINUM	P N A	88
89	2.778E-04	1.653E-02	9.563E+08	1.951E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.806E-04	POROUS ALUMINUM	P N A	89
90	2.798E-04	1.681E-02	9.212E+08	1.952E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.848E-04	POROUS ALUMINUM	P N A	90
91	2.818E-04	1.709E-02	8.877E+08	1.953E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.890E-04	POROUS ALUMINUM	P N A	91
92	2.838E-04	1.737E-02	8.555E+08	1.955E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.932E-04	POROUS ALUMINUM	P N A	92
93	2.859E-04	1.766E-02	8.246E+08	1.956E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		5.974E-04	POROUS ALUMINUM	P N A	93
94	2.879E-04	1.794E-02	7.950E+08	1.957E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.017E-04	POROUS ALUMINUM	P N A	94
95	2.899E-04	1.823E-02	7.665E+08	1.958E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.059E-04	POROUS ALUMINUM	P N A	95
96	2.919E-04	1.852E-02	7.393E+08	1.959E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.101E-04	POROUS ALUMINUM	P N A	96
97	2.939E-04	1.881E-02	7.131E+08	1.960E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.143E-04	POROUS ALUMINUM	P N A	97
98	2.960E-04	1.911E-02	6.880E+08	1.961E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.186E-04	POROUS ALUMINUM	P N A	98
99	2.980E-04	1.940E-02	6.639E+08	1.962E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.228E-04	POROUS ALUMINUM	P N A	99
100	3.000E-04	1.970E-02	6.407E+08	1.963E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		6.270E-04	POROUS ALUMINUM	P N A	100

• • • SHI PUFF) TEST RUN OF POROUS ALUMINUM • • •

J	DX CM	X(J) CM	EPG ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
101	3.500E-04	2.000E-02	6.167E+08	1.964E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		7.315E-04	POROUS ALUMINUM	P N B	101
102	3.635E-04	2.035E-02	5.917E+08	1.965E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		7.597E-04	POROUS ALUMINUM	P N B	102
103	3.769E-04	2.071E-02	5.672E+08	1.966E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		7.878E-04	POROUS ALUMINUM	P N B	103
104	3.904E-04	2.109E-02	5.431E+08	1.967E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		8.160E-04	POROUS ALUMINUM	P N B	104
105	4.039E-04	2.148E-02	5.197E+08	1.968E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		8.441E-04	POROUS ALUMINUM	P N B	105
106	4.173E-04	2.188E-02	4.968E+08	1.969E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		8.723E-04	POROUS ALUMINUM	P N B	106
107	4.308E-04	2.230E-02	4.745E+08	1.970E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		9.004E-04	POROUS ALUMINUM	P N B	107
108	4.443E-04	2.273E-02	4.528E+08	1.971E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		9.286E-04	POROUS ALUMINUM	P N B	108
109	4.578E-04	2.318E-02	4.319E+08	1.972E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		9.567E-04	POROUS ALUMINUM	P N B	109
110	4.712E-04	2.363E-02	4.114E+08	1.973E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		9.849E-04	POROUS ALUMINUM	P N B	110
111	4.847E-04	2.411E-02	3.920E+08	1.974E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.013E-03	POROUS ALUMINUM	P N B	111
112	4.982E-04	2.459E-02	3.731E+08	1.975E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.041E-03	POROUS ALUMINUM	P N B	112
113	5.116E-04	2.509E-02	3.549E+08	1.976E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.069E-03	POROUS ALUMINUM	P N B	113
114	5.251E-04	2.560E-02	3.374E+08	1.977E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.097E-03	POROUS ALUMINUM	P N B	114
115	5.386E-04	2.613E-02	3.206E+08	1.978E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.126E-03	POROUS ALUMINUM	P N B	115
116	5.520E-04	2.666E-02	3.045E+08	1.979E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.154E-03	POROUS ALUMINUM	P N B	116
117	5.655E-04	2.722E-02	2.890E+08	1.980E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.182E-03	POROUS ALUMINUM	P N B	117
118	5.790E-04	2.779E-02	2.742E+08	1.980E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.210E-03	POROUS ALUMINUM	P N B	118
119	5.924E-04	2.838E-02	2.601E+08	1.981E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.238E-03	POROUS ALUMINUM	P N B	119
120	6.059E-04	2.899E-02	2.466E+08	1.982E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.266E-03	POROUS ALUMINUM	P N B	120
121	6.194E-04	2.956E-02	2.337E+08	1.983E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.295E-03	POROUS ALUMINUM	P N B	121
122	6.329E-04	3.016E-02	2.214E+08	1.983E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.323E-03	POROUS ALUMINUM	P N B	122
123	6.463E-04	3.081E-02	2.097E+08	1.984E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.351E-03	POROUS ALUMINUM	P N B	123
124	6.598E-04	3.140E-02	1.986E+08	1.985E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.379E-03	POROUS ALUMINUM	P N B	124
125	6.733E-04	3.214E-02	1.880E+08	1.985E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.407E-03	POROUS ALUMINUM	P N B	125
126	6.867E-04	3.279E-02	1.779E+08	1.986E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.435E-03	POROUS ALUMINUM	P N B	126
127	7.002E-04	3.348E-02	1.683E+08	1.986E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.463E-03	POROUS ALUMINUM	P N B	127
128	7.137E-04	3.418E-02	1.592E+08	1.987E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.492E-03	POROUS ALUMINUM	P N B	128
129	7.271E-04	3.489E-02	1.505E+08	1.988E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.520E-03	POROUS ALUMINUM	P N B	129
130	7.406E-04	3.562E-02	1.423E+08	1.988E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.548E-03	POROUS ALUMINUM	P N B	130
131	7.541E-04	3.638E-02	1.345E+08	1.989E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.576E-03	POROUS ALUMINUM	P N B	131
132	7.676E-04	3.711E-02	1.272E+08	1.989E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.604E-03	POROUS ALUMINUM	P N B	132
133	7.811E-04	3.788E-02	1.203E+08	1.990E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.632E-03	POROUS ALUMINUM	P N B	133
134	7.946E-04	3.868E-02	1.136E+08	1.990E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.660E-03	POROUS ALUMINUM	P N B	134
135	8.080E-04	3.946E-02	1.073E+08	1.990E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.689E-03	POROUS ALUMINUM	P N B	135
136	8.214E-04	4.026E-02	1.013E+08	1.991E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.717E-03	POROUS ALUMINUM	P N B	136
137	8.349E-04	4.109E-02	9.571E+07	1.991E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.745E-03	POROUS ALUMINUM	P N B	137
138	8.484E-04	4.192E-02	9.041E+07	1.992E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.773E-03	POROUS ALUMINUM	P N B	138
139	8.618E-04	4.277E-02	8.540E+07	1.992E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.801E-03	POROUS ALUMINUM	P N B	139
140	8.753E-04	4.363E-02	8.066E+07	1.992E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.829E-03	POROUS ALUMINUM	P N B	140
141	8.888E-04	4.451E-02	7.618E+07	1.993E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.858E-03	POROUS ALUMINUM	P N B	141
142	9.022E-04	4.539E-02	7.196E+07	1.993E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.886E-03	POROUS ALUMINUM	P N B	142
143	9.157E-04	4.630E-02	6.796E+07	1.993E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.914E-03	POROUS ALUMINUM	P N B	143
144	9.292E-04	4.721E-02	6.419E+07	1.994E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.942E-03	POROUS ALUMINUM	P N B	144
145	9.427E-04	4.814E-02	6.063E+07	1.994E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.970E-03	POROUS ALUMINUM	P N B	145
146	9.561E-04	4.908E-02	5.728E+07	1.994E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		1.998E-03	POROUS ALUMINUM	P N B	146
147	9.696E-04	5.004E-02	5.413E+07	1.995E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.026E-03	POROUS ALUMINUM	P N B	147
148	9.831E-04	5.101E-02	5.115E+07	1.995E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.055E-03	POROUS ALUMINUM	P N B	148
149	9.965E-04	5.199E-02	4.833E+07	1.995E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.083E-03	POROUS ALUMINUM	P N B	149
150	1.010E-03	5.299E-02	4.567E+07	1.995E+01	6.667E+06	3.995E+05	2.090E+00-1.080E+11		2.111E-03	POROUS ALUMINUM	P N B	150

• • • SHI PHFF1 TEST RUN OF POROUS ALUMINUM • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
151	0.	5.400E-02	0.	1.995E+01	6.667E+06	3.995E+05	2.000E+00	-1.000E+10	0.	POROUS ALUMINUM	P L R	151

TIME TO COMPLETE GENRAT IS 4.086 SECONDS.

SCRIBE OUTPUT, TIME IN MICROSECS, S IN KBARS, DTNM IN NANOSECS, DELTIM IN SECS

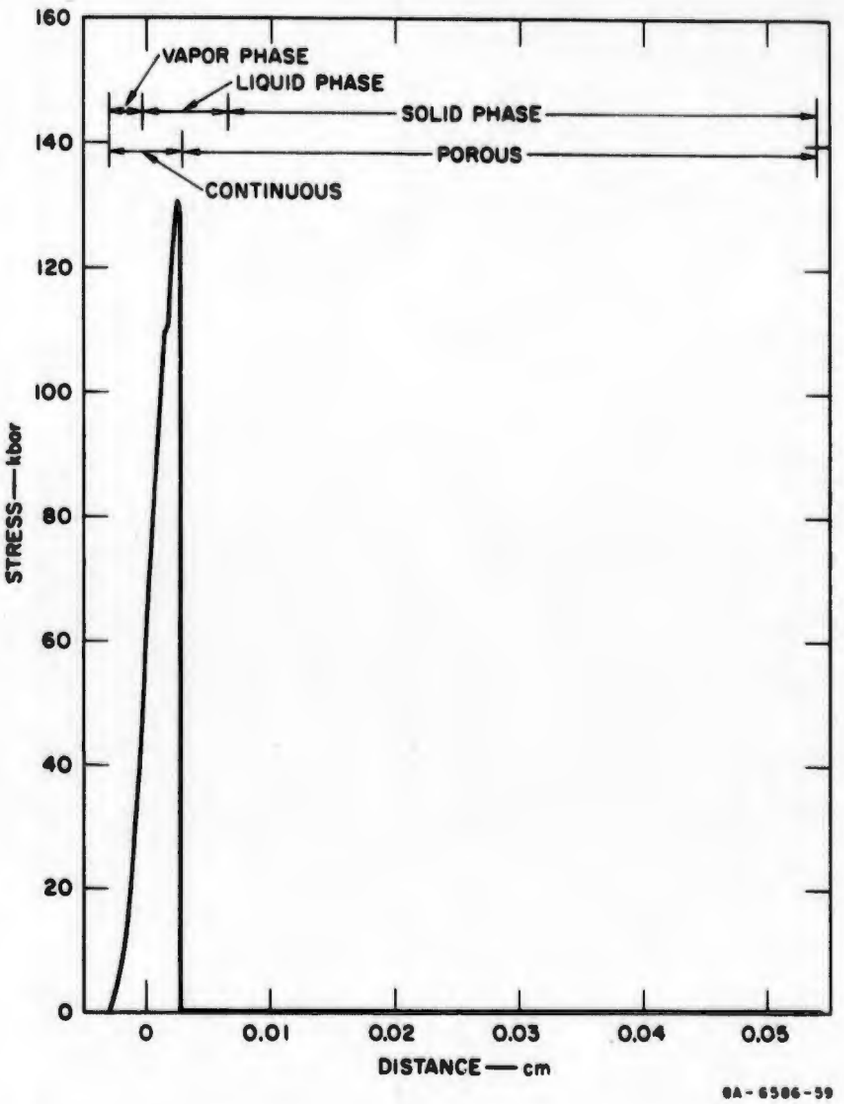
N	TIME	S12/SDJ1	S23/SDJ2	S30/SDJ3	S(100)	S(103)	S(107)	S(113)	S(121)	S(140)	JTS	DTNM	DELTIM
1	.000	-.000	-.000	-.000	.007B	.001A	.000B	.000B	.000B	.000A	2	.001	4.558
2	.000	.000	.000	.000	.005B	.000B	.001B	.000A	.000A	.000A	2	.004	.542
3	.000	.000	.000	.000	.005B	.015A	.002B	.001B	.000B	.000A	3	.007	.500
4	.000	.000	.000	.000	.122B	.024A	.004B	.001B	.000B	.000A	5	.008	.542
5	.000	.000	.000	.000	.146B	.035B	.005B	.001B	.000A	.000A	6	.010	.542
6	.000	.000	.000	.000	.136B	.047B	.007B	.002B	.001B	.000B	8	.012	.504
7	.000	-.000	.000	.000	.008B	.062A	.010B	.003B	.001B	.000A	10	.015	.504
8	.000	-.000	.000	.000	-.112B	.078B	.013B	.003B	.001B	.000B	12	.018	.500
9	.000	.000	.000	.000	.123B	.095A	.016B	.004B	.001B	.000A	2	.021	.542
10	.000	.000	.000	.000	.099B	.113A	.020B	.005B	.002B	.000A	2	.025	.408
11	.000	-.000	.000	.000	.005B	.130B	.025B	.007B	.002B	.000A	2	.030	.500
12	.000	0.000	.000	.000	0.000B	.144A	.031B	.008B	.003A	.001A	2	.036	.408
13	.000	0.000	.000	.000	0.000B	.147B	.037B	.010B	.003A	.001A	2	.044	.408
14	.000	0.000	-.000	-.000	0.000B	.132A	.045B	.012B	.004B	.001A	2	.050	.404
15	.000	0.000	-.000	.000	0.000B	.096B	.052B	.015B	.004A	.001A	2	.050	.404
16	.000	0.000	-.000	.000	0.000B	.093B	.060B	.017B	.005B	.001A	2	.050	.402
17	.000	0.000	-.000	.000	0.000B	.105B	.067B	.019B	.006B	.001A	33	.050	.404
18	.000	0.000	-.000	.000	0.000B	.114B	.073B	.021B	.007B	.001A	2	.050	.402
19	.001	0.000	-.000	.000	0.000B	.121B	.080B	.023B	.007A	.001A	36	.050	.404
20	.001	0.000	-.000	.000	0.000B	.123B	.086B	.025B	.008B	.002B	2	.050	.400
21	.001	0.000	-.000	.000	0.000B	.122B	.093B	.027B	.009B	.002A	2	.050	.400
22	.001	0.000	-.000	.000	0.000B	.116B	.098B	.029B	.009B	.002A	2	.050	.400
23	.001	0.000	-.000	.000	0.000B	.106A	.104B	.032B	.010B	.002A	3	.050	.408
24	.001	0.000	-.000	.000	0.000B	.097B	.107B	.033B	.010A	.002A	3	.050	.408
25	.001	0.000	-.000	.000	0.000B	.084B	.111B	.034B	.011B	.002A	3	.036	.408
26	.001	0.000	-.000	.000	0.000B	.064A	.115B	.036B	.011B	.002A	3	.044	.404
27	.001	0.000	.000	.000	12.224B	.037B	.120B	.038B	.012B	.002A	4	.050	.406
28	.001	0.000	.000	.000	24.777B	.014B	.123B	.040B	.012B	.002A	4	.026	.408
29	.001	0.000	0.000	.000	40.434B	0.000A	.126B	.041B	.013B	.003A	4	.043	.408
30	.001	0.000	0.000	.000	59.179B	0.000A	.130B	.043B	.014A	.003A	4	.060	.408
31	.001	0.000	0.000	.000	76.374B	0.000B	.134B	.045B	.014B	.003A	5	.050	.406
32	.001	0.000	0.000	.000	79.042B	0.000B	.135B	.046B	.014B	.003A	5	.027	.406
33	.001	0.000	0.000	.000	83.923B	0.000B	.137B	.048B	.015B	.003A	5	.032	.406
34	.001	0.000	0.000	.000	86.520B	0.000B	.139B	.049B	.016A	.003A	5	.039	.406
35	.001	0.000	0.000	.000	86.094B	0.000B	.142B	.051B	.016B	.003A	6	.046	.406
36	.001	0.000	0.000	.000	83.327B	0.000B	.144A	.053B	.017B	.003A	6	.050	.404
37	.001	0.000	0.000	.000	79.117B	0.000B	.145B	.055B	.018A	.004A	6	.050	.406
38	.001	0.000	0.000	.000	74.530B	0.000B	.146B	.057B	.018A	.004A	6	.050	.404
39	.001	0.000	0.000	.000	69.760B	0.000B	.147B	.059B	.019B	.004A	7	.050	.404
40	.001	0.000	0.000	.000	65.487B	0.000B	.148B	.061B	.020B	.004A	7	.050	.400
41	.002	0.000	0.000	.000	62.383B	0.000B	.148B	.063B	.020B	.004A	7	.050	.406
42	.002	0.000	0.000	.000	60.083B	0.000B	.147B	.064B	.021B	.004A	8	.050	.408
43	.002	0.000	0.000	.000	61.107B	0.000B	.146B	.066B	.022B	.004A	8	.050	.406
44	.002	0.000	0.000	.000	62.828B	0.000B	.145B	.068B	.022B	.004A	8	.050	.408
45	.002	0.000	0.000	.000	65.599B	0.000B	.143B	.070B	.023B	.005A	8	.050	.400
46	.002	0.000	0.000	.000	68.894B	0.000B	.141B	.072B	.023B	.005A	9	.050	.404
47	.002	0.000	0.000	.000	72.065B	0.000B	.138B	.074B	.024B	.005A	9	.047	.400
48	.002	0.000	0.000	-.000	75.092B	0.000B	.135B	.075B	.025B	.005A	9	.050	.400
49	.002	0.000	0.000	-.000	77.555B	0.000B	.131B	.077B	.025B	.005A	9	.050	.400
50	.002	0.000	0.000	-.000	79.346B	0.000B	.127B	.079B	.026B	.005B	10	.050	.408

SCRIBE OUTPUT. TIME IN MICROSECS. S IN KBARS. DTNM IN NANOSECS. DELTIM IN SECS

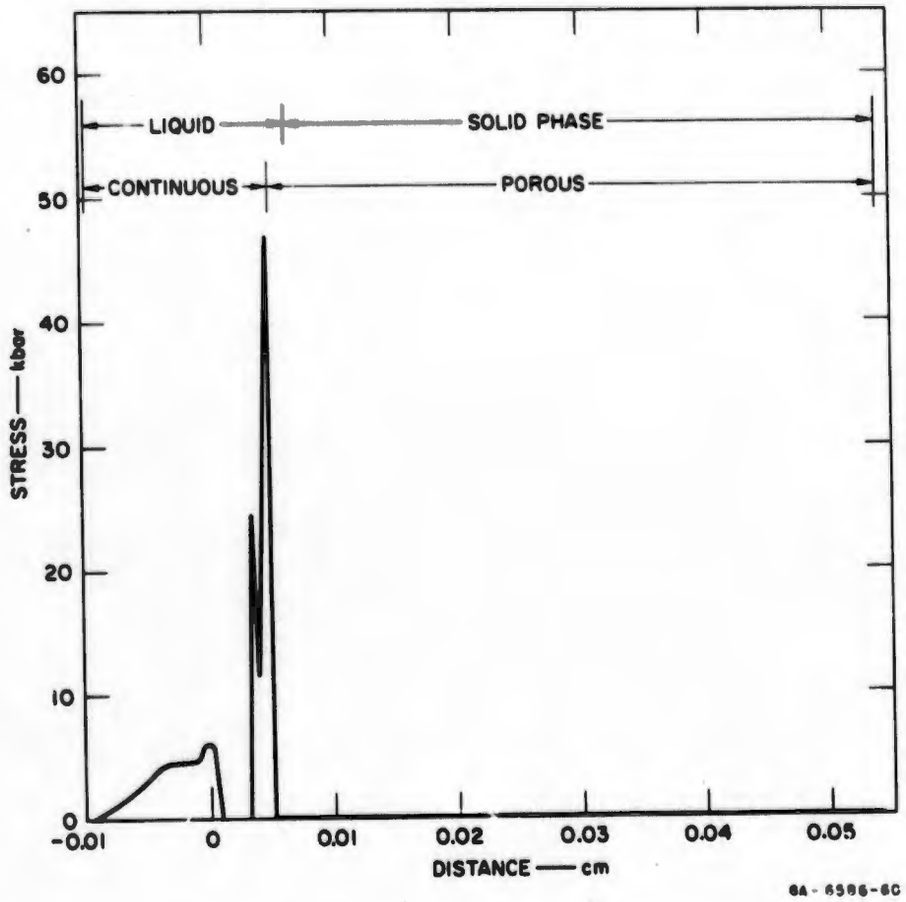
N	TIME	S12/SDJ1	S23/SDJ2	S34/SDJ3	S(100)	S(103)	S(107)	S(113)	S(121)	S(140)	JTS	DTNM	DELTIM
51	.002	0.000	0.000	-.000	80.1448	0.0008	.1238	.0808	.0268	.005R	10	.037	.496
52	.002	0.000	0.000	-.000	80.9128	0.0008	.1198	.0828	.0278	.005R	10	.045	.486
53	.002	0.000	0.000	-.000	81.4118	0.0008	.1138	.083R	.028R	.006R	9	.050	.484
54	.002	0.000	0.000	-.000	81.7718	0.0008	.1078	.0858	.028R	.006R	11	.050	.490
55	.002	0.000	0.000	-.000	82.0408	0.0008	.1038	.0868	.0298	.006R	11	.032	.486
56	.002	0.000	0.000	-.000	82.5598	0.0008	.0988	.0878	.0298	.006R	10	.038	.492
57	.002	0.000	0.000	-.000	83.3368	0.000R	.0918	.0898	.0308	.006R	10	.046	.492
58	.002	0.000	0.000	-.000	84.4588	0.0008	.0838	.0908	.0308	.006R	12	.050	.486
59	.002	0.000	0.000	-.000	85.3778	0.0008	.0848	.0928	.0318	.006R	12	.033	.496
60	.002	0.000	0.000	-.000	86.6268	0.0008	.0858	.0938	.0318	.006R	11	.040	.484
61	.002	0.000	0.000	-.000	87.6278	0.0008	.0878	.0948	.0328	.006R	12	.048	.488
62	.002	0.000	0.000	-.000	88.6618	0.0008	.0898	.0968	.0338	.007R	12	.050	.488
63	.003	0.000	0.000	-.000	89.3288	0.0008	.0918	.0978	.0338	.007R	13	.050	.488
64	.003	0.000	0.000	-.000	89.4778	0.0008	.0938	.0998	.0348	.007R	13	.035	.486
65	.003	0.000	0.000	-.000	89.5518	0.0008	.0948	.1008	.0348	.007R	12	.042	.482
66	.003	0.000	0.000	-.000	89.3088	0.0008	.0968	.1018	.0358	.007R	13	.050	.484
67	.003	0.000	0.000	-.000	89.0468	0.0008	.0988	.1038	.036R	.007R	12	.050	.490
68	.003	0.000	0.000	-.000	88.7208	0.0008	.1008	.1048	.0368	.007R	14	.050	.484
69	.003	0.000	0.000	-.000	88.5068	0.000R	.1018	.1058	.037R	.007R	14	.039	.484
70	.003	0.000	0.000	-.000	88.5018	0.0006	.1038	.1078	.037R	.008R	13	.047	.484
71	.003	0.000	0.000	-.000	88.6118	0.0008	.1048	.1088	.0388	.008R	13	.050	.488
72	.003	0.000	0.000	-.000	88.8628	0.0008	.1068	.1108	.0398	.008R	15	.050	.490
73	.003	0.000	0.000	-.000	89.1578	0.0008	.1088	.1118	.0398	.008R	15	.049	.484
74	.003	0.000	0.000	-.000	89.4148	0.0008	.1098	.1128	.040R	.008R	15	.050	.486
75	.003	0.000	0.000	-.000	89.5558	0.0008	.1108	.1148	.040R	.008R	15	.050	.486
76	.003	0.000	0.000	-.000	89.5368	0.0008	.1128	.1158	.0418	.008R	12	.050	.490
77	.003	0.000	0.000	-.000	89.3548	0.0008	.1138	.1168	.042R	.008R	16	.050	.486
78	.003	0.000	0.000	-.000	89.0308	0.0008	.1148	.1178	.0428	.009R	16	.050	.486
79	.003	0.000	0.000	-.000	88.6358	0.0008	.1158	.1198	.043R	.009R	16	.050	.486
80	.003	0.000	0.000	-.000	88.1978	0.0008	.1178	.1208	.0438	.009R	13	.050	.484
81	.003	0.000	0.000	-.000	87.7668	0.0008	.1188	.1218	.0448	.009R	17	.050	.484
82	.003	0.000	0.000	-.000	87.4478	0.0008	.1188	.1228	.0458	.009R	17	.039	.486
83	.003	0.000	0.000	-.000	87.0958	0.0008	.1198	.1238	.0458	.009R	17	.047	.482
84	.004	0.000	0.000	-.000	86.7498	0.0008	.1208	.1248	.046R	.009R	14	.050	.488
85	.004	0.000	0.000	-.000	86.4178	0.0008	.1218	.1258	.0468	.009R	14	.050	.484
86	.004	0.000	0.000	-.000	86.0828	0.0008	.1218	.1268	.047R	.010R	18	.050	.484
87	.004	0.000	0.000	-.000	85.8278	0.000R	.1228	.1278	.047R	.010R	18	.036	.482
88	.004	0.000	0.000	-.000	85.5078	0.0008	.1228	.1288	.048R	.010R	18	.043	.484
89	.004	0.000	0.000	-.000	85.1158	0.0008	.1238	.1298	.049R	.010R	15	.050	.486
90	.004	0.000	0.000	-.000	84.6998	0.0008	.1238	.1308	.049R	.010R	15	.050	.482
91	.004	0.000	0.000	-.000	84.2688	2.003R	.1238	.1318	.050R	.010R	19	.050	.484
92	.004	0.000	0.000	-.000	84.1408	2.390R	.1238	.1318	.050R	.010R	19	.017	.486
93	.004	0.000	0.000	-.000	83.9068	7.394R	.1238	.1328	.050R	.010R	18	.020	.480
94	.004	0.000	0.000	-.000	83.7438	13.985R	.1238	.1328	.051R	.010R	19	.024	.486
95	.004	0.000	0.000	-.000	83.4848	22.769R	.1238	.1338	.051R	.010R	18	.029	.480
96	.004	0.000	0.000	-.000	83.1768	34.602R	.1238	.1338	.051R	.011R	16	.035	.482
97	.004	0.000	0.000	-.000	82.8088	51.061R	.1238	.1348	.052R	.011R	16	.042	.482
98	.004	0.000	0.000	-.000	82.3748	73.329R	.1238	.1358	.052R	.011R	20	.050	.484
99	.004	0.000	0.000	-.000	81.9408	91.829R	.1238	.1368	.053R	.011R	20	.050	.484
100	.004	0.000	0.000	-.000	81.5068	107.750R	.1228	.1378	.054R	.011R	20	.050	.482

SCRIBE OUTPUT. TIME IN MICROSECS. S IN KBARS. DTNM IN NANOSECS. DELTIM IN SECS

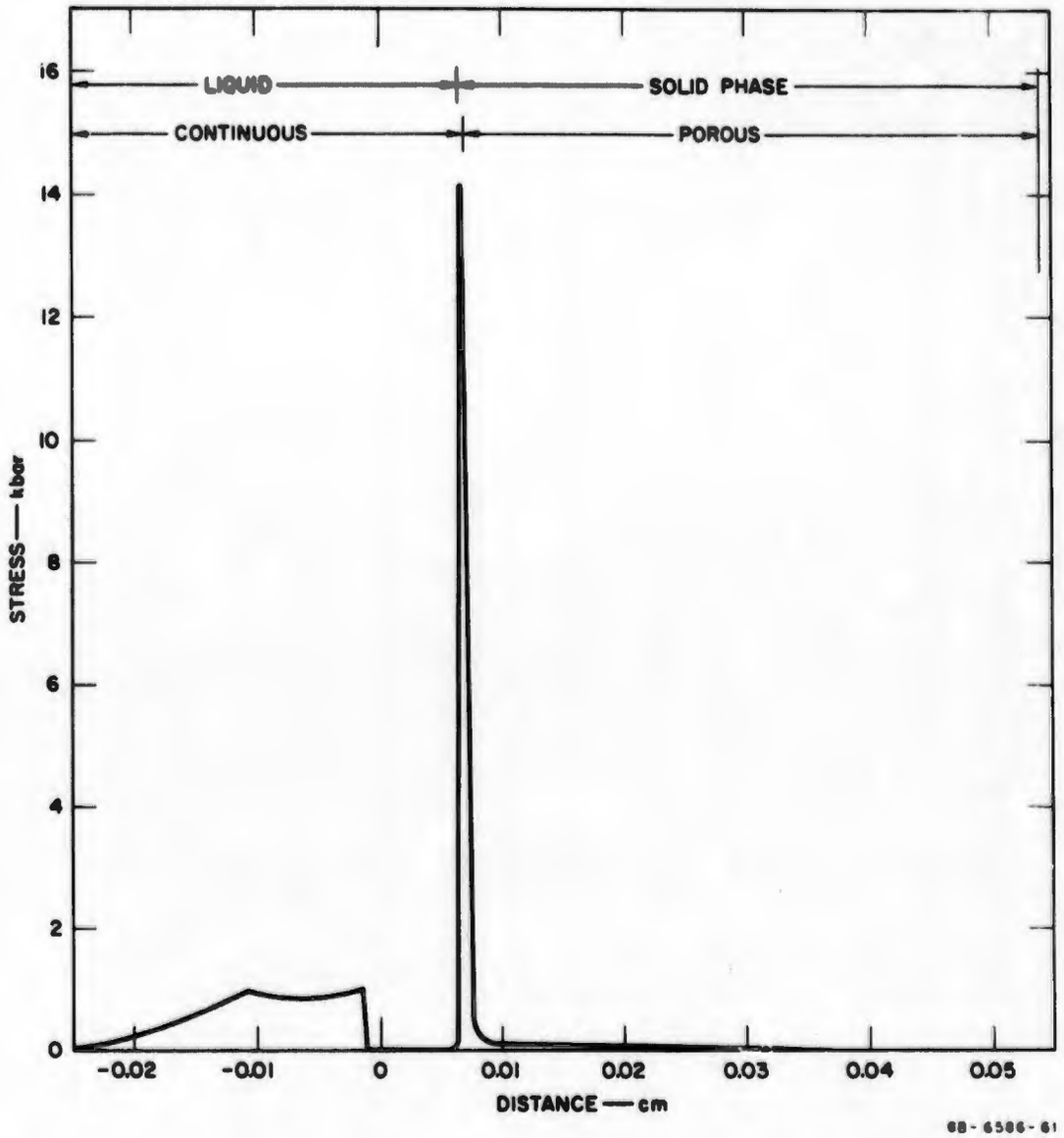
N	TIME	S12/SDJ1	S23/SDJ2	S34/SDJ3	S(100)	S(103)	S(107)	S(113)	S(121)	S(140)	JTS	DTNM	DELTIM
101	.004	0.000	0.000	-.000	81.0538	118.2168	.1228	.1378	.0548	.0118	19	.050	.400
102	.004	0.000	0.000	-.000	80.6008	122.1888	.1218	.1308	.0558	.0118	19	.050	.404
103	.004	0.000	0.000	-.000	80.1438	121.9328	.1218	.1308	.0598	.0118	21	.050	.402
104	.004	0.000	0.000	-.000	79.7098	123.7568	.1208	.1398	.0568	.0128	21	.048	.402
105	.004	0.000	0.000	-.000	79.2588	123.9888	.1198	.1408	.0578	.0128	21	.050	.478
106	.004	0.000	0.000	-.000	78.8178	124.1698	.1188	.1418	.0578	.0128	18	.050	.490
107	.005	0.000	0.000	-.000	78.3908	124.8458	.1178	.1418	.0588	.0128	18	.050	.484
108	.005	0.000	0.000	-.000	77.9768	125.7488	.1168	.1428	.0588	.0128	18	.050	.484
109	.005	0.000	0.000	-.000	77.5748	126.3008	.1158	.1438	.0598	.0128	22	.050	.486
110	.005	0.000	0.000	-.000	77.3388	126.2208	.1148	.1438	.0598	.0128	22	.032	.482
111	.005	0.000	0.000	-.000	77.0328	126.5258	.1138	.1438	.0608	.0128	21	.038	.484
112	.005	0.000	0.000	-.000	76.6698	126.9578	.1118	.1448	.0608	.0138	17	.046	.482
113	.005	0.000	0.000	-.000	76.2828	127.5428	.1108	.1448	.0618	.0138	17	.050	.486
114	.005	0.000	0.000	-.000	75.8958	128.1148	.1098	.1458	.0618	.0138	23	.050	.488
115	.005	0.000	0.000	-.000	75.6058	128.3958	.1068	.1458	.0628	.0138	23	.038	.480
116	.005	0.000	0.000	-.000	75.2398	128.4308	.1058	.1458	.0628	.0138	23	.046	.482
117	.005	0.000	0.000	-.000	74.8438	128.7308	.1038	.1468	.0638	.0138	23	.050	.482
118	.005	0.000	0.000	-.000	74.6918	128.6868	.1028	.1468	.0638	.0138	23	.022	.480
119	.005	0.000	0.000	-.000	69.9118	125.1208	.0998	.1468	.0638	.0138	58	.027	2.830
120	.005	0.000	0.000	-.000	68.1158	125.6848	.0998	.1468	.0638	.0138	58	.032	.290
121	.005	0.000	0.000	-.000	66.0438	126.1298	.0998	.1468	.0638	.0138	59	.039	.286
122	.005	0.000	0.000	-.001	63.6708	126.3138	.0988	.1468	.0638	.0138	60	.046	.290
123	.005	0.000	0.000	-.001	60.9778	126.0238	.0988	.1468	.0638	.0138	60	.056	.288
124	.005	0.000	0.000	-.001	57.9538	124.9388	.0988	.1468	.0638	.0138	60	.067	.292
125	.005	0.000	0.000	-.000	54.5978	122.5038	.0988	.1468	.0638	.0138	60	.080	.288
126	.005	0.000	0.000	-.000	50.9248	118.2658	.0988	.1468	.0638	.0138	60	.096	.294
127	.006	0.000	0.000	-.000	46.9658	111.9508	.0988	.1468	.0638	.0138	62	.115	.290
128	.006	0.000	0.000	-.001	42.7688	104.7598	.0978	.1468	.0638	.0138	62	.138	.286
129	.006	0.000	0.000	-.001	38.4008	95.5588	.0978	.1468	.0638	.0138	62	.166	.290
130	.006	0.000	0.000	-.000	33.9308	85.0598	.0978	.1458	.0638	.0138	62	.199	.288
131	.006	0.000	0.000	-.000	29.4768	73.8878	.0968	.1458	.0638	.0138	62	.239	.290
132	.007	0.000	0.000	-.000	25.1088	62.2218	.0958	.1458	.0648	.0138	62	.287	.290
133	.007	0.000	0.000	-.000	20.9378	49.1808	.0948	.1448	.0648	.0138	63	.344	.292
134	.007	0.000	0.000	-.000	20.2368	46.6408	.0948	.1448	.0648	.0138	62	.071	.290
135	.007	0.000	0.000	-.000	19.4008	44.8538	.0938	.1448	.0648	.0138	62	.085	.292
136	.007	0.000	0.000	-.000	18.4578	42.7938	.0938	.1448	.0648	.0138	62	.102	.286
137	.007	0.000	0.000	-.000	17.4058	40.8828	.0928	.1448	.0648	.0138	64	.122	.292
138	.007	0.000	0.000	-.000	16.8158	40.1998	.0928	.1448	.0648	.0138	64	.073	.288
139	.007	0.000	0.000	-.000	16.1418	39.3138	.0928	.1448	.0648	.0138	64	.088	.286
140	.008	0.000	0.000	-.000	15.3818	38.4288	.0918	.1438	.0648	.0138	64	.105	.288
141	.008	0.000	0.000	-.000	14.5328	37.4408	.0918	.1438	.0648	.0138	64	.126	.288
142	.008	0.000	0.000	-.000	13.5978	36.0218	.0908	.1438	.0648	.0138	63	.152	.294
143	.008	0.000	0.000	-.000	12.5798	33.5438	.0898	.1428	.0648	.0138	63	.182	.294
144	.008	0.000	0.000	-.000	11.4878	28.9438	.0888	.1428	.0648	.0138	63	.218	.294
145	.009	0.000	0.000	-.000	10.3408	20.8838	.0868	.1418	.0648	.0138	65	.262	.286
146	.009	0.000	0.000	-.000	10.0958	17.3638	.0868	.1418	.0648	.0138	64	.265	.288
147	.009	0.000	0.000	-.000	9.7948	14.4368	.0858	.1418	.0648	.0138	64	.078	.292
148	.009	0.000	0.000	-.000	9.4498	10.8438	.0858	.1408	.0648	.0138	64	.094	.290
149	.009	0.000	0.000	-.000	9.0588	6.5038	.0848	.1408	.0648	.0138	64	.113	.290
150	.009	0.000	0.000	-.000	8.6178	1.3538	.0838	.1408	.0648	.0138	64	.136	.294



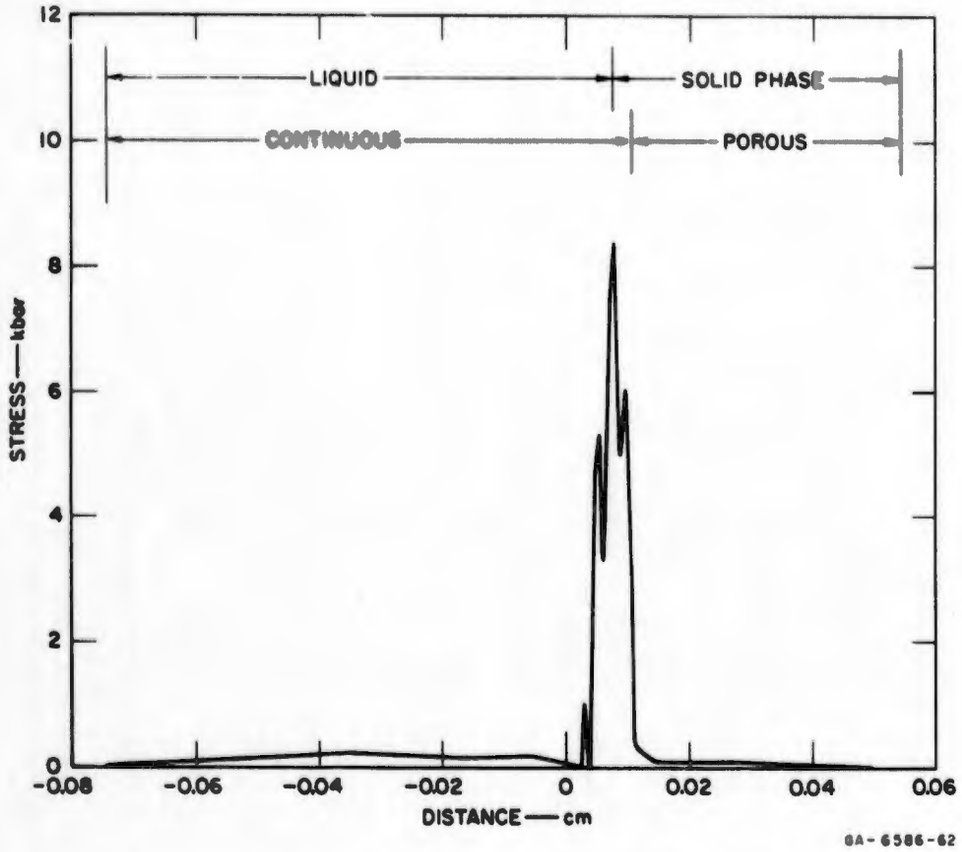
TEST No. 103, EDIT AT CYCLE 118, TIME = 5×10^{-9} sec.



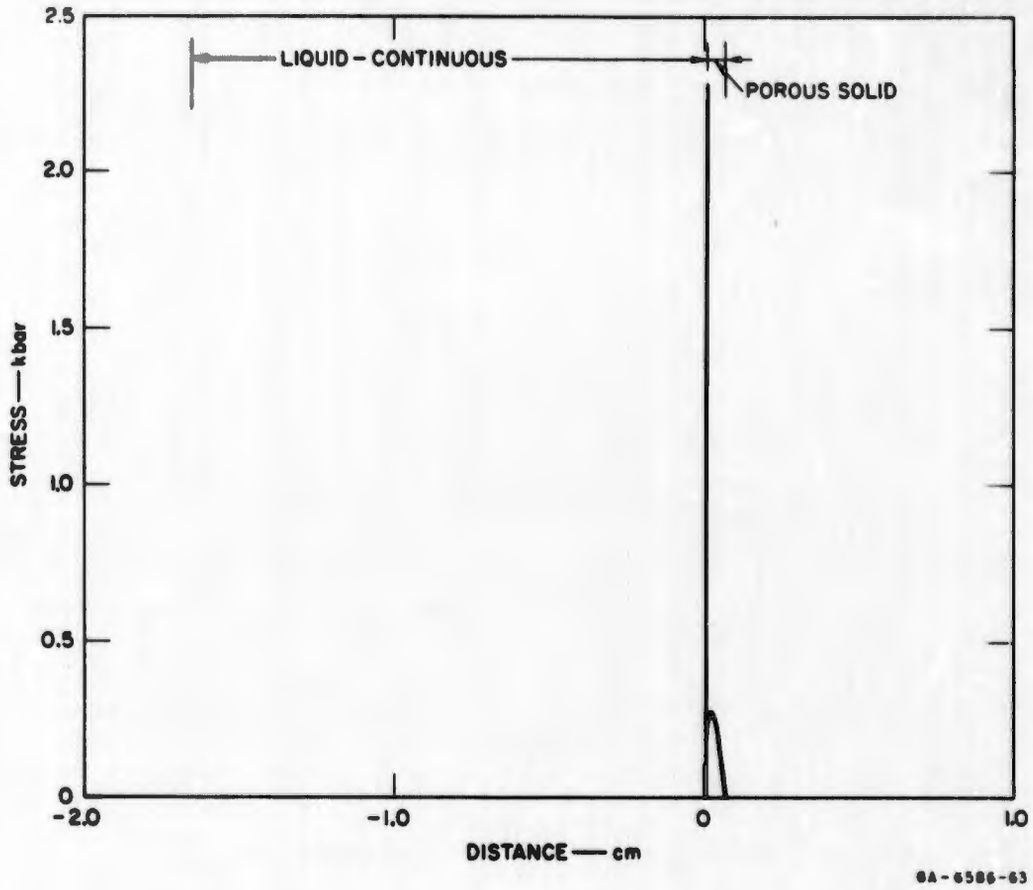
TEST No. 103, EDIT AT CYCLE 158, TIME = 1 x 10^{-8} sec.



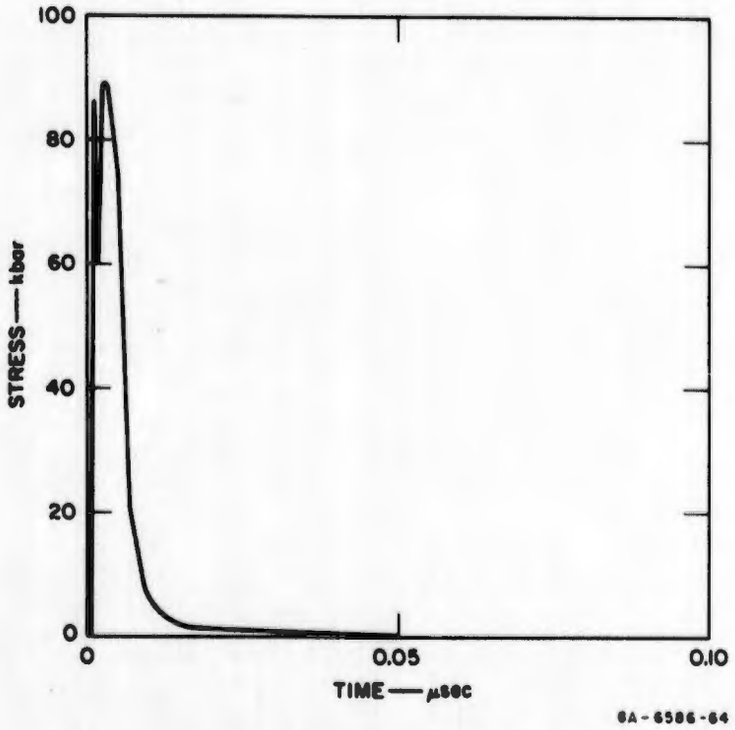
TEST No. 103, EDIT AT CYCLE 212, TIME = 2 x 10^{-8} sec.



TEST No. 103, EDIT AT CYCLE 292, TIME = 5×10^{-8} sec.



TEST No. 103, EDIT AT CYCLE 1535, TIME = 1 x 10^{-6} sec.



TEST No. 103, STRESS HISTORY AT COORDINATE 5

4. Test No. 200

Problem 200 is a test run of an impact of a solid aluminum flyer plate against a porous aluminum target. The listing given below includes the input data, the initial coordinate layout, and a sampling of the stress histories written by SCRIBE. Graphs of several EDITs and of stress histories at interfaces are included.

```
                    **** SRI PUFF 1 (6400 VERSION) ****

NDATE= 11/16/66    IDENT= 200  POROUS-SOLID IMPACT

IMPACT OF A FLYER PLATE OF SOLID 6061-T6 ALUMINUM AGAINST A POROUS ALUMINUM
TARGET BACKED BY A QUARTZ STRESS GAGE.  THE TARGET WAS FORMED FROM CHUNK
ALUMINUM OF 149 TO 420 MICRON SIZE WITH AN ORIGINAL GROSS DENSITY OF 2.09
GM/CM3.  THESE CONDITIONS CORRESPOND TO  AN SRI SHOT NO. 11.786 PERFORMED
UNDER CONTRACT AF29(601)-6734 FOR AFWL AND REPORTED IN AFWL TR 66-13.


      * * *   SRI PUFF1 TEST RUN OF POROUS-SOLID IMPACT   * * *
1 NTEDT=          6  NJEDIT=          6  NREZON=          2 NSEPRAT=          -0
2 TEDITS= 1.000E-07 2.000E-07 5.000E-07 1.000E-06 2.000E-06 3.000E-06
3 JEDITS=    6   22    30    38    46    54
4 NTR=       2    4
5 JREZON=   25   50
6 NEDTN=      10000 NEDIT=       10000 NPERN=          1 MAXPRN =          0
7 STOPS             JCYCS=        2000  CKS=  3.000E+00 TS=       4.000E-06
8 NMTRLS=         3 MATFL =           1 UZERO =  6.790E+04 IPLOT =          -1

SOLID AL FLYER       RHOS =  2.698E+00 NSR =   0 NYAM =  1 NPOR =  0 NCON =  0
 EQSTC =  7.300E+11  EQSTD =  1.720E+12  EQSTE =  1.200E+11  EQSTG =  2.130E+00
 EQSTH =  2.500E-01  EQSTS =  4.000E+11 EQSTN =  1.059E+00 EQSTA =  7.872E-12
COSQ =    4.000E+00     C1 =  2.000E-01     C2 =  0.
TENS(1)= -1.080E+11 TENS(2)=  0.        TENS(3)= -1.000E+10
YOS =     3.200E+09  MU =     2.740E+11  YADD =  7.780E+09
NZONES= 1.       10 CELLS IN  4.060E-02 CM       -0.                 -0.

POROUS AL LAMB       RHOS=    2.717E+00 NSR =   0 NYAM =  3 NPOR =  3 NCON =  0
 EQSTC =  7.300E+11  EQSTD =  1.720E+12  EQSTE =  1.200E+11  EQSTG =  2.130E+00
 EQSTH =  2.500E-01  EQSTS =  4.000E+11 EQSTN =  1.051E+00 EQSTA =  7.928E-12
COSQ =    4.000E+00     C1 =  2.000E-01     C2 =  0.
TENS(1)= -1.080E+11 TENS(2)= -1.000E+10 TENS(3)= -1.000E+09
YOS=      3.200E+09  MU =     2.740E+11  YADD =  7.780E+09
FMELT =   6.590E+09  2.400E+09 1.500E-01 2.500E-01 1.000E-01
 RHOP=    2.090E+00 2.210E+00 2.550E+00 2.740E+00 2.740E+00 2.780E+00
 COSQ =       4.0000    4.0000    4.0000    4.0000    4.0000
 C1 =          .2000     .2000     .2000     .2000     .2000
1   P2 =  7.000E+08  DELP =  1.000E+08  YADD =  4.000E+08
2   P2 =  1.900E+09  DELP =  3.200E+08  YADD =  3.000E+07
3   P2 =  8.000E+09  DELP =  9.220E+08  YADD =  1.700E+09
 AK =     2.000E+11  MUP =    1.000E+11 YO =     1.000E+07
NZONES= 1.       50 CELLS IN  2.740E-01 1ST DELX= 4.000E-03          -0.

QUARTZ GAGE          RHOS=    2.650E+00 NSR =   0 NYAM =  0 NPOR =  0 NCON =  0
 EQSTC =  8.695E+11  EQSTD = -8.695E+11  EQSTE =  8.900E+10  EQSTG =  6.200E-01
 EQSTH =  2.50UE-01  EQSTS =  8.695E+11             5.946E+00           1.890E-12
COSQ=     4.000E+00     C1=  2.000E-01     C2=  0.
TENS(1)= -1.000E+10 TENS(2)=  0.        TENS(3)=  0.
NZONES= 1.       50 CELLS IN  1.500E+00 1ST DELX= 8.000E-03          -0.

                                                              AGAIN*END*
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• • • SNI PUFF1 TEST RUN OF POROUS-SOLID IMPACT • • •

J	DX CM	X(J) CM	U(J) CM/SEC	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
1	4.000E-03	0.	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.080E+11	1.095E-02	SOLID AL FLYER	S S B	1
2	4.000E-03	4.000E-03	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.080E+11	1.095E-02	SOLID AL FLYER	S N B	2
3	4.000E-03	8.120E-03	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.080E+11	1.095E-02	SOLID AL FLYER	S N B	3
4	4.000E-03	1.218E-02	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.080E+11	1.095E-02	SOLID AL FLYER	S N B	4
5	4.000E-03	1.624E-02	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.080E+11	1.095E-02	SOLID AL FLYER	S N B	5
6	4.000E-03	2.030E-02	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.080E+11	1.095E-02	SOLID AL FLYER	S N B	6
7	4.000E-03	2.436E-02	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.080E+11	1.095E-02	SOLID AL FLYER	S N B	7
8	4.000E-03	2.842E-02	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.080E+11	1.095E-02	SOLID AL FLYER	S N B	8
	4.000E-03	3.248E-02	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.080E+11	1.095E-02	SOLID AL FLYER	S N B	9
10	4.000E-03	3.654E-02	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.080E+11	1.095E-02	SOLID AL FLYER	S N B	10
11	0.	4.000E-02	6.790E+04	2.133E+09	6.374E+05	2.698E+00	-1.000E+10	0.	SOLID AL FLYER	S L B	11
12	4.000E-03	4.060E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	8.360E-03	POROUS AL TARG	P R B	12
13	4.060E-03	4.460E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	8.486E-03	POROUS AL TARG	P N B	13
14	4.121E-03	4.866E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	8.613E-03	POROUS AL TARG	P N B	14
15	4.181E-03	5.278E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	8.739E-03	POROUS AL TARG	P N B	15
16	4.242E-03	5.696E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	8.865E-03	POROUS AL TARG	P N B	16
17	4.302E-03	6.120E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	8.991E-03	POROUS AL TARG	P N B	17
18	4.362E-03	6.551E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	9.118E-03	POROUS AL TARG	P N B	18
19	4.423E-03	6.987E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	9.244E-03	POROUS AL TARG	P N B	19
20	4.483E-03	7.429E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	9.370E-03	POROUS AL TARG	P N B	20
21	4.544E-03	7.877E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	9.496E-03	POROUS AL TARG	P N B	21
22	4.604E-03	8.332E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	9.623E-03	POROUS AL TARG	P N B	22
23	4.664E-03	8.792E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	9.749E-03	POROUS AL TARG	P N B	23
24	4.725E-03	9.259E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	9.875E-03	POROUS AL TARG	P N B	24
25	4.785E-03	9.731E-02	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.000E-02	POROUS AL TARG	P N B	25
26	4.846E-03	1.021E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.013E-02	POROUS AL TARG	P N B	26
27	4.906E-03	1.069E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.025E-02	POROUS AL TARG	P N B	27
28	4.967E-03	1.118E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.038E-02	POROUS AL TARG	P N B	28
29	5.027E-03	1.168E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.051E-02	POROUS AL TARG	P N B	29
30	5.087E-03	1.218E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.063E-02	POROUS AL TARG	P N B	30
31	5.148E-03	1.269E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.076E-02	POROUS AL TARG	P N B	31
32	5.208E-03	1.321E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.089E-02	POROUS AL TARG	P N B	32
33	5.269E-03	1.373E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.101E-02	POROUS AL TARG	P N B	33
34	5.329E-03	1.426E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.114E-02	POROUS AL TARG	P N B	34
35	5.389E-03	1.479E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.126E-02	POROUS AL TARG	P N B	35
36	5.450E-03	1.533E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.139E-02	POROUS AL TARG	P N B	36
37	5.510E-03	1.587E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.152E-02	POROUS AL TARG	P N B	37
38	5.571E-03	1.642E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.164E-02	POROUS AL TARG	P N B	38
39	5.631E-03	1.698E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.177E-02	POROUS AL TARG	P N B	39
40	5.691E-03	1.754E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.190E-02	POROUS AL TARG	P N B	40
41	5.752E-03	1.811E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.202E-02	POROUS AL TARG	P N B	41
42	5.812E-03	1.869E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.215E-02	POROUS AL TARG	P N B	42
43	5.873E-03	1.927E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.227E-02	POROUS AL TARG	P N B	43
44	5.933E-03	1.986E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.240E-02	POROUS AL TARG	P N B	44
45	5.993E-03	2.045E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.253E-02	POROUS AL TARG	P N B	45
46	6.054E-03	2.105E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.265E-02	POROUS AL TARG	P N B	46
47	6.114E-03	2.165E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.278E-02	POROUS AL TARG	P N B	47
48	6.175E-03	2.227E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.291E-02	POROUS AL TARG	P N B	48
49	6.235E-03	2.288E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.303E-02	POROUS AL TARG	P N B	49
50	6.296E-03	2.351E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.316E-02	POROUS AL TARG	P N B	50

• • • SRI PUFF1 TEST RUN OF POROUS-SOLID IMPACT • • •

J	DX CM	X(J) CM	U(J) CM/SEC	YHL(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZHL(J) GM/CM2	MATERIAL	COND	J
51	6.356E-03	2.414E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.328E-02	POROUS AL TARG	P N B	51
52	6.416E-03	2.477E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.341E-02	POROUS AL TARG	P N B	52
53	6.477E-03	2.541E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.354E-02	POROUS AL TARG	P N B	53
54	6.537E-03	2.606E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.366E-02	POROUS AL TARG	P N B	54
55	6.598E-03	2.671E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.379E-02	POROUS AL TARG	P N B	55
56	6.658E-03	2.737E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.392E-02	POROUS AL TARG	P N B	56
57	6.718E-03	2.804E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.404E-02	POROUS AL TARG	P N B	57
58	6.779E-03	2.871E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.417E-02	POROUS AL TARG	P N B	58
59	6.839E-03	2.939E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.429E-02	POROUS AL TARG	P N B	59
60	6.900E-03	3.007E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.442E-02	POROUS AL TARG	P N B	60
61	6.900E-03	3.076E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.080E+11	1.455E-02	POROUS AL TARG	P N B	61
62	0.	3.146E-01	0.	6.667E+06	3.995E+05	2.090E+00	-1.000E+09	0.	POROUS AL TARG	P L B	62
63	8.000E-03	3.146E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	2.120E-02	QUARTZ GAGE	S R B	63
64	8.898E-03	3.226E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	2.358E-02	QUARTZ GAGE	S N B	64
65	9.798E-03	3.315E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	2.596E-02	QUARTZ GAGE	S N B	65
66	1.069E-02	3.413E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	2.834E-02	QUARTZ GAGE	S N B	66
67	1.159E-02	3.520E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	3.072E-02	QUARTZ GAGE	S N B	67
68	1.249E-02	3.636E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	3.310E-02	QUARTZ GAGE	S N B	68
69	1.339E-02	3.761E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	3.548E-02	QUARTZ GAGE	S N B	69
70	1.429E-02	3.895E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	3.786E-02	QUARTZ GAGE	S N B	70
71	1.518E-02	4.037E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	4.024E-02	QUARTZ GAGE	S N B	71
72	1.608E-02	4.189E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	4.262E-02	QUARTZ GAGE	S N B	72
73	1.698E-02	4.350E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	4.500E-02	QUARTZ GAGE	S N B	73
74	1.788E-02	4.520E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	4.738E-02	QUARTZ GAGE	S N B	74
75	1.878E-02	4.699E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	4.976E-02	QUARTZ GAGE	S N B	75
76	1.967E-02	4.888E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	5.213E-02	QUARTZ GAGE	S N B	76
77	2.057E-02	5.083E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	5.451E-02	QUARTZ GAGE	S N B	77
78	2.147E-02	5.289E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	5.689E-02	QUARTZ GAGE	S N B	78
79	2.237E-02	5.504E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	5.927E-02	QUARTZ GAGE	S N B	79
80	2.327E-02	5.727E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	6.165E-02	QUARTZ GAGE	S N B	80
81	2.416E-02	5.960E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	6.403E-02	QUARTZ GAGE	S N B	81
82	2.506E-02	6.202E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	6.641E-02	QUARTZ GAGE	S N B	82
83	2.596E-02	6.452E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	6.879E-02	QUARTZ GAGE	S N B	83
84	2.686E-02	6.712E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	7.117E-02	QUARTZ GAGE	S N B	84
85	2.776E-02	6.980E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	7.355E-02	QUARTZ GAGE	S N B	85
86	2.865E-02	7.258E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	7.593E-02	QUARTZ GAGE	S N B	86
87	2.955E-02	7.544E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	7.831E-02	QUARTZ GAGE	S N B	87
88	3.045E-02	7.840E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	8.069E-02	QUARTZ GAGE	S N B	88
89	3.135E-02	8.144E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	8.307E-02	QUARTZ GAGE	S N B	89
90	3.224E-02	8.458E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	8.545E-02	QUARTZ GAGE	S N B	90
91	3.314E-02	8.780E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	8.783E-02	QUARTZ GAGE	S N B	91
92	3.404E-02	9.112E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	9.021E-02	QUARTZ GAGE	S N B	92
93	3.494E-02	9.452E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	9.259E-02	QUARTZ GAGE	S N B	93
94	3.584E-02	9.802E-01	0.	0.	5.728E+05	2.650E+00	-1.000E+10	9.497E-02	QUARTZ GAGE	S N B	94
95	3.673E-02	1.016E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	9.735E-02	QUARTZ GAGE	S N B	95
96	3.763E-02	1.053E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	9.973E-02	QUARTZ GAGE	S N B	96
97	3.853E-02	1.090E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.021E-01	QUARTZ GAGE	S N B	97
98	3.943E-02	1.129E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.045E-01	QUARTZ GAGE	S N B	98
99	4.033E-02	1.168E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.069E-01	QUARTZ GAGE	S N B	99
100	4.122E-02	1.209E+00	0.	0.	5.729E+05	2.650E+00	-1.000E+10	1.092E-01	QUARTZ GAGE	S N B	100

• • • SRI PUFF1 TEST RUN OF POROUS-SOLID IMPACT • • •

J	DX CM	X(J) CM	U(J) CM/SEC	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	YML(J) GM/CM2	MATERIAL	COND	J
101	4.212E-02	1.250E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.110E-01	QUARTZ GAGE	S N B	101
102	4.302E-02	1.292E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.140E-01	QUARTZ GAGE	S N B	102
103	4.392E-02	1.335E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.164E-01	QUARTZ GAGE	S N B	103
104	4.482E-02	1.379E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.188E-01	QUARTZ GAGE	S N B	104
105	4.571E-02	1.424E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.211E-01	QUARTZ GAGE	S N B	105
106	4.661E-02	1.469E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.235E-01	QUARTZ GAGE	S N B	106
107	4.751E-02	1.516E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.259E-01	QUARTZ GAGE	S N B	107
108	4.841E-02	1.564E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.283E-01	QUARTZ GAGE	S N B	108
109	4.931E-02	1.612E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.307E-01	QUARTZ GAGE	S N B	109
110	5.020E-02	1.661E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.330E-01	QUARTZ GAGE	S N B	110
111	5.110E-02	1.711E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.354E-01	QUARTZ GAGE	S N B	111
112	5.200E-02	1.763E+00	0.	0.	5.728E+05	2.650E+00	-1.000E+10	1.378E-01	QUARTZ GAGE	S N B	112
113	0.	1.815E+00	0.	0.	5.728E+05	2.650E+00	0.	0.	QUARTZ GAGE	S L B	113

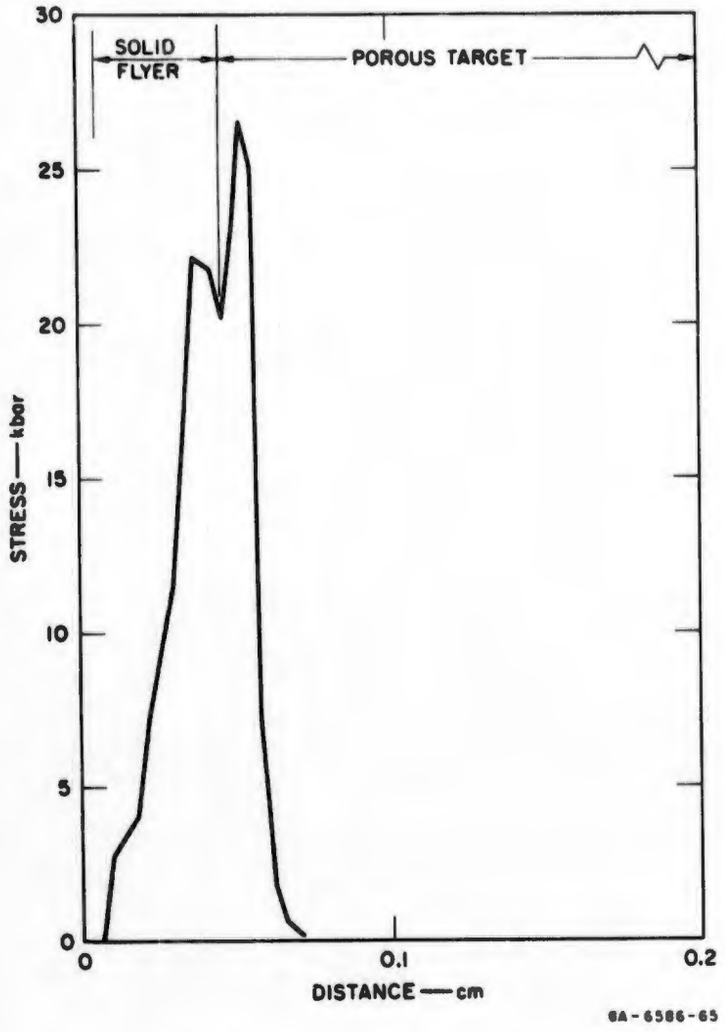
TIME TO COMPLETE GENRAT IS 1.114 SECONDS.

SCRIBE OUTPUT. TIME IN MICROSECS. S IN KBARS. DTNM IN NANOSECS. DELTIM IN SECS

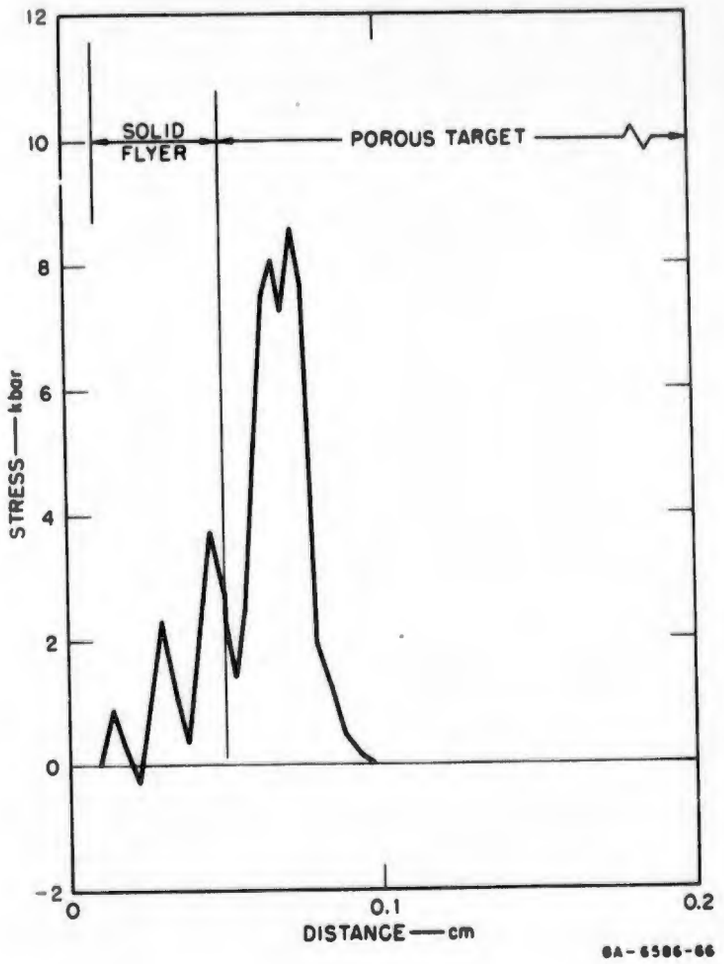
N	TIME	S12/SDJ1	S23/SDJ2	S34/SDJ3	S(18)	S(28)	S(33)	S(39)	S(46)	S(54)	JTS	DTNM	DELTIM
1	.000	.005	0.000	0.000	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	12	.001	1.198
2	.000	.953	0.000	0.000	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	10	.230	.024
3	.001	2.122	0.000	0.000	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	10	.276	.026
4	.001	3.462	0.000	0.000	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	10	.331	.030
5	.001	4.576	0.000	0.000	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	10	.397	.036
6	.002	5.856	0.000	.000	.0008	0.0008	0.0008	0.0008	0.0008	0.0008	10	.477	.036
7	.002	7.299	0.000	.000	.0008	0.0008	0.0008	0.0008	0.0008	0.0008	10	.572	.040
8	.003	8.880	0.000	.000	.0008	0.0008	0.0008	0.0008	0.0008	0.0008	10	.686	.044
9	.004	10.544	0.000	.000	.0008	0.0008	0.0008	0.0008	0.0008	0.0008	10	.824	.046
10	.005	12.181	0.000	.000	.0008	0.0008	0.0008	0.0008	0.0008	0.0008	10	.988	.050
11	.006	13.624	0.000	.000	.0018	0.0008	0.0008	0.0008	0.0008	0.0008	10	1.186	.056
12	.007	14.508	0.000	.001	.0038	0.0008	0.0008	0.0008	0.0008	0.0008	10	1.423	.054
13	.009	14.548	0.000	.004	.0118	0.0008	0.0008	0.0008	0.0008	0.0008	10	1.708	.054
14	.011	13.691	0.000	.014	.0438	0.0008	0.0008	0.0008	0.0008	0.0008	9	2.050	.060
15	.014	11.796	0.000	.054	.1628	0.0008	0.0008	0.0008	0.0008	0.0008	9	2.459	.054
16	.017	9.397	0.000	.192	.5778	0.0008	0.0008	0.0008	0.0008	0.0008	9	2.951	.056
17	.020	7.677	0.000	.613	1.8488	0.0008	0.0008	0.0008	0.0008	0.0008	8	3.542	.058
18	.024	9.110	0.000	1.542	4.6028	0.0008	0.0008	0.0008	0.0008	0.0008	8	3.759	.044
19	.028	10.126	0.000	2.238	8.4048	0.0008	0.0008	0.0008	0.0008	0.0008	7	3.747	.046
20	.031	17.437	0.000	2.376	12.5578	.0008	0.0008	0.0008	0.0008	0.0008	12	3.780	.044
21	.034	21.298	0.000	2.480	15.7718	.0008	0.0008	0.0008	0.0008	0.0008	12	2.863	.046
22	.037	24.839	0.000	2.563	18.3298	.0008	0.0008	0.0008	0.0008	0.0008	12	2.853	.046
23	.040	24.304	0.000	2.626	20.2958	.0008	0.0008	0.0008	0.0008	0.0008	12	3.115	.046
24	.044	22.592	0.000	2.652	20.8148	.0008	0.0008	0.0008	0.0008	0.0008	12	3.266	.048
25	.047	19.766	0.000	1.982	19.1008	.0008	0.0008	0.0008	0.0008	0.0008	13	3.309	.046
26	.050	19.706	0.000	1.278	16.8158	.0008	0.0008	0.0008	0.0008	0.0008	13	3.171	.074
27	.053	19.068	0.000	.959	15.7808	.0008	0.0008	0.0008	0.0008	0.0008	13	3.173	.068
28	.056	22.590	0.000	1.220	16.6258	.0008	0.0008	0.0008	0.0008	0.0008	13	2.780	.070
29	.059	24.709	0.000	1.766	18.4098	.0008	0.0008	0.0008	0.0008	0.0008	13	3.004	.074
30	.062	26.883	0.000	2.399	20.7958	.0008	0.0008	0.0008	0.0008	0.0008	13	3.131	.070
31	.065	25.949	0.000	2.725	22.7158	.0008	0.0008	0.0008	0.0008	0.0008	13	3.174	.074
32	.068	23.846	0.000	2.751	23.5368	.0018	0.0008	0.0008	0.0008	0.0008	14	3.191	.078
33	.072	21.545	0.000	2.749	23.4618	.0018	0.0008	0.0008	0.0008	0.0008	14	3.158	.078
34	.074	20.131	0.000	2.509	22.5408	.0018	0.0008	0.0008	0.0008	0.0008	14	2.830	.076
35	.077	20.000	0.000	2.049	21.0208	.0028	0.0008	0.0008	0.0008	0.0008	13	2.951	.074
36	.080	22.516	0.000	1.499	19.2178	.0028	0.0008	0.0008	0.0008	0.0008	13	3.074	.076
37	.084	24.417	0.000	1.100	17.9178	.0038	0.0008	0.0008	0.0008	0.0008	13	3.108	.078
38	.087	25.897	0.000	.892	17.2488	.0048	0.0008	0.0008	0.0008	0.0008	13	3.143	.076
39	.090	25.601	0.000	.704	16.6448	.0058	0.0008	0.0008	0.0008	0.0008	15	3.144	.082
40	.093	23.888	0.000	.404	15.6758	.0068	0.0008	0.0008	0.0008	0.0008	15	2.898	.082
41	.096	21.849	0.000	-.136	13.9308	.0068	0.0008	0.0008	0.0008	0.0008	15	2.904	.082
42	.099	20.019	0.000	-1.007	11.1438	.0078	0.0008	0.0008	0.0008	0.0008	13	3.084	.084
43	.100	20.232	0.000	-1.514	9.5408	.0078	0.0008	0.0008	0.0008	0.0008	13	1.544	.078
44	.101	20.202	0.000	-2.000	8.0128	.0088	0.0008	0.0008	0.0008	0.0008	13	1.492	.340
45	.103	20.567	0.000	-2.555	6.2738	.0088	0.0008	0.0008	0.0008	0.0008	13	1.791	.082
46	.105	21.126	0.000	-2.783	4.8018	.0098	0.0008	0.0008	0.0008	0.0008	13	2.149	.084
47	.108	22.000	0.000	-2.815	3.9228	.0098	0.0008	0.0008	0.0008	0.0008	13	2.579	.086
48	.111	22.667	0.000	-2.826	3.6458	.0108	0.0008	0.0008	0.0008	0.0008	16	3.094	.082
49	.114	22.151	0.000	-2.581	4.5278	.0118	.0008	0.0008	0.0008	0.0008	16	2.935	.088
50	.117	20.253	0.000	-2.214	5.6628	.0128	.0008	0.0008	0.0008	0.0008	15	2.943	.084

SCRIBE OUTPUT. TIME IN MICROSECS. S IN KBARS. DTNH IN NANOSECS. DELTIM IN SECS

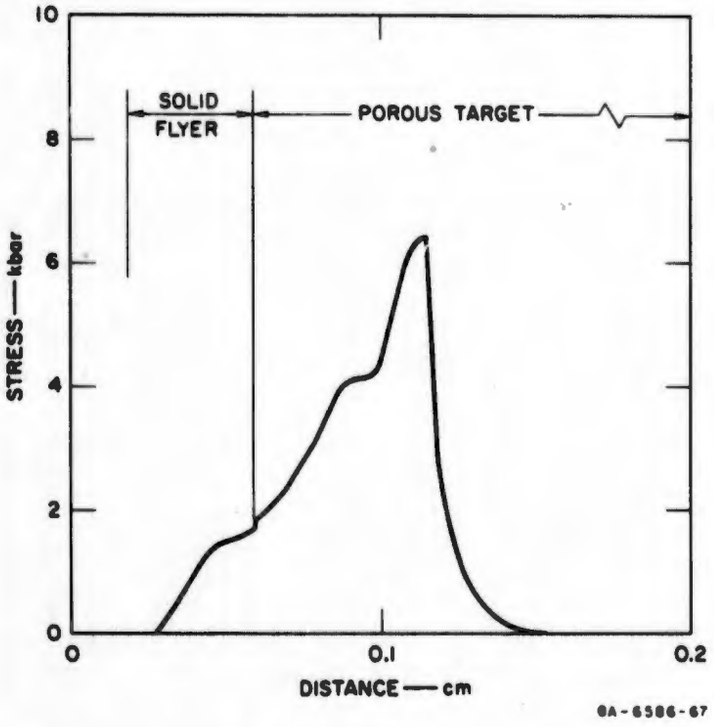
N	TIME	S12/SDJ1	S23/SDJ2	S34/SDJ3	S(1A)	S(2B)	S(33)	S(39)	S(46)	S(54)	JTS	DTNH	DELTIM
51	.120	17.095	0.000	-2.034	6.2188	.0148	.0008	0.0008	0.0008	0.0008	14	3.134	.000
52	.123	13.365	0.000	-2.229	5.6118	.0178	.0008	0.0008	0.0008	0.0008	14	3.158	.006
53	.126	10.478	0.000	-2.647	4.0178	.0208	.0008	0.0008	0.0008	0.0008	13	3.129	.000
54	.130	9.601	0.000	-2.885	2.2068	.0248	.0008	0.0008	0.0008	0.0008	13	3.144	.002
55	.133	9.035	0.000	-2.933	.8348	.0298	.0008	0.0008	0.0008	0.0008	17	3.174	.004
56	.136	9.918	0.000	-2.952	.2918	.0368	.0008	0.0008	0.0008	0.0008	17	2.856	.002
57	.139	9.728	0.000	-2.948	.4138	.0458	.0008	0.0008	0.0008	0.0008	16	3.150	.004
58	.142	8.839	0.000	-2.597	1.4028	.0578	.0008	0.0008	0.0008	0.0008	15	3.220	.004
59	.145	7.061	0.000	-2.211	2.6598	.0738	.0008	0.0008	0.0008	0.0008	15	3.232	.006
60	.149	5.121	0.000	-2.061	3.1168	.0938	.0008	0.0008	0.0008	0.0008	14	3.272	.006
61	.152	3.912	0.000	-2.214	2.6478	.1188	.0008	0.0008	0.0008	0.0008	18	3.234	.102
62	.155	4.036	0.000	-2.577	1.5408	.1488	.0008	0.0008	0.0008	0.0008	18	3.083	.006
63	.158	5.216	0.000	-2.865	.4518	.1848	.0008	0.0008	0.0008	0.0008	13	3.102	.008
64	.161	5.590	0.000	-2.978	-.1918	.2288	.0008	0.0008	0.0008	0.0008	13	3.277	.008
65	.165	5.915	0.000	-2.970	-.1418	.2818	.0008	0.0008	0.0008	0.0008	13	3.291	.100
66	.168	5.315	0.000	-2.712	.7178	.3418	.0008	0.0008	0.0008	0.0008	13	3.307	.102
67	.171	3.969	0.000	-2.357	1.7968	.4098	.0008	0.0008	0.0008	0.0008	15	3.313	.100
68	.175	2.379	0.000	-2.151	2.4238	.4828	.0008	0.0008	0.0008	0.0008	14	3.305	.102
69	.178	1.394	0.000	-2.205	2.2608	.5558	.0008	0.0008	0.0008	0.0008	13	3.281	.108
70	.181	1.172	0.000	-2.456	1.4958	.6218	.0008	0.0008	0.0008	0.0008	13	3.295	.102
71	.184	2.388	0.000	-2.753	.5928	.6798	.0018	0.0008	0.0008	0.0008	13	3.258	.104
72	.188	3.192	0.000	-2.896	.1598	.7308	.0018	0.0008	0.0008	0.0008	13	3.290	.108
73	.191	3.692	0.000	-2.789	.4828	.8578	.0018	0.0008	0.0008	0.0008	13	3.309	.108
74	.194	3.687	0.000	-2.516	1.3128	1.0108	.0018	0.0008	0.0008	0.0008	13	3.315	.106
75	.198	3.085	0.000	-2.243	2.1448	1.1618	.0018	0.0008	0.0008	0.0008	13	3.323	.106
76	.200	2.553	0.000	-2.188	2.3128	1.2678	.0028	0.0008	0.0008	0.0008	14	2.425	.118
77	.203	3.111	0.000	-2.233	2.1748	1.5138	.0028	0.0008	0.0008	0.0008	12	2.909	1.206
78	.206	1.853	0.000	-2.494	1.3808	1.6118	.0028	0.0008	0.0008	0.0008	11	3.491	.102
79	.210	3.223	0.000	-2.913	.0938	1.7078	.0038	0.0008	0.0008	0.0008	10	4.087	.098
80	.215	3.337	0.000	-2.989	-.2888	1.7838	.0038	0.0008	0.0008	0.0008	10	4.087	.100
81	.219	4.967	0.000	-2.756	.5248	1.8688	.0048	0.0008	0.0008	0.0008	13	4.079	.102
82	.223	4.776	0.000	-2.348	1.7648	1.9328	.0048	.0008	0.0008	0.0008	13	4.080	.104
83	.227	5.191	0.000	-2.140	2.3908	1.9748	.0058	.0008	0.0008	0.0008	12	4.080	.106
84	.231	5.297	0.000	-2.265	2.0178	1.9978	.0058	.0008	0.0008	0.0008	13	4.075	.100
85	.235	5.242	0.000	-2.532	1.2068	2.2958	.0068	.0008	0.0008	0.0008	13	4.073	.106
86	.239	5.177	0.000	-2.672	.7808	3.4608	.0068	.0008	0.0008	0.0008	10	4.087	.108
87	.243	5.319	0.000	-2.524	1.2308	4.4388	.0078	.0008	0.0008	0.0008	11	4.081	.104
88	.247	5.672	0.000	-2.193	2.2308	5.2598	.0078	.0008	0.0008	0.0008	13	4.084	.108
89	.251	6.254	0.000	-1.884	3.1848	5.9738	.0078	.0008	0.0008	0.0008	13	4.088	.110
90	.255	6.696	0.000	-1.736	3.6378	6.5678	.0088	.0008	0.0008	0.0008	13	4.048	.106
91	.259	6.984	0.000	-1.724	3.6748	7.0078	.0088	.0008	0.0008	0.0008	13	4.062	.108
92	.263	7.028	0.000	-1.739	3.6268	7.3328	.0088	.0008	0.0008	0.0008	22	4.066	.110
93	.267	6.958	0.000	-1.706	3.7298	7.5668	.0088	.0008	0.0008	0.0008	22	3.995	.112
94	.271	6.887	0.000	-1.597	4.0648	7.7358	.0088	.0008	0.0008	0.0008	22	3.925	.114
95	.275	6.901	0.000	-1.446	4.5278	7.8788	.0098	.0008	0.0008	0.0008	22	3.890	.106
96	.279	7.003	0.000	-1.322	4.9118	7.9498	.0098	.0008	0.0008	0.0008	22	3.874	.110
97	.283	7.058	0.000	-1.257	5.1128	8.0178	.0108	.0008	0.0008	0.0008	22	3.844	.114
98	.287	7.078	0.000	-1.242	5.1568	8.0468	.0108	.0008	0.0008	0.0008	22	3.827	.116
99	.291	7.016	0.000	-1.232	5.1098	7.9188	.0118	.0008	0.0008	0.0008	22	3.819	.116
100	.294	6.914	0.000	-1.209	5.2588	7.8968	.0128	.0008	0.0008	0.0008	22	3.817	.114



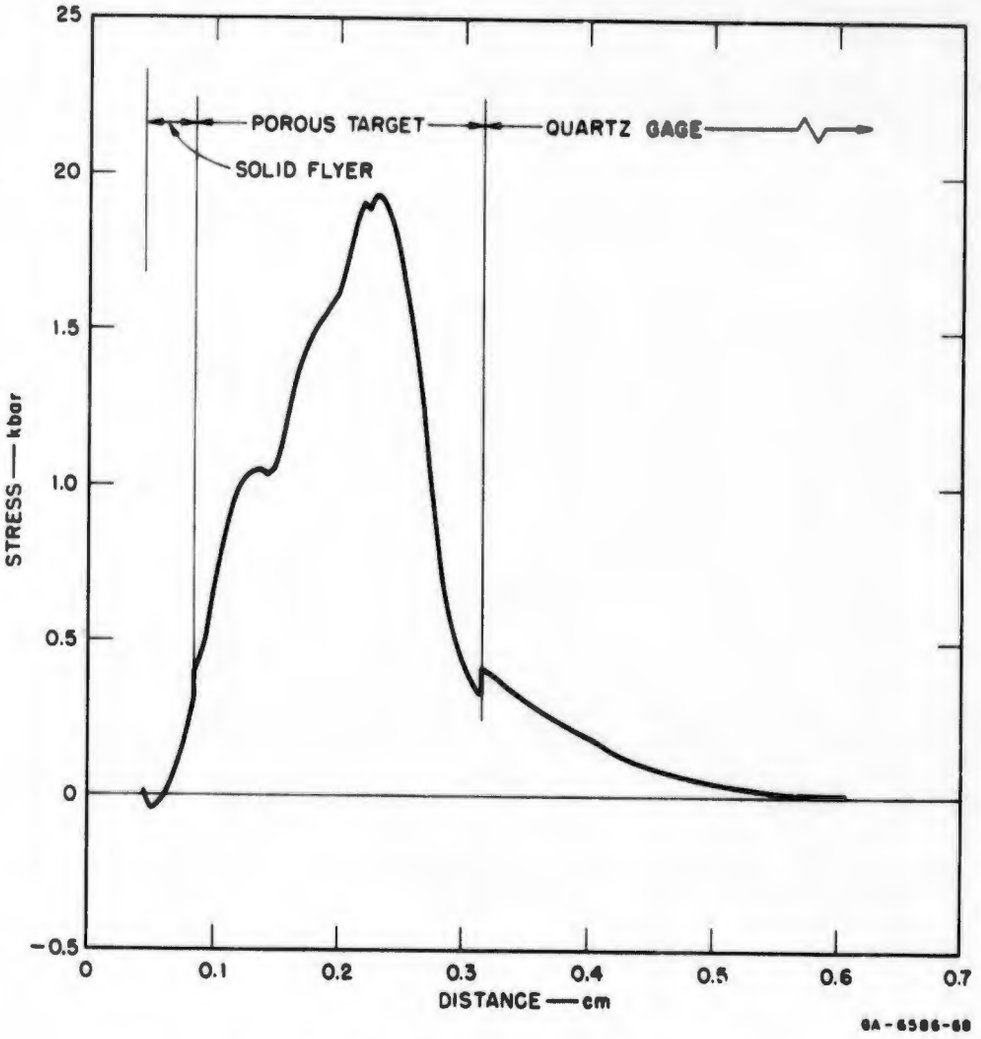
TEST No. 200, EDIT AT CYCLE 43, TIME = 1 x 10^{-7} sec.



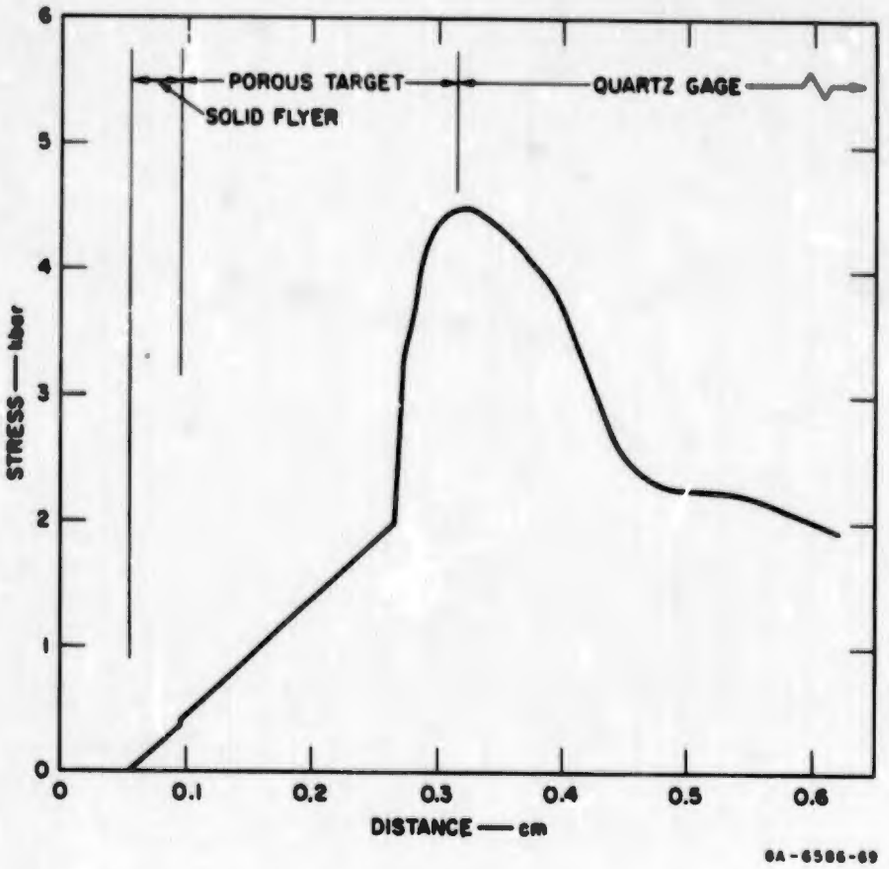
TEST No. 200, EDIT AT CYCLE 76, TIME = 2 x 10^{-7} sec.



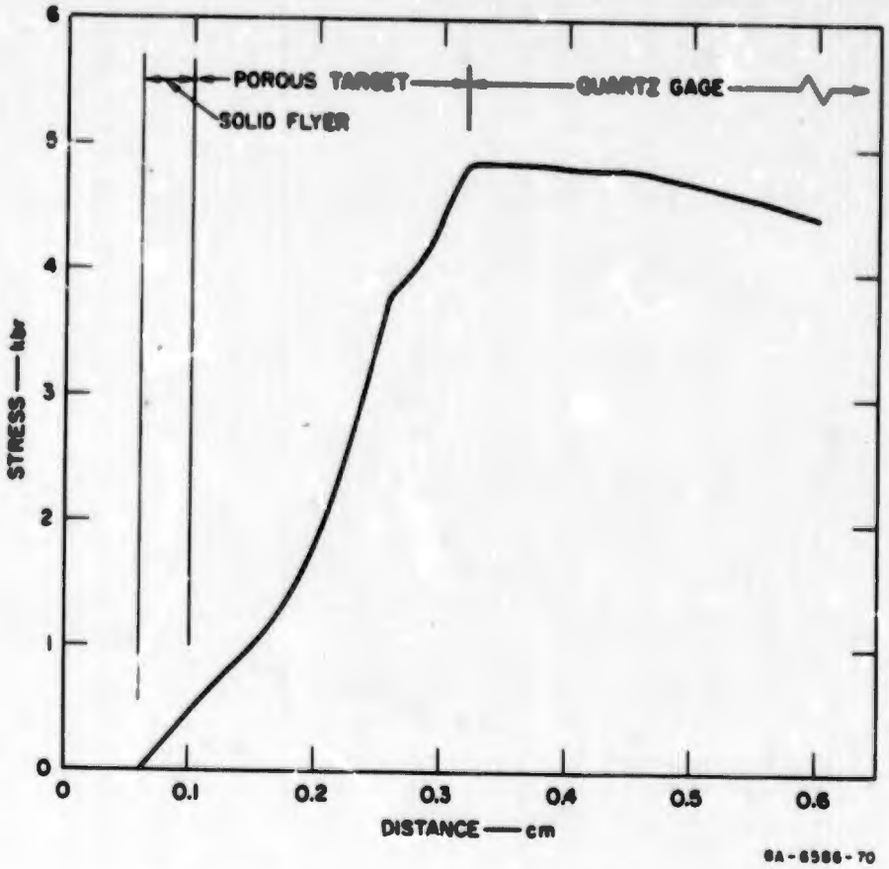
TEST No. 200, EDIT AT CYCLE 157, TIME = 5×10^{-7} sec.



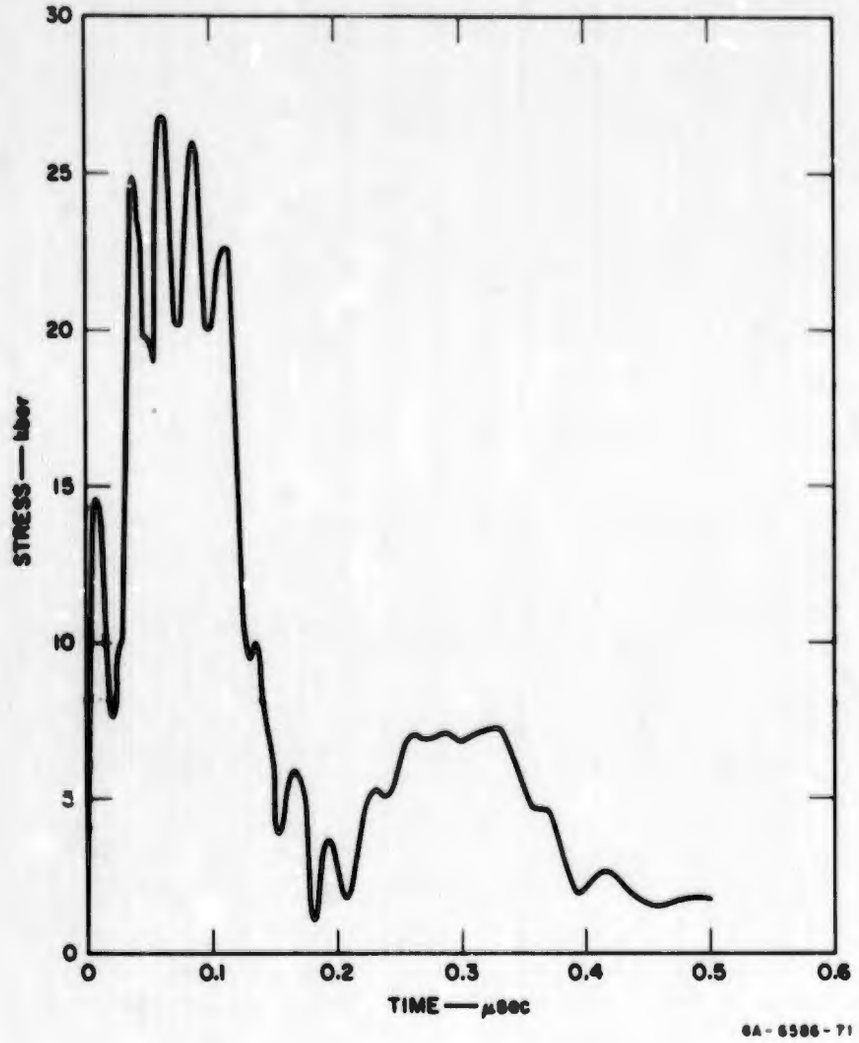
TEST No. 200, EDIT AT CYCLE 472, TIME = 2×10^{-6} sec.



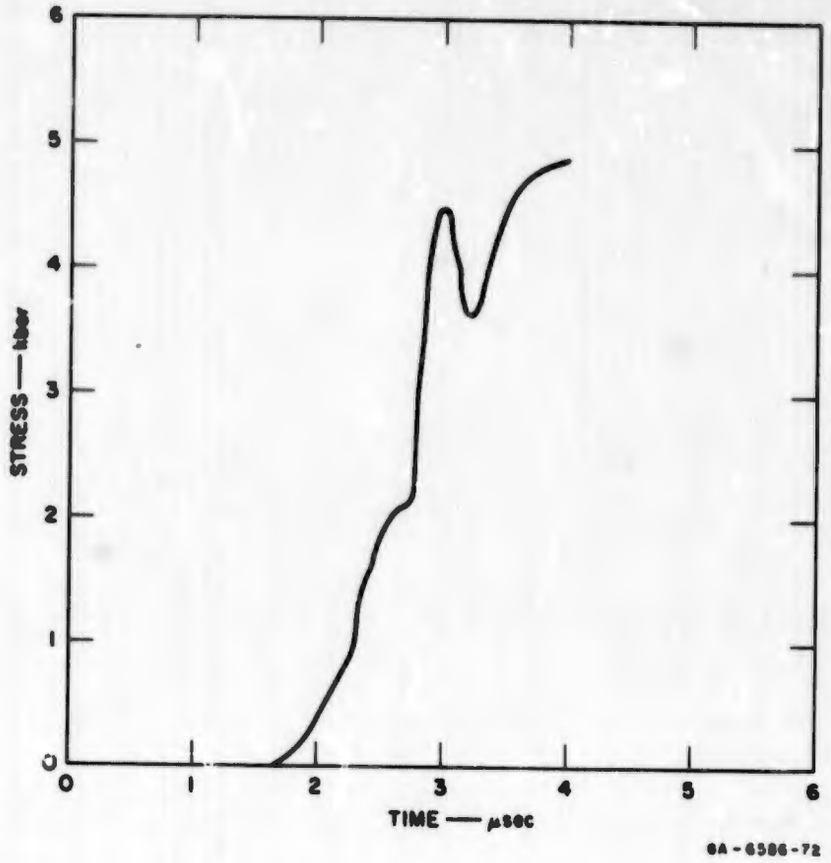
TEST No. 200, EDIT AT CYCLE 652, TIME = 3×10^{-6} sec.



TEST No. 200, EDIT AT CYCLE 828, TIME = 4×10^{-6} sec.



TEST No. 200, STRESS HISTORY AT IMPACT INTERFACE



TEST No. 200, STRESS HISTORY AT TARGET-QUARTZ INTERFACE

5. Test No. 300

Problem 300 is a test of REZONE for solid materials. The listing given in the following pages includes the input data, initial coordinate layout, the listing of the rezoning operation, and the final EDIT after rezoning and several more cycles of computation.

```
**** SRI PUFF 1 (6600 VERSION) ****

NDATE= 11/18/68    IDENT= 300  REZONE TEST PROBLEM WITH ARBITRARY DEPOSITION

MATERIAL PROPERTIES DO NOT CORRESPOND WITH THOSE OF REAL MATERIALS.
REZONE VERSION INCLUDES CHECK PRINT STATEMENTS.


  * * *   SRI PUFF1 TEST RUN FOR REZONE WITH ARBITRARY DEPOSITION   * * *
1 NTEDT=         1 NJEDIT=           6 NREZON=          1 NSEPRAT=         0
2 TEDIT=  1.000E-08
3 JEDITS=   79  135  147  200  230  250
4 VTR=       1
5 JREZON=  280
6 VEDTM=      10000 NEDIT=         10000 NPERN=              1                  -0
7 STOPS              JCYCS=          200  CKS=       3.500E+00  TS=       2.000E-08
8 NMTRLS=          6 MATFL =           0 UZERO =   0.          IPLOT =          -1

(MATERIAL A)           RHO = 1.000E+00 NSR =   0 NVAM =  0 NPOR =  0 NCON =  0
 EOSTC =  1.000E+11  EOSTD =  0.              EOSTE =  2.000E+11  EOSTG =  2.000E+0.
 EOSTH =  2.500E-01  EOSTS =  0.                       2.500E-01             2.000E-11
COSO =    3.240E+00  C1 =        2.500E-01  C2 =        0.
TENS(1)= -1.000E+11 TENS(2)=  0.           TENS(3)= -1.000E-10
NZONES= 1.        80 CELLS IN  1.000E-01 CM          -0.                 -0.

(MATERIAL B)           RHO = 1.000E+00 NSR =   0 NVAM =  0 NPOR =  0 NCON =  0
 EOSTC =  1.000E+11  EOSTD =  0.              EOSTE =  2.000E+11  EOSTG =  2.000E+00
 EOSTH =  2.500E-01  EOSTS =  0.                       2.500E-01             2.000E-11
COSO =    3.240E+00  C1 =        2.500E-01  C2 =        0.
TENS(1)= -1.000E+11 TENS(2)=  0.           TENS(3)= -1.000E-10
NZONES= 1.        60 CELLS IN  7.500E-02 CM          -0.                 -0.

(MATERIAL C)           RHO = 1.200E+00 NSR =   0 NVAM =  0 NPOR =  0 NCON =  0
 EOSTC =  1.500E+11  EOSTD =  0.              EOSTE =  2.000E+11  EOSTG =  2.000E+00
 EOSTH =  2.500E-01  EOSTS =  0.                       3.125E-01             1.600E-11
COSO =    3.240E+00  C1 =        2.500E-01  C2 =        0.
TENS(1)= -1.000E+11 TENS(2)=  0.           TENS(3)= -1.000E-10
NZONES= 1.        50 CELLS IN  1.000E-01 CM          -0.                 -0.

(MATERIAL D)           RHO = 1.300E+00 NSR =   0 NVAM =  0 NPOR =  0 NCON =  0
 EOSTC =  2.500E+11  EOSTD =  0.              EOSTE =  2.000E+11  EOSTG =  2.000E+00
 EOSTH =  2.500E-01  EOSTS =  0.                       4.000E-01             1.040E-11
COSO =    3.240E+00  C1 =        2.500E-01  C2 =        0.
TENS(1)= -1.000E+11 TENS(2)=  0.           TENS(3)= -1.000E-10
NZONES= 1.        40 CELLS IN  1.000E-01 CM          -0.                 -0.

(MATERIAL E)           RHO = 1.400E+00 NSR =   0 NVAM =  0 NPOR =  0 NCON =  0
 EOSTC =  9.000E+11  EOSTD =  0.              EOSTE =  2.000E+11  EOSTG =  2.000E+00
 EOSTH =  2.500E-01  EOSTS =  0.                       1.607E+00             3.111E-12
COSO =    3.240E+00  C1 =        2.500E-01  C2 =        0.
TENS(1)= -1.000E+11 TENS(2)=  0.           TENS(3)= -1.000E-10
NZONES= 1.        30 CELLS IN  1.000E-01 CM          -0.                 -0.

(MATERIAL F)           RHO = 1.500E+00 NSR =   0 NVAM =  0 NPOR =  0 NCON =  0
 EOSTC =  2.000E+11  EOSTD =  0.              EOSTE =  2.000E+11  EOSTG =  2.000E+00
 EOSTH =  2.500E-01  EOSTS =  0.                       3.333E-01             1.500E-11
COSO =    3.240E+00  C1 =        2.500E-01  C2 =        0.
TENS(1)= -1.000E+11 TENS(2)=  0.           TENS(3)= -1.000E-10
NZONES= 1.        20 CELLS IN  1.000E-01 CM          -0.                 -0.
NSPEC=  1 ANGLE=    0.
        * * *    ARBITRARY DEPOSITION    * * *
NMPHI=   0 NRR=     0 NARR=   1 START=     0.           STOP=     1.000E-08
   TOTAL ENERGY IN CALORIES =        2.000E+01
     AC =  4.000E+00 4.000E+00 1.000E+01 9.000E+00 1.200E+01 3.000E+01

                                                                       *END*
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• • • SRI PUFF1 TEST RUN FOR REZONE WITH ARBITRARY DEPOSITION • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	P(J) GM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
1	1.250E-03	0.	3.340E+09	9.975E-02	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S S B	1
2	1.250E-03	1.250E-03	3.324E+09	1.990E-01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	2
3	1.250E-03	2.500E-03	3.307E+09	2.978E-01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	3
4	1.250E-03	3.750E-03	3.291E+09	3.960E-01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	4
5	1.250E-03	5.000E-03	3.274E+09	4.938E-01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	5
6	1.250E-03	6.250E-03	3.258E+09	5.911E-01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	6
7	1.250E-03	7.500E-03	3.242E+09	6.879E-01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	7
8	1.250E-03	8.750E-03	3.226E+09	7.842E-01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	8
9	1.250E-03	1.000E-02	3.209E+09	8.801E-01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	9
10	1.250E-03	1.125E-02	3.193E+09	9.754E-01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	10
11	1.250E-03	1.250E-02	3.178E+09	1.070E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	11
12	1.250E-03	1.375E-02	3.162E+09	1.165E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	12
13	1.250E-03	1.500E-02	3.146E+09	1.259E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	13
14	1.250E-03	1.625E-02	3.130E+09	1.352E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	14
15	1.250E-03	1.750E-02	3.115E+09	1.445E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	15
16	1.250E-03	1.875E-02	3.099E+09	1.538E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	16
17	1.250E-03	2.000E-02	3.084E+09	1.630E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	17
18	1.250E-03	2.125E-02	3.068E+09	1.721E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	18
19	1.250E-03	2.250E-02	3.053E+09	1.813E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	19
20	1.250E-03	2.375E-02	3.038E+09	1.903E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	20
21	1.250E-03	2.500E-02	3.023E+09	1.994E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	21
22	1.250E-03	2.625E-02	3.007E+09	2.083E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	22
23	1.250E-03	2.750E-02	2.992E+09	2.173E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	23
24	1.250E-03	2.875E-02	2.978E+09	2.262E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	24
25	1.250E-03	3.000E-02	2.963E+09	2.350E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	25
26	1.250E-03	3.125E-02	2.948E+09	2.438E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	26
27	1.250E-03	3.250E-02	2.933E+09	2.526E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	27
28	1.250E-03	3.375E-02	2.919E+09	2.613E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	28
29	1.250E-03	3.500E-02	2.904E+09	2.700E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	29
30	1.250E-03	3.625E-02	2.890E+09	2.786E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	30
31	1.250E-03	3.750E-02	2.875E+09	2.872E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	31
32	1.250E-03	3.875E-02	2.861E+09	2.957E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	32
33	1.250E-03	4.000E-02	2.847E+09	3.042E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	33
34	1.250E-03	4.125E-02	2.832E+09	3.127E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	34
35	1.250E-03	4.250E-02	2.818E+09	3.211E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	35
36	1.250E-03	4.375E-02	2.804E+09	3.295E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	36
37	1.250E-03	4.500E-02	2.790E+09	3.378E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	37
38	1.250E-03	4.625E-02	2.776E+09	3.461E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	38
39	1.250E-03	4.750E-02	2.762E+09	3.543E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	39
40	1.250E-03	4.875E-02	2.749E+09	3.625E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	40
41	1.250E-03	5.000E-02	2.735E+09	3.707E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	41
42	1.250E-03	5.125E-02	2.721E+09	3.788E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	42
43	1.250E-03	5.250E-02	2.708E+09	3.869E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	43
44	1.250E-03	5.375E-02	2.694E+09	3.950E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	44
45	1.250E-03	5.500E-02	2.681E+09	4.030E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	45
46	1.250E-03	5.625E-02	2.667E+09	4.109E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	46
47	1.250E-03	5.750E-02	2.654E+09	4.189E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	47
48	1.250E-03	5.875E-02	2.641E+09	4.267E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	48
49	1.250E-03	6.000E-02	2.628E+09	4.346E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	49
50	1.250E-03	6.125E-02	2.615E+09	4.424E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N B	50

• • • SRI PUFF1 TEST RUN FOR REZONE WITH ARBITRATY DEPOSITION • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
51	1.250E-03	6.250E-02	2.602E+09	4.502E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	51
52	1.250E-03	6.375E-02	2.589E+09	4.579E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	52
53	1.250E-03	6.500E-02	2.576E+09	4.656E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	53
54	1.250E-03	6.625E-02	2.563E+09	4.732E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	54
55	1.250E-03	6.750E-02	2.550E+09	4.809E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	55
56	1.250E-03	6.875E-02	2.537E+09	4.884E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	56
57	1.250E-03	7.000E-02	2.525E+09	4.960E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	57
58	1.250E-03	7.125E-02	2.512E+09	5.035E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	58
59	1.250E-03	7.250E-02	2.500E+09	5.109E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	59
60	1.250E-03	7.375E-02	2.487E+09	5.184E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	60
61	1.250E-03	7.500E-02	2.475E+09	5.258E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	61
62	1.250E-03	7.625E-02	2.462E+09	5.331E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	62
63	1.250E-03	7.750E-02	2.450E+09	5.404E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	63
64	1.250E-03	7.875E-02	2.438E+09	5.477E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	64
65	1.250E-03	8.000E-02	2.426E+09	5.549E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	65
66	1.250E-03	8.125E-02	2.414E+09	5.622E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	66
67	1.250E-03	8.250E-02	2.402E+09	5.693E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	67
68	1.250E-03	8.375E-02	2.390E+09	5.765E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	68
69	1.250E-03	8.500E-02	2.378E+09	5.836E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	69
70	1.250E-03	8.625E-02	2.366E+09	5.906E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	70
71	1.250E-03	8.750E-02	2.354E+09	5.977E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	71
72	1.250E-03	8.875E-02	2.342E+09	6.046E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	72
73	1.250E-03	9.000E-02	2.331E+09	6.116E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	73
74	1.250E-03	9.125E-02	2.319E+09	6.185E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	74
75	1.250E-03	9.250E-02	2.307E+09	6.254E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	75
76	1.250E-03	9.375E-02	2.296E+09	6.323E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	76
77	1.250E-03	9.500E-02	2.284E+09	6.391E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	77
78	1.250E-03	9.625E-02	2.273E+09	6.459E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	78
79	1.250E-03	9.750E-02	2.262E+09	6.526E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	79
80	1.250E-03	9.875E-02	2.250E+09	6.594E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL A)	S N 0	80
81	0.	1.000E-01	0.	6.594E+00	0.	3.179E+05	1.000E+00	1.000E-10	0.	(MATERIAL A)	S L 0	81
82	1.250E-03	1.000E-01	2.239E+09	6.660E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S R 0	82
83	1.250E-03	1.012E-01	2.228E+09	6.727E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	83
84	1.250E-03	1.025E-01	2.217E+09	6.793E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	84
85	1.250E-03	1.037E-01	2.206E+09	6.859E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	85
86	1.250E-03	1.050E-01	2.195E+09	6.925E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	86
87	1.250E-03	1.062E-01	2.184E+09	6.990E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	87
88	1.250E-03	1.075E-01	2.173E+09	7.055E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	88
89	1.250E-03	1.087E-01	2.162E+09	7.119E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	89
90	1.250E-03	1.100E-01	2.151E+09	7.184E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	90
91	1.250E-03	1.112E-01	2.141E+09	7.247E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	91
92	1.250E-03	1.125E-01	2.130E+09	7.311E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	92
93	1.250E-03	1.137E-01	2.119E+09	7.376E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	93
94	1.250E-03	1.150E-01	2.109E+09	7.437E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	94
95	1.250E-03	1.162E-01	2.098E+09	7.500E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	95
96	1.250E-03	1.175E-01	2.088E+09	7.562E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	96
97	1.250E-03	1.187E-01	2.077E+09	7.624E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	97
98	1.250E-03	1.200E-01	2.067E+09	7.686E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	98
99	1.250E-03	1.212E-01	2.057E+09	7.747E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	99
100	1.250E-03	1.225E-01	2.046E+09	7.809E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N 0	100

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COMO	J
101	1.250E-03	1.237E-01	2.036E+09	7.869E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	101
102	1.250E-03	1.250E-01	2.026E+09	7.930E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	102
103	1.250E-03	1.262E-01	2.016E+09	7.990E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	103
104	1.250E-03	1.275E-01	2.006E+09	8.050E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	104
105	1.250E-03	1.287E-01	1.996E+09	8.110E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	105
106	1.250E-03	1.300E-01	1.986E+09	8.169E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	106
107	1.250E-03	1.312E-01	1.976E+09	8.228E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	107
108	1.250E-03	1.325E-01	1.966E+09	8.287E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	108
109	1.250E-03	1.337E-01	1.956E+09	8.345E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	109
110	1.250E-03	1.350E-01	1.947E+09	8.403E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	110
111	1.250E-03	1.362E-01	1.937E+09	8.461E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	111
112	1.250E-03	1.375E-01	1.927E+09	8.519E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	112
113	1.250E-03	1.387E-01	1.918E+09	8.576E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	113
114	1.250E-03	1.400E-01	1.908E+09	8.633E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	114
115	1.250E-03	1.412E-01	1.899E+09	8.689E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	115
116	1.250E-03	1.425E-01	1.889E+09	8.746E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	116
117	1.250E-03	1.437E-01	1.880E+09	8.802E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	117
118	1.250E-03	1.450E-01	1.870E+09	8.858E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	118
119	1.250E-03	1.462E-01	1.861E+09	8.913E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	119
120	1.250E-03	1.475E-01	1.852E+09	8.969E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	120
121	1.250E-03	1.487E-01	1.842E+09	9.024E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	121
122	1.250E-03	1.500E-01	1.833E+09	9.079E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	122
123	1.250E-03	1.512E-01	1.824E+09	9.133E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	123
124	1.250E-03	1.525E-01	1.815E+09	9.187E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	124
125	1.250E-03	1.537E-01	1.806E+09	9.241E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	125
126	1.250E-03	1.550E-01	1.797E+09	9.295E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	126
127	1.250E-03	1.562E-01	1.788E+09	9.348E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	127
128	1.250E-03	1.575E-01	1.779E+09	9.401E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	128
129	1.250E-03	1.587E-01	1.770E+09	9.454E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	129
130	1.250E-03	1.600E-01	1.761E+09	9.507E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	130
131	1.250E-03	1.612E-01	1.753E+09	9.559E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	131
132	1.250E-03	1.625E-01	1.744E+09	9.611E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	132
133	1.250E-03	1.637E-01	1.735E+09	9.663E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	133
134	1.250E-03	1.650E-01	1.727E+09	9.715E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	134
135	1.250E-03	1.662E-01	1.718E+09	9.766E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	135
136	1.250E-03	1.675E-01	1.709E+09	9.817E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	136
137	1.250E-03	1.687E-01	1.701E+09	9.868E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	137
138	1.250E-03	1.700E-01	1.692E+09	9.918E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	138
139	1.250E-03	1.712E-01	1.684E+09	9.968E+00	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	139
140	1.250E-03	1.725E-01	1.675E+09	1.002E+01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	140
141	1.250E-03	1.737E-01	1.667E+09	1.007E+01	0.	3.179E+05	1.000E+00	1.000E+11	1.250E-03	(MATERIAL B)	S N B	141
142	0.	1.750E-01	0.	1.007E+01	0.	3.179E+05	1.000E+00	1.000E-10	0.	(MATERIAL B)	S L B	142
143	2.000E-03	1.750E-01	3.430E+09	1.026E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	143
144	2.000E-03	1.770E-01	3.362E+09	1.046E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	144
145	2.000E-03	1.790E-01	3.296E+09	1.065E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	145
146	2.000E-03	1.810E-01	3.230E+09	1.083E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	146
147	2.000E-03	1.830E-01	3.166E+09	1.101E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	147
148	2.000E-03	1.850E-01	3.104E+09	1.119E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	148
149	2.000E-03	1.870E-01	3.042E+09	1.137E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	149
150	2.000E-03	1.890E-01	2.982E+09	1.154E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	150

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YWL(J) DYN/CM2	F(J) GM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZWL(J) GM/CM2	MATERIAL	COND	J
151	2.000E-03	1.910E-01	2.923E+09	1.170E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	151
152	2.000E-03	1.930E-01	2.865E+09	1.187E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	152
153	2.000E-03	1.950E-01	2.808E+09	1.203E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	153
154	2.000E-03	1.970E-01	2.753E+09	1.219E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	154
155	2.000E-03	1.990E-01	2.698E+09	1.234E+01		3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	155
156	2.000E-03	2.010E-01	2.645E+09	1.249E+01		3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	156
157	2.000E-03	2.030E-01	2.592E+09	1.264E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	157
158	2.000E-03	2.050E-01	2.541E+09	1.279E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	158
159	2.000E-03	2.070E-01	2.491E+09	1.293E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	159
160	2.000E-03	2.090E-01	2.441E+09	1.307E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	160
161	2.000E-03	2.110E-01	2.393E+09	1.321E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	161
162	2.000E-03	2.130E-01	2.346E+09	1.334E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	162
163	2.000E-03	2.150E-01	2.299E+09	1.347E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	163
164	2.000E-03	2.170E-01	2.254E+09	1.360E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	164
165	2.000E-03	2.190E-01	2.209E+09	1.373E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	165
166	2.000E-03	2.210E-01	2.165E+09	1.385E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	166
167	2.000E-03	2.230E-01	2.122E+09	1.398E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	167
168	2.000E-03	2.250E-01	2.080E+09	1.410E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	168
169	2.000E-03	2.270E-01	2.039E+09	1.421E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	169
170	2.000E-03	2.290E-01	1.999E+09	1.433E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	170
171	2.000E-03	2.310E-01	1.959E+09	1.444E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	171
172	2.000E-03	2.330E-01	1.921E+09	1.455E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	172
173	2.000E-03	2.350E-01	1.882E+09	1.466E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	173
174	2.000E-03	2.370E-01	1.845E+09	1.476E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	174
175	2.000E-03	2.390E-01	1.809E+09	1.487E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	175
176	2.000E-03	2.410E-01	1.773E+09	1.497E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	176
177	2.000E-03	2.430E-01	1.738E+09	1.507E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	177
178	2.000E-03	2.450E-01	1.703E+09	1.517E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	178
179	2.000E-03	2.470E-01	1.670E+09	1.526E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	179
180	2.000E-03	2.490E-01	1.637E+09	1.535E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	180
181	2.000E-03	2.510E-01	1.604E+09	1.545E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	181
182	2.000E-03	2.530E-01	1.572E+09	1.554E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	182
183	2.000E-03	2.550E-01	1.541E+09	1.563E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	183
184	2.000E-03	2.570E-01	1.511E+09	1.571E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	184
185	2.000E-03	2.590E-01	1.481E+09	1.580E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	185
186	2.000E-03	2.610E-01	1.451E+09	1.588E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	186
187	2.000E-03	2.630E-01	1.423E+09	1.596E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	187
188	2.000E-03	2.650E-01	1.395E+09	1.604E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	188
189	2.000E-03	2.670E-01	1.367E+09	1.612E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	189
190	2.000E-03	2.690E-01	1.340E+09	1.620E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	190
191	2.000E-03	2.710E-01	1.313E+09	1.627E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	191
192	2.000E-03	2.730E-01	1.287E+09	1.635E+01	0.	3.542E+05	1.200E+00	1.000E+11	2.400E-03	(MATERIAL C)	S N B	192
193	0.	2.750E-01	0.	1.635E+01	0.	3.542E+05	1.200E+00	1.000E-10	0.	(MATERIAL C)	S L B	193
194	2.500E-03	2.750E-01	1.047E+09	1.643E+01	0.	4.428E+05	1.200E+00	1.000E+11	3.250E-03	(MATERIAL D)	S R B	194
195	2.500E-03	2.775E-01	1.024E+09	1.651E+01	0.	4.428E+05	1.200E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	195
196	2.500E-03	2.800E-01	1.001E+09	1.658E+01	0.	4.428E+05	1.200E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	196
197	2.500E-03	2.825E-01	9.787E+08	1.666E+01	0.	4.428E+05	1.200E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	197
198	2.500E-03	2.850E-01	9.569E+08	1.674E+01	0.	4.428E+05	1.200E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	198
199	2.500E-03	2.875E-01	9.356E+08	1.681E+01	0.	4.428E+05	1.200E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	199
200	2.500E-03	2.900E-01	9.148E+08	1.688E+01	0.	4.428E+05	1.200E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	200

• • • SRI PUFF1 TEST RUN FOR REZONE WITH ARBITRATY DEPOSITION • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YHL(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZWL(J) GM/CM2	MATERIAL	COND	J
201	2.500E-03	2.925E-01	8.944E+08	1.695E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	201
202	2.500E-03	2.950E-01	8.745E+08	1.702E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	202
203	2.500E-03	2.975E-01	8.551E+08	1.708E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	203
204	2.500E-03	3.000E-01	8.361E+08	1.715E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	204
205	2.500E-03	3.025E-01	8.175E+08	1.721E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	205
206	2.500E-03	3.050E-01	7.993E+08	1.727E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	206
207	2.500E-03	3.075E-01	7.815E+08	1.733E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	207
208	2.500E-03	3.100E-01	7.641E+08	1.739E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	208
209	2.500E-03	3.125E-01	7.471E+08	1.745E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	209
210	2.500E-03	3.150E-01	7.305E+08	1.751E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	210
211	2.500E-03	3.175E-01	7.142E+08	1.756E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	211
212	2.500E-03	3.200E-01	6.983E+08	1.762E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	212
213	2.500E-03	3.225E-01	6.828E+08	1.767E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	213
214	2.500E-03	3.250E-01	6.676E+08	1.772E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	214
215	2.500E-03	3.275E-01	6.528E+08	1.777E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	215
216	2.500E-03	3.300E-01	6.382E+08	1.782E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	216
217	2.500E-03	3.325E-01	6.240E+08	1.787E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	217
218	2.500E-03	3.350E-01	6.101E+08	1.792E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	218
219	2.500E-03	3.375E-01	5.966E+08	1.796E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	219
220	2.500E-03	3.400E-01	5.833E+08	1.801E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	220
221	2.500E-03	3.425E-01	5.703E+08	1.805E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	221
222	2.500E-03	3.450E-01	5.576E+08	1.810E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	222
223	2.500E-03	3.475E-01	5.452E+08	1.814E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	223
224	2.500E-03	3.500E-01	5.331E+08	1.818E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	224
225	2.500E-03	3.525E-01	5.212E+08	1.822E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	225
226	2.500E-03	3.550E-01	5.096E+08	1.826E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	226
227	2.500E-03	3.575E-01	4.983E+08	1.830E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	227
228	2.500E-03	3.600E-01	4.872E+08	1.834E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	228
229	2.500E-03	3.625E-01	4.764E+08	1.837E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	229
230	2.500E-03	3.650E-01	4.658E+08	1.841E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	230
231	2.500E-03	3.675E-01	4.554E+08	1.845E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	231
232	2.500E-03	3.700E-01	4.453E+08	1.848E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	232
233	2.500E-03	3.725E-01	4.354E+08	1.851E+01	0.	4.385E+05	1.300E+00	1.000E+11	3.250E-03	(MATERIAL D)	S N B	233
234	0.	3.750E-01	0.	1.851E+01	0.	4.385E+05	1.300E+00	1.000E-10	0.	(MATERIAL D)	S L B	234
235	3.333E-03	3.750E-01	5.225E+08	1.857E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S R B	235
236	3.333E-03	3.783E-01	5.020E+08	1.863E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	236
237	3.333E-03	3.817E-01	4.823E+08	1.868E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	237
238	3.333E-03	3.850E-01	4.634E+08	1.873E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	238
239	3.333E-03	3.883E-01	4.452E+08	1.878E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	239
240	3.333E-03	3.917E-01	4.278E+08	1.883E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	240
241	3.333E-03	3.950E-01	4.110E+08	1.888E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	241
242	3.333E-03	3.983E-01	3.949E+08	1.892E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	242
243	3.333E-03	4.017E-01	3.794E+08	1.896E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	243
244	3.333E-03	4.050E-01	3.645E+08	1.900E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	244
245	3.333E-03	4.083E-01	3.502E+08	1.904E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	245
246	3.333E-03	4.117E-01	3.365E+08	1.908E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	246
247	3.333E-03	4.150E-01	3.233E+08	1.912E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	247
248	3.333E-03	4.183E-01	3.106E+08	1.915E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	248
249	3.333E-03	4.217E-01	2.984E+08	1.918E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	249
250	3.333E-03	4.250E-01	2.867E+08	1.922E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	250

• • • SRI PUFF1 TEST RUN FOR REZONE WITH ARBITRATY DEPOSITION • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YM(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZM(J) GM/CM2	MATERIAL	COND	J
251	3.333E-03	4.283E-01	2.795E+08	1.925E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	251
252	3.333E-03	4.317E-01	2.647E+08	1.928E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	252
253	3.333E-03	4.350E-01	2.543E+08	1.931E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	253
254	3.333E-03	4.383E-01	2.443E+08	1.933E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	254
255	3.333E-03	4.417E-01	2.348E+08	1.936E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	255
256	3.333E-03	4.450E-01	2.256E+08	1.938E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	256
257	3.333E-03	4.483E-01	2.167E+08	1.941E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	257
258	3.333E-03	4.517E-01	2.082E+08	1.943E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	258
259	3.333E-03	4.550E-01	2.000E+08	1.945E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	259
260	3.333E-03	4.583E-01	1.922E+08	1.947E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	260
261	3.333E-03	4.617E-01	1.847E+08	1.950E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	261
262	3.333E-03	4.650E-01	1.774E+08	1.952E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	262
263	3.333E-03	4.683E-01	1.705E+08	1.953E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	263
264	3.333E-03	4.717E-01	1.638E+08	1.955E+01	0.	8.064E+05	1.400E+00	1.000E+11	4.667E-03	(MATERIAL E)	S N B	264
265	0.	4.750E-01	0.	1.955E+01	0.	8.064E+05	1.400E+00	1.000E+10	0.	(MATERIAL E)	S L B	265
266	5.000E-03	4.750E-01	3.478E+08	1.961E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S R B	266
267	5.000E-03	4.800E-01	2.994E+08	1.967E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	267
268	5.000E-03	4.850E-01	2.577E+08	1.971E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	268
269	5.000E-03	4.900E-01	2.218E+08	1.975E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	269
270	5.000E-03	4.950E-01	1.909E+08	1.979E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	270
271	5.000E-03	5.000E-01	1.643E+08	1.982E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	271
272	5.000E-03	5.050E-01	1.414E+08	1.984E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	272
273	5.000E-03	5.100E-01	1.217E+08	1.987E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	273
274	5.000E-03	5.150E-01	1.048E+08	1.988E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	274
275	5.000E-03	5.200E-01	9.017E+07	1.990E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	275
276	5.000E-03	5.250E-01	7.761E+07	1.991E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	276
277	5.000E-03	5.300E-01	6.680E+07	1.993E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	277
278	5.000E-03	5.350E-01	5.750E+07	1.994E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	278
279	5.000E-03	5.400E-01	4.949E+07	1.995E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	279
280	5.000E-03	5.450E-01	4.259E+07	1.995E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	280
281	5.000E-03	5.500E-01	3.666E+07	1.996E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	281
282	5.000E-03	5.550E-01	3.156E+07	1.997E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	282
283	5.000E-03	5.600E-01	2.716E+07	1.997E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	283
284	5.000E-03	5.650E-01	2.338E+07	1.997E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	284
285	5.000E-03	5.700E-01	2.012E+07	1.998E+01	0.	3.656E+05	1.500E+00	1.000E+11	7.500E-03	(MATERIAL F)	S N B	285
286	0.	5.750E-01	0.	1.998E+01	0.	3.656E+05	1.500E+00	1.000E+10	0.	(MATERIAL F)	S L B	286

TIME TO COMPLETE GENRAT IS 2.478 SECONDS.

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REZONE. LOC= 11. JOLD=270. JNEW=270. JLAST=279. M=  6. NJ=  6. NCEL=  0. NPART=  0
REZONE. DXX VALUES         1  .004330        2  .004330        3  .004841        4  .006005        5  .010979        6  .005000
REZONE. LOC=500. JOLD=266. JNEW=270. JLAST=279. M=  4. NJ=  6. NCEL=  0. NPART=  1
REZONE. LOC=601. JOLD=266. JNEW=270. JLAST=279. M=  4. NJ=  6. NCEL= 13. NPART=  1
 750  270 5.350E-01 1.500E+00 1.000E+01 5.750E+07 1.611E+08 1.727E+08 1.727E+08 0.      -1.000E+11 7.500E-03  S
 750  277 5.300E-01 1.500E+00 1.865E+01 6.090E+07 1.872E+08 2.007E+08 2.007E+08 0.      -1.000E+11 7.500E-03  S
 750  276 5.250E-01 1.500E+00 2.167E+01 7.761E+07 2.175E+08 2.332E+08 2.332E+08 0.      -1.000E+11 7.500E-03  S
 750  275 5.200E-01 1.500E+00 2.518E+01 9.017E+07 2.527E+08 2.709E+08 2.709E+08 0.      -1.000E+11 7.500E-03  S
 750  274 5.150E-01 1.500E+00 2.926E+01 1.048E+08 2.936E+08 3.147E+08 3.147E+08 0.      -1.000E+11 7.500E-03  S
 750  273 5.100E-01 1.500E+00 3.399E+01 1.217E+08 3.411E+08 3.657E+08 3.657E+08 0.      -1.000E+11 7.500E-03  S
 750  272 5.050E-01 1.500E+00 3.949E+01 1.414E+08 3.963E+08 4.248E+08 4.248E+08 0.      -1.000E+11 7.500E-03  S
 750  271 5.000E-01 1.500E+00 4.588E+01 1.643E+08 4.605E+08 4.936E+08 4.936E+08 0.      -1.000E+11 7.500E-03  S
 750  270 4.950E-01 1.500E+00 5.331E+01 1.908E+08 5.350E+08 5.735E+08 5.735E+08 0.      -1.000E+11 7.500E-03  S
 750  269 4.900E-01 1.500E+00 6.193E+01 2.218E+08 6.216E+08 6.663E+08 6.663E+08 0.      -1.000E+11 7.500E-03  S
 750  268 4.850E-01 1.500E+00 7.191E+01 2.577E+08 7.220E+08 7.740E+08 7.740E+08 0.      -1.000E+11 7.500E-03  S
 750  267 4.800E-01 1.500E+00 8.355E+01 2.994E+08 8.388E+08 8.988E+08 8.988E+08 0.      -1.000E+11 7.500E-03  S
 750  266 4.750E-01 1.500E+00 7.542E+01 3.477E+08 9.414E+08 9.840E+08 9.840E+08 0.      -1.000E+11 7.500E-03  S
REZONE. LOC=750. JOLD=266. JNEW=265. JLAST=266. M=  6. NJ=  6. NCEL= 13. NPART=  1
REZONE. LOC=760. JOLD=266. JNEW=265. JLAST=266. M=  6. NJ=  6. NCEL= 13. NPART=  1
REZONE. LOC=125. JOLD=264. JNEW=264. JLAST=265. M=  5. NJ=  6. NCEL= 13. NPART=  1
REZONE. LOC=500. JOLD=250. JNEW=264. JLAST=265. M=  5. NJ=  6. NCEL= 13. NPART=  3
REZONE. LOC=601. JOLD=250. JNEW=264. JLAST=265. M=  5. NJ=  6. NCEL=  5. NPART=  3
REZONE. LOC=610. NCEL=  5. XSTART= 4.750E-01. DX= 1.000E-02. XN= 4.450E-01
 643  264 4.650E-01 1.400E+00-1.365E+00 1.706E+08 9.225E+06 5.882E+08 5.882E+08 0.      1.400E-02  S
 643  263 4.550E-01 1.400E+00 2.938E-01 1.923E+08 7.414E+06 5.402E+08 5.402E+08 0.      1.400E-02  S
 643  262 4.450E-01 1.400E+00 3.647E-01 2.108E+08 8.920E+06 6.077E+08 6.077E+08 0.      1.400E-02  S
 643  261 4.350E-01 1.400E+00 4.113E-01 2.445E+08 9.606E+06 6.851E+08 6.851E+08 0.      1.400E-02  S
 643  260 4.250E-01 1.400E+00 4.637E-01 2.756E+08 1.083E+07 7.725E+08 7.725E+08 0.      1.400E-02  S
REZONE. LOC=700. JOLD=250. JNEW=264. JLAST=250. M=  5. NJ=  6. NCEL=  5. NPART=  3
REZONE. LOC=300. JOLD=249. JNEW=259. JLAST=250. M=  5. NJ=  5. NCEL=  5. NPART=  3
REZONE. LOC=500. JOLD=235. JNEW=259. JLAST=250. M=  5. NJ=  6. NCEL=  5. NPART=  1
REZONE. LOC=601. JOLD=235. JNEW=259. JLAST=250. M=  5. NJ=  5. NCEL=  5. NPART=  1
REZONE. LOC=610. NCEL=  5. XSTART= 4.250E-01. DX= 1.000E-02. XN= 4.150E-01
 643  259 4.150E-01 1.400E+00 5.220E-01 3.108E+08 1.221E+07 8.710E+08 8.710E+08 0.      1.400E-02  S
 643  258 4.050E-01 1.400E+00 5.895E-01 3.504E+08 1.377E+07 9.820E+08 9.820E+08 0.      1.400E-02  S
 643  257 3.950E-01 1.400E+00 6.646E-01 3.951E+08 1.553E+07 1.107E+09 1.107E+09 0.      1.400E-02  S
 643  256 3.850E-01 1.400E+00 7.495E-01 4.455E+08 1.749E+07 1.248E+09 1.248E+09 0.      1.400E-02  S
 643  255 3.750E-01 1.400E+00-3.480E-01 5.022E+08 1.937E+07 1.316E+09 1.316E+09 0.      1.400E-02  S
REZONE. LOC=700. JOLD=235. JNEW=259. JLAST=235. M=  5. NJ=  5. NCEL=  5. NPART=  1
REZONE. LOC=125. JOLD=233. JNEW=253. JLAST=234. M=  4. NJ=  5. NCEL=  5. NPART=  1
REZONE. LOC=500. JOLD=230. JNEW=253. JLAST=234. M=  4. NJ=  5. NCEL=  5. NPART=  3
REZONE. LOC=601. JOLD=230. JNEW=253. JLAST=234. M=  4. NJ=  5. NCEL=  2. NPART=  3
REZONE. LOC=610. NCEL=  2. XSTART= 3.750E-01. DX= 5.000E-03. XN= 3.700E-01
 643  253 3.700E-01 1.300E+00-3.769E-01 4.404E+08 7.895E+06 1.190E+09 1.190E+09 0.      6.501E-03  S
 643  252 3.650E-01 1.300E+00 2.323E-01 4.606E+08 7.824E+06 1.199E+09 1.199E+09 0.      6.499E-03  S
REZONE. LOC=700. JOLD=230. JNEW=253. JLAST=230. M=  4. NJ=  5. NCEL=  2. NPART=  3
REZONE. LOC=300. JOLD=229. JNEW=251. JLAST=230. M=  4. NJ=  4. NCEL=  2. NPART=  3
REZONE. LOC=500. JOLD=200. JNEW=251. JLAST=230. M=  4. NJ=  4. NCEL=  2. NPART=  3
REZONE. LOC=601. JOLD=200. JNEW=251. JLAST=230. M=  4. NJ=  4. NCEL= 13. NPART=  3
REZONE. LOC=610. NCEL= 13. XSTART= 3.650E-01. DX= 5.769E-03. XN= 3.592E-01
 643  251 3.592E-01 1.300E+00 3.259E-01 4.840E+08 9.433E+06 1.258E+09 1.258E+09 0.      7.500E-03  S
 643  250 3.535E-01 1.300E+00 3.438E-01 5.093E+08 9.935E+06 1.324E+09 1.324E+09 0.      7.500E-03  S
 643  249 3.477E-01 1.300E+00 3.622E-01 5.360E+08 1.046E+07 1.393E+09 1.393E+09 0.      7.500E-03  S
 643  248 3.419E-01 1.300E+00 3.815E-01 5.653E+08 1.102E+07 1.469E+09 1.469E+09 0.      7.500E-03  S
 643  247 3.362E-01 1.300E+00 4.018E-01 5.953E+08 1.161E+07 1.547E+09 1.547E+09 0.      7.500E-03  S
 643  246 3.304E-01 1.300E+00 4.232E-01 6.265E+08 1.223E+07 1.628E+09 1.628E+09 0.      7.500E-03  S
 643  245 3.246E-01 1.300E+00 4.458E-01 6.602E+08 1.288E+07 1.716E+09 1.716E+09 0.      7.500E-03  S
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 643  244 3.188E-01 1.300E+00 4.695E-01 6.958E+08 1.757E+07 1.808E+09 1.808E+09 0.      7.500E-03   $
 643  243 3.131E-01 1.300E+00 4.945E-01 7.322E+08 1.429E+07 1.903E+09 1.903E+09 0.      7.500E-03   $
 643  242 3.073E-01 1.300E+00 5.209E-01 7.711E+08 1.503E+07 2.004E+09 2.004E+09 0.      7.500E-03   $
 643  241 3.015E-01 1.300E+00 5.487E-01 8.133E+08 1.585E+07 2.114E+09 2.114E+09 0.      7.500E-03   $
 643  240 2.958E-01 1.300E+00 5.779E-01 8.558E+08 1.670E+07 2.224E+09 2.224E+09 0.      7.500E-03   $
 643  239 2.900E-01 1.300E+00 6.087E-01 9.006E+08 1.758E+07 2.341E+09 2.341E+09 0.      7.500E-03   $
REZONE, LOC=700, JOLD=200, JNEW=251, JLAST=200, M=  4, NJ=  4, NCEL= 13, NPART=  3
REZONE, LOC=300, JOLD=199, JNEW=238, JLAST=200, M=  4, NJ=  3, NCEL= 13, NPART=  3
REZONE, LOC=500, JOLD=194, JNEW=238, JLAST=200, M=  4, NJ=  3, NCEL= 13, NPART=  1
REZONE, LOC=601, JOLD=194, JNEW=238, JLAST=200, M=  4, NJ=  3, NCEL=  3, NPART=  1
REZONE, LOC=610, NCEL=  3, XSTART= 2.900E-01, DX= 5.000E-03, XN= 2.850E-01
 643  238 2.850E-01 1.300E+00 5.543E-01 9.469E+08 1.600E+07 2.459E+09 2.459E+09 0.      6.499E-03   $
 643  237 2.800E-01 1.300E+00 6.276E-01 9.898E+08 1.678E+07 2.575E+09 2.575E+09 0.      6.499E-03   $
 643  236 2.750E-01 1.300E+00 1.515E+00 1.036E+09 1.823E+07 2.754E+09 2.754E+09 0.      6.501E-03   $
REZONE, LOC=700, JOLD=194, JNEW=238, JLAST=194, M=  4, NJ=  3, NCEL=  3, NPART=  1
REZONE, LOC=125, JOLD=192, JNEW=234, JLAST=193, M=  3, NJ=  3, NCEL=  3, NPART=  1
REZONE, LOC=500, JOLD=149, JNEW=234, JLAST=193, M=  3, NJ=  3, NCEL=  3, NPART=  4
REZONE, LOC=601, JOLD=149, JNEW=234, JLAST=193, M=  3, NJ=  3, NCEL= 18, NPART=  4
REZONE, LOC=610, NCEL= 18, XSTART= 2.750E-01, DX= 4.889E-03, XN= 2.701E-01
 643  234 2.701E-01 1.200E+00 1.331E+00 1.307E+09 1.821E+07 3.099E+09 3.099E+09 0.      5.865E-03   $
 643  233 2.652E-01 1.200E+00 8.108E-01 1.371E+09 1.932E+07 3.288E+09 3.288E+09 0.      5.867E-03   $
 643  232 2.603E-01 1.200E+00 8.452E-01 1.441E+09 2.029E+07 3.457E+09 3.457E+09 0.      5.867E-03   $
 643  231 2.554E-01 1.200E+00 8.876E-01 1.512E+09 2.131E+07 3.628E+09 3.628E+09 0.      5.867E-03   $
 643  230 2.506E-01 1.200E+00 9.329E-01 1.588E+09 2.237E+07 3.810E+09 3.810E+09 0.      5.867E-03   $
 643  229 2.457E-01 1.200E+00 9.787E-01 1.666E+09 2.349E+07 4.002E+09 4.002E+09 0.      5.867E-03   $
 643  228 2.408E-01 1.200E+00 1.028E+00 1.751E+09 2.467E+07 4.200E+09 4.200E+09 0.      5.867E-03   $
 643  227 2.359E-01 1.200E+00 1.079E+00 1.840E+09 2.591E+07 4.415E+09 4.415E+09 0.      5.867E-03   $
 643  226 2.310E-01 1.200E+00 1.133E+00 1.929E+09 2.720E+07 4.629E+09 4.629E+09 0.      5.867E-03   $
 643  225 2.261E-01 1.200E+00 1.190E+00 2.030E+09 2.857E+07 4.871E+09 4.871E+09 0.      5.867E-03   $
 643  224 2.212E-01 1.200E+00 1.250E+00 2.129E+09 3.000E+07 5.109E+09 5.109E+09 0.      5.867E-03   $
 643  223 2.163E-01 1.200E+00 1.312E+00 2.230E+09 3.150E+07 5.368E+09 5.368E+09 0.      5.867E-03   $
 643  222 2.114E-01 1.200E+00 1.378E+00 2.340E+09 3.308E+07 5.633E+09 5.633E+09 0.      5.867E-03   $
 643  221 2.066E-01 1.200E+00 1.447E+00 2.466E+09 3.474E+07 5.917E+09 5.917E+09 0.      5.867E-03   $
 643  220 2.017E-01 1.200E+00 1.520E+00 2.590E+09 3.648E+07 6.214E+09 6.214E+09 0.      5.867E-03   $
 643  219 1.968E-01 1.200E+00 1.596E+00 2.718E+09 3.831E+07 6.521E+09 6.521E+09 0.      5.867E-03   $
 643  218 1.919E-01 1.200E+00 1.676E+00 2.858E+09 4.023E+07 6.855E+09 6.855E+09 0.      5.867E-03   $
 643  217 1.870E-01 1.200E+00 1.760E+00 2.994E+09 4.224E+07 7.187E+09 7.187E+09 0.      5.867E-03   $
REZONE, LOC=700, JOLD=149, JNEW=234, JLAST=149, M=  3, NJ=  3, NCEL= 18, NPART=  4
REZONE, LOC=400, JOLD=148, JNEW=216, JLAST=149, M=  3, NJ=  3, NCEL= 18, NPART=  4
REZONE, LOC=500, JOLD=147, JNEW=216, JLAST=149, M=  3, NJ=  3, NCEL= 18, NPART=  3
REZONE, LOC=610, NCEL=  1, XSTART= 1.870E-01, DX= 4.000E-03, XN= 1.830E-01
 643  216 1.830E-01 1.200E+00 1.503E+00 3.135E+09 3.613E+07 7.521E+09 7.521E+09 0.      4.800E-03   $
REZONE, LOC=700, JOLD=147, JNEW=216, JLAST=147, M=  3, NJ=  3, NCEL=  1, NPART=  3
REZONE, LOC=300, JOLD=146, JNEW=215, JLAST=147, M=  3, NJ=  2, NCEL=  1, NPART=  3
REZONE, LOC=500, JOLD=143, JNEW=215, JLAST=147, M=  3, NJ=  2, NCEL=  1, NPART=  1
REZONE, LOC=601, JOLD=143, JNEW=215, JLAST=147, M=  3, NJ=  2, NCEL=  2, NPART=  1
REZONE, LOC=610, NCEL=  2, XSTART= 1.830E-01, DX= 4.015E-03, XN= 1.790E-01
 643  215 1.790E-01 1.200E+00 1.166E+00 3.263E+09 3.742E+07 7.808E+09 7.808E+09 0.      4.817E-03   $
 643  214 1.750E-01 1.191E+00-1.222E+01 3.366E+09 3.823E+07 6.919E+09 4.919E+09 0.      4.783E-03   $
REZONE, LOC=700, JOLD=143, JNEW=215, JLAST=143, M=  3, NJ=  2, NCEL=  2, NPART=  1
REZONE, LOC=125, JOLD=141, JNEW=212, JLAST=142, M=  2, NJ=  2, NCEL=  2, NPART=  1
REZONE, LOC=500, JOLD=135, JNEW=212, JLAST=142, M=  2, NJ=  2, NCEL=  2, NPART=  3
REZONE, LOC=601, JOLD=135, JNEW=212, JLAST=142, M=  2, NJ=  2, NCEL=  2, NPART=  3
REZONE, LOC=610, NCEL=  2, XSTART= 1.750E-01, DX= 4.361E-03, XN= 1.706E-01
 643  212 1.706E-01 1.086E+00-1.029E+01 1.780E+09 1.907E+07 4.036E+09 4.036E+09 0.      4.389E-03   $
 643  211 1.663E-01 1.000E+00 1.778E-01 1.707E+09 1.496E+07 3.419E+09 3.419E+09 0.      4.361E-03   $
REZONE, LOC=700, JOLD=135, JNEW=212, JLAST=135, M=  2, NJ=  2, NCEL=  2, NPART=  3
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REZONE, LOC=300, JOLD=134, JNEW=210, JLAST=135, M=  2, NJ=  1, NCEL=  2, NPART=  3
REZONE, LOC=500, JOLD= 82, JNEW=210, JLAST=135, M=  2, NJ=  1, NCEL=  2, NPART=  1
REZONE, LOC=601, JOLD= 82, JNEW=210, JLAST=135, M=  2, NJ=  1, NCEL= 15, NPART=  1
REZONE, LOC=610, NCEL= 15, XSTART= 1.663E-01, DX= 4.417E-03, XN= 1.418E-01
 643  210 1.618E-01 1.000E+00 3.069E-01 1.738E+09 1.535E+07 3.474E+09 3.474E+09 0.      4.417E-03  S
 643  209 1.574E-01 1.000E+00 3.124E-01 1.708E+09 1.562E+07 3.534E+09 3.534E+09 0.      4.417E-03  S
 643  208 1.530E-01 1.000E+00 3.180E-01 1.800E+09 1.590E+07 3.598E+09 3.598E+09 0.      4.417E-03  S
 643  207 1.486E-01 1.000E+00 3.237E-01 1.832E+09 1.618E+07 3.662E+09 3.662E+09 0.      4.417E-03  S
 643  206 1.442E-01 1.000E+00 3.294E-01 1.865E+09 1.647E+07 3.727E+09 3.727E+09 0.      4.417E-03  S
 643  205 1.398E-01 1.000E+00 3.353E-01 1.898E+09 1.677E+07 3.793E+09 3.793E+09 0.      4.417E-03  S
 643  204 1.353E-01 1.000E+00 3.413E-01 1.932E+09 1.706E+07 3.861E+09 3.861E+09 0.      4.417E-03  S
 643  203 1.309E-01 1.000E+00 3.474E-01 1.966E+09 1.737E+07 3.930E+09 3.930E+09 0.      4.417E-03  S
 643  202 1.265E-01 1.000E+00 3.536E-01 2.001E+09 1.768E+07 4.000E+09 4.000E+09 0.      4.417E-03  S
 643  201 1.221E-01 1.000E+00 3.599E-01 2.037E+09 1.799E+07 4.072E+09 4.072E+09 0.      4.417E-03  S
 643  200 1.177E-01 1.000E+00 3.663E-01 2.073E+09 1.831E+07 4.144E+09 4.144E+09 0.      4.417E-03  S
 643  199 1.133E-01 1.000E+00 3.728E-01 2.110E+09 1.864E+07 4.218E+09 4.218E+09 0.      4.417E-03  S
 643  198 1.088E-01 1.000E+00 3.795E-01 2.148E+09 1.897E+07 4.292E+09 4.292E+09 0.      4.417E-03  S
 643  197 1.044E-01 1.000E+00 3.862E-01 2.186E+09 1.931E+07 4.370E+09 4.370E+09 0.      4.417E-03  S
 643  196 1.000E-01 1.000E+00 3.931E-01 2.225E+09 1.965E+07 4.447E+09 4.447E+09 0.      4.417E-03  S
REZONE, LOC=700, JOLD= 82, JNEW=210, JLAST= 82, M=  2, NJ=  1, NCEL= 15, NPART=  1
REZONE, LOC=125, JOLD= 80, JNEW=194, JLAST= 81, M=  1, NJ=  1, NCEL= 15, NPART=  1
REZONE, LOC=500, JOLD= 79, JNEW=194, JLAST= 81, M=  1, NJ=  1, NCEL= 15, NPART=  3
REZONE, LOC=610, NCEL=  1, XSTART= 1.000E-01, DX= 2.500E-03, XN= 9.750E-02
 643  194 9.750E-02 1.000E+00 2.256E-01 2.256E+09 1.128E+07 4.509E+09 4.509E+09 0.      2.500E-03  S
REZONE, LOC=700, JOLD= 79, JNEW=194, JLAST= 79, M=  1, NJ=  1, NCEL=  1, NPART=  3
REZONE, LOC=300, JOLD= 78, JNEW=193, JLAST= 79, M=  1, NJ=  0, NCEL=  1, NPART=  3
REZONE, LOC=500, JOLD= 16, JNEW=193, JLAST= 79, M=  1, NJ=  0, NCEL=  1, NPART=  4
REZONE, LOC=601, JOLD= 16, JNEW=193, JLAST= 79, M=  1, NJ=  0, NCEL= 18, NPART=  4
REZONE, LOC=610, NCEL= 18, XSTART= 9.750E-02, DX= 4.375E-03, XN= 9.313E-02
 643  193 9.313E-02 1.000E+00 4.003E-01 2.288E+09 2.001E+07 4.573E+09 4.573E+09 0.      4.375E-03  S
 643  192 8.875E-02 1.000E+00 4.074E-01 2.327E+09 2.037E+07 4.652E+09 4.652E+09 0.      4.375E-03  S
 643  191 8.438E-02 1.000E+00 4.145E-01 2.369E+09 2.073E+07 4.736E+09 4.736E+09 0.      4.375E-03  S
 643  190 8.000E-02 1.000E+00 4.219E-01 2.410E+09 2.109E+07 4.817E+09 4.817E+09 0.      4.375E-03  S
 643  189 7.563E-02 1.000E+00 4.293E-01 2.454E+09 2.147E+07 4.904E+09 4.904E+09 0.      4.375E-03  S
 643  188 7.125E-02 1.000E+00 4.369E-01 2.496E+09 2.184E+07 4.989E+09 4.989E+09 0.      4.375E-03  S
 643  187 6.688E-02 1.000E+00 4.446E-01 2.541E+09 2.223E+07 5.079E+09 5.079E+09 0.      4.375E-03  S
 643  186 6.250E-02 1.000E+00 4.524E-01 2.585E+09 2.262E+07 5.167E+09 5.167E+09 0.      4.375E-03  S
 643  185 5.813E-02 1.000E+00 4.604E-01 2.631E+09 2.302E+07 5.260E+09 5.260E+09 0.      4.375E-03  S
 643  184 5.375E-02 1.000E+00 4.686E-01 2.677E+09 2.343E+07 5.351E+09 5.351E+09 0.      4.375E-03  S
 643  183 4.938E-02 1.000E+00 4.768E-01 2.725E+09 2.384E+07 5.447E+09 5.447E+09 0.      4.375E-03  S
 643  182 4.500E-02 1.000E+00 4.853E-01 2.772E+09 2.426E+07 5.541E+09 5.541E+09 0.      4.375E-03  S
 643  181 4.063E-02 1.000E+00 4.938E-01 2.822E+09 2.469E+07 5.641E+09 5.641E+09 0.      4.375E-03  S
 643  180 3.625E-02 1.000E+00 5.025E-01 2.871E+09 2.513E+07 5.739E+09 5.739E+09 0.      4.375E-03  S
 643  179 3.188E-02 1.000E+00 5.114E-01 2.923E+09 2.557E+07 5.842E+09 5.842E+09 0.      4.375E-03  S
 643  178 2.750E-02 1.000E+00 5.204E-01 2.973E+09 2.602E+07 5.943E+09 5.943E+09 0.      4.375E-03  S
 643  177 2.313E-02 1.000E+00 5.296E-01 3.027E+09 2.648E+07 6.050E+09 6.050E+09 0.      4.375E-03  S
 643  176 1.875E-02 1.000E+00 5.390E-01 3.079E+09 2.695E+07 6.155E+09 6.155E+09 0.      4.375E-03  S
REZONE, LOC=700, JOLD= 16, JNEW=193, JLAST= 16, M=  1, NJ=  0, NCEL= 18, NPART=  4
REZONE, LOC=400, JOLD= 15, JNEW=175, JLAST= 16, M=  1, NJ=  0, NCEL= 18, NPART=  4
REZONE, LOC=500, JOLD=  1, JNEW=175, JLAST= 16, M=  1, NJ=  0, NCEL= 18, NPART=  2
REZONE, LOC=601, JOLD=  1, JNEW=175, JLAST= 16, M=  1, NJ=  0, NCEL=  5, NPART=  2
REZONE, LOC=610, NCEL=  5, XSTART= 1.875E-02, DX= 3.770E-03, XN= 1.498E-02
 643  175 1.498E-02 1.000E+00 4.721E-01 3.130E+09 2.360E+07 6.257E+09 6.257E+09 0.      3.770E-03  S
 643  174 1.121E-02 1.000E+00 4.793E-01 3.178E+09 2.396E+07 6.352E+09 6.352E+09 0.      3.770E-03  S
 643  173 7.440E-03 1.000E+00 4.864E-01 3.226E+09 2.433E+07 6.449E+09 6.449E+09 0.      3.770E-03  S
 643  172 3.670E-03 9.997E-01 6.522E-02 3.274E+09 2.445E+07 6.516E+09 6.516E+09 0.      3.769E-03  S
 643  171-1.002E-04 9.736E-01-3.257E+01 3.288E+09 1.302E+07 3.643E+09 3.643E+09 0.      3.670E-03  S
REZONE, LOC=700, JOLD=  1, JNEW=175, JLAST=  1, M=  1, NJ=  0, NCEL=  5, NPART=  2
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EDDUMP, N= 102, J=171, JSTAR=286, NSPALL= 0, TIME= 1.000E-08

(MATERIAL A) , C= 0.000 0.000 0.000 0.000 0.000 3.240 0.000 0.000 0.000 0.000 0.000 .250 0.000
EOST= 1.000E+11 0. 2.000E+11 2.000E+00 2.500E-01 2.500E-01 0. 0. 1.000E+00 1.000E+00 0. 0.
MISC= 1.000E+20 1.000E+20 0. 1.000E+00 0. -1.000E+11 0. -1.000E-10 0. 0.

(MATERIAL B) , C= 0.000 0.000 0.000 0.000 0.000 3.240 0.000 0.000 0.000 0.000 0.000 .250 0.000
EOST= 1.000E+11 0. 2.000E+11 2.000E+00 2.500E-01 2.500E-01 0. 0. 1.000E+00 1.000E+00 0. 0.
MISC= 1.000E+20 1.000E+20 0. 1.000E+00 0. -1.000E+11 0. -1.000E-10 0. 0.

(MATERIAL C) , C= 0.000 0.000 0.000 0.000 0.000 3.240 0.000 0.000 0.000 0.000 0.000 .250 0.000
EOST= 1.500E+11 0. 2.000E+11 2.000E+00 2.500E-01 3.125E-01 0. 0. 1.200E+00 1.200E+00 0. 0.
MISC= 1.000E+20 1.000E+20 0. 1.000E+00 0. -1.000E+11 0. -1.000E-10 0. 0.

(MATERIAL D) , C= 0.000 0.000 0.000 0.000 0.000 3.240 0.000 0.000 0.000 0.000 0.000 .250 0.000
EOST= 2.500E+11 0. 2.000E+11 2.000E+00 2.500E-01 4.000E-01 0. 0. 1.300E+00 1.300E+00 0. 0.
MISC= 1.000E+20 1.000E+20 0. 1.000E+00 0. -1.000E+11 0. -1.000E-10 0. 0.

(MATERIAL E) , C= 0.000 0.000 0.000 0.000 0.000 3.240 0.000 0.000 0.000 0.000 0.000 .250 0.000
EOST= 9.000E+11 0. 2.000E+11 2.000E+00 2.500E-01 1.607E+00 0. 0. 1.400E+00 1.400E+00 0. 0.
MISC= 1.000E+20 1.000E+20 0. 1.000E+00 0. -1.000E+11 0. -1.000E-10 0. 0.

(MATERIAL F) , C= 0.000 0.000 0.000 0.000 0.000 3.240 0.000 0.000 0.000 0.000 0.000 .250 0.000
EOST= 2.000E+11 0. 2.000E+11 2.000E+00 2.500E-01 3.333E-01 0. 0. 1.500E+00 1.500E+00 0. 0.
MISC= 1.000E+20 1.000E+20 0. 1.000E+00 0. -1.000E+11 0. -1.000E-10 0. 0.

J	DX	X	CML	DML	EML	PML	QML	R	T	U	YML	ZML	M
171	1.002E-04	3.770E-03	3.449E+05	9.736E-01	3.268E+09	3.443E+09	3.443E+09	0.	-1.000E+11	-8.874E+03	0.	3.670E-03	SSB
172	3.670E-03	3.770E-03	3.456E+05	9.997E-01	3.274E+09	6.516E+09	6.516E+09	5.037E+09	-1.000E+11	-4.369E+03	0.	3.769E-03	SNB
173	7.440E-03	3.770E-03	3.360E+05	1.000E+00	3.224E+09	6.447E+09	6.449E+09	6.470E+09	-1.000E+11	7.317E+01	0.	3.770E-03	SNB
174	1.121E-02	3.770E-03	3.357E+05	1.000E+00	3.178E+09	6.352E+09	6.358E+09	6.404E+09	-1.000E+11	1.281E+02	0.	3.770E-03	SNB
175	1.498E-02	3.770E-03	3.354E+05	1.000E+00	3.130E+09	6.257E+09	6.297E+09	6.309E+09	-1.000E+11	1.262E+02	0.	3.770E-03	SNB
176	1.875E-02	4.375E-03	3.351E+05	1.000E+00	3.079E+09	6.155E+09	6.158E+09	6.207E+09	-1.000E+11	1.241E+02	0.	4.375E-03	SNB
177	2.313E-02	4.375E-03	3.348E+05	1.000E+00	3.027E+09	6.050E+09	6.050E+09	6.106E+09	-1.000E+11	1.221E+02	0.	4.375E-03	SNB
178	2.750E-02	4.375E-03	3.345E+05	1.000E+00	2.977E+09	5.943E+09	5.943E+09	6.001E+09	-1.000E+11	1.200E+02	0.	4.375E-03	SNB
179	3.188E-02	4.375E-03	3.342E+05	1.000E+00	2.923E+09	5.842E+09	5.842E+09	5.896E+09	-1.000E+11	1.179E+02	0.	4.375E-03	SNB
180	3.625E-02	4.375E-03	3.339E+05	1.000E+00	2.871E+09	5.739E+09	5.739E+09	5.794E+09	-1.000E+11	1.159E+02	0.	4.375E-03	SNB
181	4.063E-02	4.375E-03	3.336E+05	1.000E+00	2.822E+09	5.641E+09	5.641E+09	5.694E+09	-1.000E+11	1.139E+02	0.	4.375E-03	SNB
182	4.500E-02	4.375E-03	3.333E+05	1.000E+00	2.772E+09	5.541E+09	5.541E+09	5.595E+09	-1.000E+11	1.119E+02	0.	4.375E-03	SNB
183	4.938E-02	4.375E-03	3.330E+05	1.000E+00	2.725E+09	5.447E+09	5.447E+09	5.498E+09	-1.000E+11	1.100E+02	0.	4.375E-03	SNB
184	5.375E-02	4.375E-03	3.327E+05	1.000E+00	2.677E+09	5.351E+09	5.351E+09	5.402E+09	-1.000E+11	1.080E+02	0.	4.375E-03	SNB
185	5.813E-02	4.375E-03	3.324E+05	1.000E+00	2.631E+09	5.260E+09	5.260E+09	5.309E+09	-1.000E+11	1.062E+02	0.	4.375E-03	SNB
186	6.250E-02	4.375E-03	3.322E+05	1.000E+00	2.588E+09	5.167E+09	5.167E+09	5.217E+09	-1.000E+11	1.043E+02	0.	4.375E-03	SNB
187	6.688E-02	4.375E-03	3.319E+05	1.000E+00	2.541E+09	5.079E+09	5.079E+09	5.126E+09	-1.000E+11	1.025E+02	0.	4.375E-03	SNB
188	7.125E-02	4.375E-03	3.316E+05	1.000E+00	2.494E+09	4.989E+09	4.989E+09	5.037E+09	-1.000E+11	1.007E+02	0.	4.375E-03	SNB
189	7.563E-02	4.375E-03	3.314E+05	1.000E+00	2.454E+09	4.904E+09	4.904E+09	4.950E+09	-1.000E+11	9.899E+01	0.	4.375E-03	SNB
190	8.000E-02	4.375E-03	3.311E+05	1.000E+00	2.411E+09	4.817E+09	4.817E+09	4.864E+09	-1.000E+11	9.728E+01	0.	4.375E-03	SNB
191	8.438E-02	4.375E-03	3.309E+05	1.000E+00	2.369E+09	4.736E+09	4.736E+09	4.780E+09	-1.000E+11	9.559E+01	0.	4.375E-03	SNB
192	8.875E-02	4.375E-03	3.306E+05	1.000E+00	2.327E+09	4.652E+09	4.652E+09	4.697E+09	-1.000E+11	9.393E+01	0.	4.375E-03	SNB
193	9.313E-02	4.375E-03	3.304E+05	1.000E+00	2.288E+09	4.573E+09	4.573E+09	4.615E+09	-1.000E+11	9.230E+01	0.	4.375E-03	SNB
194	9.750E-02	2.500E-03	3.302E+05	1.000E+00	2.254E+09	4.509E+09	4.509E+09	4.552E+09	-1.000E+11	9.104E+01	0.	2.500E-03	SNB
195	1.000E-01	0.	4.432E+05	1.300E+00	1.024E+09	2.485E+09	2.485E+09	4.481E+09	-1.000E-10	8.962E+01	0.	3.250E-03	SLB
196	1.000E-01	4.417E-03	3.300E+05	1.000E+00	2.225E+09	4.447E+09	4.447E+09	4.481E+09	-1.000E+11	8.962E+01	0.	4.417E-03	SRB
197	1.044E-01	4.417E-03	3.298E+05	1.000E+00	2.184E+09	4.370E+09	4.370E+09	4.411E+09	-1.000E+11	8.823E+01	0.	4.417E-03	SNB
198	1.088E-01	4.417E-03	3.295E+05	1.000E+00	2.144E+09	4.292E+09	4.292E+09	4.334E+09	-1.000E+11	8.668E+01	0.	4.417E-03	SNB
199	1.133E-01	4.417E-03	3.293E+05	1.000E+00	2.110E+09	4.218E+09	4.218E+09	4.258E+09	-1.000E+11	8.516E+01	0.	4.417E-03	SNB
200	1.177E-01	4.417E-03	3.291E+05	1.000E+00	2.073E+09	4.144E+09	4.144E+09	4.184E+09	-1.000E+11	8.367E+01	0.	4.417E-03	SNB
201	1.221E-01	4.417E-03	3.289E+05	1.000E+00	2.037E+09	4.072E+09	4.072E+09	4.110E+09	-1.000E+11	8.221E+01	0.	4.417E-03	SNB
202	1.265E-01	4.417E-03	3.286E+05	1.000E+00	2.001E+09	4.000E+09	4.000E+09	4.038E+09	-1.000E+11	8.077E+01	0.	4.417E-03	SNB
203	1.309E-01	4.417E-03	3.284E+05	1.000E+00	1.966E+09	3.930E+09	3.930E+09	3.968E+09	-1.000E+11	7.935E+01	0.	4.417E-03	SNB

204	1.353E-01	4.417E-03	3.282E+05	1.000E+00	1.932E+09	3.861E+09	3.861E+09	3.890E+09-1.000E+11	7.796E+01	0.	4.417E-03	SNB
205	1.398E-01	4.417E-03	3.280E+05	1.000E+00	1.899E+09	3.793E+09	3.793E+09	3.830E+09-1.000E+11	7.660E+01	0.	4.417E-03	SNB
206	1.442E-01	4.417E-03	3.278E+05	1.000E+00	1.865E+09	3.727E+09	3.727E+09	3.763E+09-1.000E+11	7.526E+01	0.	4.417E-03	SNB
207	1.486E-01	4.417E-03	3.276E+05	1.000E+00	1.832E+09	3.662E+09	3.662E+09	3.697E+09-1.000E+11	7.394E+01	0.	4.417E-03	SNB
208	1.530E-01	4.417E-03	3.274E+05	1.000E+00	1.800E+09	3.599E+09	3.599E+09	3.632E+09-1.000E+11	7.264E+01	0.	4.417E-03	SNB
209	1.574E-01	4.417E-03	3.272E+05	1.000E+00	1.768E+09	3.534E+09	3.534E+09	3.569E+09-1.000E+11	7.137E+01	0.	4.417E-03	SNB
210	1.618E-01	4.417E-03	3.270E+05	1.000E+00	1.736E+09	3.474E+09	3.474E+09	3.506E+09-1.000E+11	7.011E+01	0.	4.417E-03	SNB
211	1.663E-01	4.361E-03	3.268E+05	1.000E+00	1.707E+09	3.419E+09	3.419E+09	3.453E+09-1.000E+11	5.922E+01	0.	4.361E-03	SNB
212	1.706E-01	4.361E-03	3.266E+05	1.000E+00	1.700E+09	4.036E+09	4.036E+09	3.888E+09-1.000E+11-1.156E+03		0.	4.389E-03	SNB
213	1.750E-01	0.	4.416E+05	1.100E+00	6.824E+08	1.775E+09	1.779E+09	5.646E+09-1.000E-10-2.449E+03		0.	3.250E-03	SLB
214	1.750E-01	4.015E-03	3.833E+05	1.191E+00	3.384E+09	6.919E+09	6.919E+09	5.646E+09-1.000E+11-2.449E+03		0.	4.783E-03	SRB
215	1.790E-01	4.015E-03	3.839E+05	1.200E+00	3.263E+09	7.408E+09	7.808E+09	7.359E+09-1.000E+11-1.151E+03		0.	4.817E-03	SNB
216	1.830E-01	4.000E-03	3.709E+05	1.200E+00	3.139E+09	7.521E+09	7.521E+09	7.047E+09-1.000E+11	2.776E+02	0.	4.800E-03	SNB
217	1.870E-01	4.889E-03	3.701E+05	1.200E+00	2.994E+09	7.187E+09	7.187E+09	7.347E+09-1.000E+11	3.059E+02	0.	5.867E-03	SNB
218	1.919E-01	4.889E-03	3.694E+05	1.200E+00	2.859E+09	6.855E+09	6.855E+09	7.028E+09-1.000E+11	2.928E+02	0.	5.867E-03	SNB
219	1.960E-01	4.889E-03	3.686E+05	1.200E+00	2.719E+09	6.521E+09	6.521E+09	6.693E+09-1.000E+11	2.788E+02	0.	5.867E-03	SNB
220	2.017E-01	4.889E-03	3.679E+05	1.200E+00	2.590E+09	6.214E+09	6.214E+09	6.374E+09-1.000E+11	2.655E+02	0.	5.867E-03	SNB
221	2.066E-01	4.889E-03	3.672E+05	1.200E+00	2.466E+09	5.917E+09	5.917E+09	6.070E+09-1.000E+11	2.529E+02	0.	5.867E-03	SNB
222	2.114E-01	4.889E-03	3.666E+05	1.200E+00	2.344E+09	5.633E+09	5.633E+09	5.780E+09-1.000E+11	2.408E+02	0.	5.867E-03	SNB
223	2.163E-01	4.889E-03	3.660E+05	1.200E+00	2.234E+09	5.368E+09	5.368E+09	5.506E+09-1.000E+11	2.293E+02	0.	5.867E-03	SNB
224	2.212E-01	4.889E-03	3.654E+05	1.200E+00	2.129E+09	5.116E+09	5.116E+09	5.248E+09-1.000E+11	2.184E+02	0.	5.867E-03	SNB
225	2.261E-01	4.889E-03	3.649E+05	1.200E+00	2.030E+09	4.871E+09	4.871E+09	4.991E+09-1.000E+11	2.079E+02	0.	5.867E-03	SNB
226	2.310E-01	4.889E-03	3.643E+05	1.200E+00	1.929E+09	4.629E+09	4.629E+09	4.753E+09-1.000E+11	1.980E+02	0.	5.867E-03	SNB
227	2.359E-01	4.889E-03	3.638E+05	1.200E+00	1.840E+09	4.415E+09	4.415E+09	4.527E+09-1.000E+11	1.886E+02	0.	5.867E-03	SNB
228	2.408E-01	4.889E-03	3.633E+05	1.200E+00	1.751E+09	4.200E+09	4.200E+09	4.311E+09-1.000E+11	1.796E+02	0.	5.867E-03	SNB
229	2.457E-01	4.889E-03	3.629E+05	1.200E+00	1.668E+09	4.002E+09	4.002E+09	4.105E+09-1.000E+11	1.710E+02	0.	5.867E-03	SNB
230	2.506E-01	4.889E-03	3.624E+05	1.200E+00	1.588E+09	3.810E+09	3.810E+09	3.909E+09-1.000E+11	1.628E+02	0.	5.867E-03	SNB
231	2.554E-01	4.889E-03	3.620E+05	1.200E+00	1.512E+09	3.628E+09	3.628E+09	3.722E+09-1.000E+11	1.551E+02	0.	5.867E-03	SNB
232	2.603E-01	4.889E-03	3.616E+05	1.200E+00	1.441E+09	3.457E+09	3.457E+09	3.545E+09-1.000E+11	1.477E+02	0.	5.867E-03	SNB
233	2.652E-01	4.889E-03	3.624E+05	1.200E+00	1.371E+09	3.288E+09	3.288E+09	3.373E+09-1.000E+11	1.411E+02	0.	5.865E-03	SNB
234	2.701E-01	4.889E-03	3.660E+05	1.200E+00	1.307E+09	3.099E+09	3.099E+09	3.198E+09-1.000E+11	1.826E+02	0.	5.865E-03	SNB
235	2.750E-01	0.	8.038E+09	1.400E+00	5.223E+08	1.262E+09	1.262E+09	2.954E+09-1.000E-10	2.300E+02	0.	4.667E-03	SLB
236	2.750E-01	5.000E-03	4.432E+05	1.300E+00	1.036E+09	2.754E+09	2.754E+09	2.954E+09-1.000E+11	2.300E+02	0.	6.501E-03	SRB
237	2.800E-01	5.000E-03	4.430E+05	1.300E+00	9.898E+08	2.575E+09	2.575E+09	2.694E+09-1.000E+11	1.648E+02	0.	6.499E-03	SNB
238	2.850E-01	5.000E-03	4.428E+05	1.300E+00	9.443E+08	2.459E+09	2.459E+09	2.522E+09-1.000E+11	9.093E+01	0.	6.499E-03	SNB
239	2.900E-01	5.769E-03	4.424E+05	1.300E+00	9.086E+08	2.341E+09	2.341E+09	2.399E+09-1.000E+11	8.308E+01	0.	7.500E-03	SNB
240	2.950E-01	5.769E-03	4.424E+05	1.300E+00	8.758E+08	2.224E+09	2.224E+09	2.286E+09-1.000E+11	7.911E+01	0.	7.500E-03	SNB
241	3.015E-01	5.769E-03	4.422E+05	1.300E+00	8.133E+08	2.114E+09	2.114E+09	2.170E+09-1.000E+11	7.510E+01	0.	7.500E-03	SNB
242	3.073E-01	5.769E-03	4.420E+05	1.300E+00	7.711E+08	2.004E+09	2.004E+09	2.060E+09-1.000E+11	7.130E+01	0.	7.500E-03	SNB
243	3.131E-01	5.769E-03	4.419E+05	1.300E+00	7.322E+08	1.903E+09	1.903E+09	1.956E+09-1.000E+11	6.770E+01	0.	7.500E-03	SNB
244	3.188E-01	5.769E-03	4.417E+05	1.300E+00	6.953E+08	1.808E+09	1.808E+09	1.857E+09-1.000E+11	6.427E+01	0.	7.500E-03	SNB
245	3.246E-01	5.769E-03	4.415E+05	1.300E+00	6.602E+08	1.716E+09	1.716E+09	1.763E+09-1.000E+11	6.102E+01	0.	7.500E-03	SNB
246	3.304E-01	5.769E-03	4.414E+05	1.300E+00	6.269E+08	1.628E+09	1.628E+09	1.674E+09-1.000E+11	5.793E+01	0.	7.500E-03	SNB
247	3.362E-01	5.769E-03	4.412E+05	1.300E+00	5.953E+08	1.547E+09	1.547E+09	1.589E+09-1.000E+11	5.500E+01	0.	7.500E-03	SNB
248	3.419E-01	5.769E-03	4.411E+05	1.300E+00	5.653E+08	1.469E+09	1.469E+09	1.509E+09-1.000E+11	5.222E+01	0.	7.500E-03	SNB
249	3.477E-01	5.769E-03	4.410E+05	1.300E+00	5.369E+08	1.393E+09	1.393E+09	1.432E+09-1.000E+11	4.957E+01	0.	7.500E-03	SNB
250	3.535E-01	5.769E-03	4.408E+05	1.300E+00	5.099E+08	1.324E+09	1.324E+09	1.360E+09-1.000E+11	4.707E+01	0.	7.500E-03	SNB
251	3.592E-01	5.769E-03	4.407E+05	1.300E+00	4.844E+08	1.258E+09	1.258E+09	1.291E+09-1.000E+11	4.465E+01	0.	6.499E-03	SNB
252	3.650E-01	5.000E-03	4.406E+05	1.300E+00	4.604E+08	1.199E+09	1.199E+09	1.233E+09-1.000E+11	3.987E+01	0.	6.501E-03	SNB
253	3.700E-01	5.000E-03	4.405E+05	1.300E+00	4.404E+08	1.190E+09	1.190E+09	1.209E+09-1.000E+11-1.112E+01		0.	4.667E-03	SLB
254	3.750E-01	0.	8.024E+05	1.400E+00	2.447E+08	6.848E+08	6.848E+08	1.263E+09-1.000E-10-4.141E+01		0.	1.400E-02	SRB
255	3.750E-01	1.000E-02	8.038E+05	1.400E+00	5.022E+08	1.316E+09	1.316E+09	1.263E+09-1.000E+11-4.141E+01		0.	1.400E-02	SNB
256	3.850E-01	1.000E-02	8.029E+05	1.400E+00	4.455E+08	1.248E+09	1.248E+09	1.281E+09-1.000E+11	1.402E+01	0.	1.400E-02	SNB
257	3.950E-01	1.000E-02	8.028E+05	1.400E+00	3.951E+08	1.107E+09	1.107E+09	1.179E+09-1.000E+11	5.018E+01	0.	1.400E-02	SNB
258	4.050E-01	1.000E-02	8.027E+05	1.400E+00	3.504E+08	9.820E+08	9.820E+08	1.046E+09-1.000E+11	4.479E+01	0.	1.400E-02	SNB
259	4.150E-01	1.000E-02	8.026E+05	1.400E+00	3.108E+08	8.710E+08	8.710E+08	9.279E+08-1.000E+11	3.973E+01	0.	1.400E-02	SNB
260	4.250E-01	1.000E-02	8.025E+05	1.400E+00	2.754E+08	7.725E+08	7.725E+08	8.230E+08-1.000E+11	3.523E+01	0.	1.400E-02	SNB
261	4.350E-01	1.000E-02	8.024E+05	1.400E+00	2.442E+08	6.851E+08	6.851E+08	7.299E+08-1.000E+11	3.125E+01	0.	1.400E-02	SNB
262	4.450E-01	1.000E-02	8.023E+05	1.400E+00	2.165E+08	6.077E+08	6.077E+08	6.474E+08-1.000E+11	2.771E+01	0.	1.400E-02	SNB

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263 4.550E-01 1.000E-02 8.023E+05 1.400E+00 1.927E+08 5.402E+08 5.402E+08 5.762E+08-1.000E+11 2.352E+01 0.        1.400E-02 SNB
264 4.650E-01 1.000E-02 8.022E+05 1.400E+00 1.784E+08 5.002E+08 5.002E+08 6.014E+08-1.000E+11-3.827E+01 0.        1.400E-02 SNB
265 4.750E-01 0.        8.064E+05 1.400E+00 0.        0.        0.        8.226E+08-1.000E-10-1.989E+02 0.        0.        SLB

266 4.750E-01 5.001E-03 3.683E+05 1.500E+00 3.477E+08 9.840E+08 9.840E+08 8.226E+08-1.000E+11-1.989E+02 0.        7.500E-03 SRB
267 4.800E-01 5.000E-03 3.668E+05 1.500E+00 2.994E+08 8.476E+08 8.476E+08 9.414E+08-1.000E+11 7.542E+01 0.        7.500E-03 SNB
268 4.850E-01 5.000E-03 3.666E+05 1.500E+00 2.577E+08 7.740E+08 7.740E+08 8.366E+08-1.000E+11 8.255E+01 0.        7.500E-03 SNB
269 4.900E-01 5.000E-03 3.664E+05 1.500E+00 2.218E+08 6.643E+08 6.643E+08 7.220E+08-1.000E+11 7.191E+01 0.        7.500E-03 SNB
270 4.950E-01 5.000E-03 3.662E+05 1.500E+00 1.909E+08 5.735E+08 5.735E+08 6.216E+08-1.000E+11 6.193E+01 0.        7.500E-03 SNB
271 5.000E-01 5.000E-03 3.660E+05 1.500E+00 1.643E+08 4.936E+08 4.936E+08 5.350E+08-1.000E+11 5.331E+01 0.        7.500E-03 SNB
272 5.050E-01 5.000E-03 3.659E+05 1.500E+00 1.414E+08 4.248E+08 4.248E+08 4.605E+08-1.000E+11 4.588E+01 0.        7.500E-03 SNB
273 5.100E-01 5.000E-03 3.658E+05 1.500E+00 1.217E+08 3.657E+08 3.657E+08 3.963E+08-1.000E+11 3.949E+01 0.        7.500E-03 SNB
274 5.150E-01 5.000E-03 3.657E+05 1.500E+00 1.044E+08 3.147E+08 3.147E+08 3.411E+08-1.000E+11 3.399E+01 0.        7.500E-03 SNB
275 5.200E-01 5.000E-03 3.656E+05 1.500E+00 9.017E+07 2.709E+08 2.709E+08 2.936E+08-1.000E+11 2.926E+01 0.        7.500E-03 SNB
276 5.250E-01 5.000E-03 3.656E+05 1.500E+00 7.761E+07 2.332E+08 2.332E+08 2.527E+08-1.000E+11 2.518E+01 0.        7.500E-03 SNB
277 5.300E-01 5.000E-03 3.655E+05 1.500E+00 6.680E+07 2.007E+08 2.007E+08 2.175E+08-1.000E+11 2.167E+01 0.        7.500E-03 SNB
278 5.350E-01 5.000E-03 3.655E+05 1.500E+00 5.750E+07 1.727E+08 1.727E+08 1.872E+08-1.000E+11 1.865E+01 0.        7.500E-03 SNB
279 5.400E-01 5.000E-03 3.654E+05 1.500E+00 4.949E+07 1.487E+08 1.487E+08 1.611E+08-1.000E+11 1.606E+01 0.        7.500E-03 SNB
280 5.450E-01 5.000E-03 3.654E+05 1.500E+00 4.259E+07 1.280E+08 1.280E+08 1.387E+08-1.000E+11 1.382E+01 0.        7.500E-03 SNB
281 5.500E-01 5.000E-03 3.653E+05 1.500E+00 3.664E+07 1.101E+08 1.101E+08 1.194E+08-1.000E+11 1.189E+01 0.        7.500E-03 SNB
282 5.550E-01 5.000E-03 3.653E+05 1.500E+00 3.154E+07 9.479E+07 9.479E+07 1.027E+08-1.000E+11 1.024E+01 0.        7.500E-03 SNB
283 5.600E-01 5.000E-03 3.653E+05 1.500E+00 2.714E+07 8.158E+07 8.158E+07 8.842E+07-1.000E+11 8.817E+00 0.        7.500E-03 SNB
284 5.650E-01 5.000E-03 3.654E+05 1.500E+00 2.334E+07 7.018E+07 6.998E+07 7.583E+07-1.000E+11 7.694E+00 0.        7.500E-03 SNB
285 5.700E-01 5.000E-03 3.653E+05 1.500E+00 2.012E+07 6.043E+07 5.123E+07 6.064E+07-1.000E+11 9.626E+00 0.        7.500E-03 SNB
286 5.750E-01-2.556E-07 3.656E+05 1.500E+00 0.        0.        0.        0.       -1.000E-10 7.425E+01 0.        0.        SLB

287 5.750E-01-5.750E-01 0.        0.        0.        0.        0.        0.        0.        0.        0.        0.        ZS

END REZONE, JINIT=171, TIME IN REZONE= 1.856E+00 SECS
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6. Test No. 400

Problem 400 is a radiation deposition test in solid materials. The problem is similar but not identical to the test problem for PUFF 66. The differences lie in the specification of EMELT (melting) variables for both materials, setting NSEPRAT to -1, and inserting reasonable values for TENS (spall strength). With NSEPRAT at -1, the molten or vaporized material stretches at zero stress rather than spalling or sustaining a tensile stress. The listing given below includes the input data, the initial layout, and graphs of several EDIT's. The times of these edits are the same as those provided with the PUFF 66 test run.

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     **** SRI PUFF 1 (6400 VERSION) ****

NDATE= 1/ 9/69    IDENT= 400  PUFF 66 SAMPLE PROBLEM (NORMAL RUN)

RADIATION FROM ONE BLACK BODY AND ONE ARBITRARY SPECTRUM ARE DEPOSITED IN
0.3 CM OF A SURFACE MATERIAL (PAINT) AND 4.0 CM OF ALUMINUM.
NSEPRAT IS SET TO -1.  THEREFORE NEGATIVE STRESSES ARE NOT ALLOWED IN THE
MOLTEN OR VAPORIZED MATERIAL.  INSTEAD OF NEGATIVE STRESSES, EXPANSION OR
STRETCHING IS ALLOWED AT ZERO STRESS.

     * * *  SRI PUFF  TEST RUN OF PUFF 66 SAMPLE PROBLEM  * * *
1 NTEDT=            7 NJEDIT=            6 NREZON=            3 NSEPRAT=      -1
2 TEDIT=  3.000E-08 1.000E-07 1.979E-07 3.540E-07 1.312E-06 2.410E-06 3.450E-06
3 JEDIT=    20   60   100  140  210  260
4 NTR=       1    2     3
5JREZON=    30   60    70
6 NEDTM=          400 NEDIT=          200 NPERN=            1 MAXPRN =         1
MAXPM =      0    0     0    0    0    0    0    0    1   -0    -0
7 STOPS               JCYCS=         1400 CKS=     3.500E+00 TS=       5.519E-06
8 NMTHLS=           2 MATFL=            0 UZERO=   0.           IPLOT =          1

(MATERIAL 1)          RHOS=     1.490E+00 NSR =    0 NYAM =  -2 NPOR=   0 NCON=   1
FOSTC=    1.380E+11 EOSTD=     3.451E+12  EOSTE=   2.200E+11  EOSTG=  5.040E-01
FOSTM=    2.500E-01 EOSTS=     0.         EOSTN =  8.401E-01 EOSTA =  5.410E-12
COSO=     3.240E+00  C1=       2.500E-01  C2=      0.
TENS(1)= -1.000E+10 TENS(2)=   0.        TENS(3)= -1.000E+10
  EMELT=  1.000E+10 5.000E+09  0.         5.000E-01 0.
NOE=   13   RHOC=   1.490E+00
FDGES=    2.479E+00 3.099E+00 4.132E+00 4.985E+00 6.198E+00 8.264E+00 1.550E+01
          2.066E+01 2.479E+01 3.099E+01 4.132E+01 4.958E+01 6.198E+01
 AA=      2.038E+03 2.038E+03 2.037E+03 2.036E+03 2.034E+03 2.027E+03 1.992E+03
          3.002E+02 6.868E+01 1.705E+01 3.874E+00 1.887E+00 7.724E-01 6.168E-01
 B=      -2.859E+00-2.858E+00-2.858E+00-2.858E+00-2.857E+00-2.855E+00-2.847E+00
         -2.132E+00-1.642E+00-1.208E+00-7.762E-01-5.827E-01-3.545E-01-3.035E-01
NZONES= 3          40 CELLS IN  1.000E-02 CM. DELX= 1.000E-04           -0.
                   40 CELLS IN  1.000E-01 CM. DELX= 5.000E-04           -0.
                   40 CELLS IN  1.900E-01 CM        -0.                 -0.

(MATERIAL 2)          RHOS=     2.700E+00 NSR =    0 NYAM =   3 NPOR =  0 NCON=   1
FUSTC=    7.210E+11  EOSTD=    1.313E+12  EOSTE=   1.220E+11  EOSTG=   2.040E+00
 EOSTM=   2.500E-01  EOSTS=    1.397E+12 EOSTN =   1.074E+00 EOSTA =   7.633E-12
COSO=     3.240E+00  C1=       2.500E-01  C2=      0.
TENS(1)= -2.000E+10 TENS(2)=   0.        TENS(3)=  -2.000E+10
YOS=      3.779E+08   MU=      2.480E+11  YADD=     5.000E+09
  EMELT=  6.000E+10 2.400E+09 1.500E-01 2.500E-01-1.000E-01
NOE=    6   RHOC=   2.700E+00
FDGES=    1.559E+00 3.099E+01 4.132E+01 4.958E+01 6.198E+01 8.264E+01
AA=       9.267E+02 1.535E+04 3.141E+03 8.951E+02 1.723E+02 2.793E+01 2.591E+00
B=       -2.006E+00-2.780E+00-2.323E+00-1.984E+00-1.562E+00-1.121E+00-5.876E-01
NZONES= 3.          50 CELLS IN  5.000E-01 CM. DELX= 7.000E-03          -0.
                    50 CELLS IN  1.000E+00 CM. DELX= 1.400E-02          -0.
                    70 CELLS IN  2.000E+00 CM. DELX= 2.600E-02          -0.
NSPFC=  2 ANGLE=    0.
       * * *   SPECTRUM NO. 1. 1 BLACK BODY   * * *
MMNU=   0 NOD=     1 NAHH=   0 START=    0.           STOP=     3.000E-08
       * * *   TABLE OF HNU VALUES FOR BLACK BODY ENERGY   * * *
6.287E-01 8.113E-01 9.464E-01 1.058E+00 1.155E+00 1.242E+00 1.322E+00 1.397E+00
1.466E+00 1.533E+00 1.599E+00 1.660E+00 1.720E+00 1.777E+00 1.833E+00 1.888E+00
1.942E+00 1.994E+00 2.046E+00 2.096E+00 2.146E+00 2.195E+00 2.244E+00 2.292E+00
2.340E+00 2.388E+00 2.435E+00 2.481E+00 2.528E+00 2.574E+00 2.620E+00 2.666E+00
2.712E+00 2.757E+00 2.803E+00 2.849E+00 2.895E+00 2.940E+00 2.986E+00 3.032E+00
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 3.078E+00 3.124E+00 3.171E+00 3.217E+00 3.264E+00 3.311E+00 3.359E+00 3.406E+00
 3.454E+00 3.503E+00 3.552E+00 3.601E+00 3.651E+00 3.701E+00 3.752E+00 3.804E+00
 3.856E+00 3.908E+00 3.962E+00 4.016E+00 4.071E+00 4.127E+00 4.184E+00 4.242E+00
 4.300E+00 4.360E+00 4.421E+00 4.484E+00 4.548E+00 4.613E+00 4.680E+00 4.748E+00
 4.818E+00 4.891E+00 4.965E+00 5.042E+00 5.121E+00 5.203E+00 5.288E+00 5.376E+00
 5.468E+00 5.563E+00 5.664E+00 5.769E+00 5.880E+00 5.997E+00 6.122E+00 6.255E+00
 6.398E+00 6.553E+00 6.723E+00 6.909E+00 7.119E+00 7.357E+00 7.634E+00 7.968E+00
 8.390E+00 8.972E+00 9.942E+00 1.009E+01 1.025E+01 1.043E+01 1.064E+01 1.088E+01
 1.110E+01 1.157E+01 1.210E+01 1.303E+01 1.500E+01
 TEMP=     1.000E+00    ECAL=    2.000E+01
           0 0 0     SPECTRUM NO. 2. 10 ARBITRARY SPECTRA
 NHNU=  10 NWB=     0 NARB=    0 START=     0.          STOP=      5.000E-09
 FLUX =    1.000E+00
 (1)       HNU= 1.500E+00 KEV.       EI= 0.          CAL/CM2
 (2)       HNU= 4.500E+00 KEV.       EI= 1.100E+01 CAL/CM2
 (3)       HNU= 7.500E+00 KEV.       EI= 1.340E+01 CAL/CM2
 (4)       HNU= 1.050E+01 KEV.       EI= 1.320E+01 CAL/CM2
 (5)       HNU= 1.350E+01 KEV.       EI= 1.240E+01 CAL/CM2
 (6)       HNU= 1.650E+01 KEV.       EI= 1.080E+01 CAL/CM2
 (7)       HNU= 1.950E+01 KEV.       EI= 8.400E+00 CAL/CM2
 (8)       HNU= 2.250E+01 KEV.       EI= 5.400E+00 CAL/CM2
 (9)       HNU= 2.550E+01 KEV.       EI= 2.400E+00 CAL/CM2
 (10)      HNU= 2.850E+01 KEV.       EI= 6.000E-01 CAL/CM2

                                                              *END*
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* * * SRI PUFF TEST RUN OF PUFF 66 SAMPLE PROBLEM * * *

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YHL(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZHL(J) GM/CM2	MATERIAL	COND	J
1	1.000E-04	0.	2.211E+11	7.871E-01	0.	3.073E+05	1.490E+00	-1.000E+10	1.490E-04	(MATERIAL 1)	S N B	1
2	1.077E-04	1.000E-04	1.678E+11	1.430E+00	0.	3.073E+05	1.490E+00	-1.000E+10	1.605E-04	(MATERIAL 1)	S N B	2
3	1.154E-04	2.077E-04	1.391E+11	2.001E+00	0.	3.073E+05	1.490E+00	-1.000E+10	1.719E-04	(MATERIAL 1)	S N B	3
4	1.231E-04	3.231E-04	1.212E+11	2.532E+00	0.	3.073E+05	1.490E+00	-1.000E+10	1.834E-04	(MATERIAL 1)	S N B	4
5	1.308E-04	4.462E-04	1.085E+11	3.037E+00	0.	3.073E+05	1.490E+00	-1.000E+10	1.948E-04	(MATERIAL 1)	S N B	5
6	1.385E-04	5.769E-04	9.877E+10	3.524E+00	0.	3.073E+05	1.490E+00	-1.000E+10	2.063E-04	(MATERIAL 1)	S N B	6
7	1.462E-04	7.154E-04	9.091E+10	3.997E+00	0.	3.073E+05	1.490E+00	-1.000E+10	2.178E-04	(MATERIAL 1)	S N B	7
8	1.538E-04	8.615E-04	8.437E+10	4.459E+00	0.	3.073E+05	1.490E+00	-1.000E+10	2.292E-04	(MATERIAL 1)	S N B	8
9	1.615E-04	1.015E-03	7.881E+10	4.912E+00	0.	3.073E+05	1.490E+00	-1.000E+10	2.407E-04	(MATERIAL 1)	S N B	9
10	1.692E-04	1.177E-03	7.400E+10	5.358E+00	0.	3.073E+05	1.490E+00	-1.000E+10	2.522E-04	(MATERIAL 1)	S N B	10
11	1.769E-04	1.346E-03	6.977E+10	5.797E+00	0.	3.073E+05	1.490E+00	-1.000E+10	2.636E-04	(MATERIAL 1)	S N B	11
12	1.846E-04	1.523E-03	6.603E+10	6.231E+00	0.	3.073E+05	1.490E+00	-1.000E+10	2.751E-04	(MATERIAL 1)	S N B	12
13	1.923E-04	1.708E-03	6.269E+10	6.660E+00	0.	3.073E+05	1.490E+00	-1.000E+10	2.865E-04	(MATERIAL 1)	S N B	13
14	2.000E-04	1.900E-03	5.967E+10	7.085E+00	0.	3.073E+05	1.490E+00	-1.000E+10	2.980E-04	(MATERIAL 1)	S N B	14
15	2.077E-04	2.100E-03	5.693E+10	7.506E+00	0.	3.073E+05	1.490E+00	-1.000E+10	3.095E-04	(MATERIAL 1)	S N B	15
16	2.154E-04	2.308E-03	5.444E+10	7.923E+00	0.	3.073E+05	1.490E+00	-1.000E+10	3.209E-04	(MATERIAL 1)	S N B	16
17	2.231E-04	2.523E-03	5.215E+10	8.338E+00	0.	3.073E+05	1.490E+00	-1.000E+10	3.324E-04	(MATERIAL 1)	S N B	17
18	2.308E-04	2.746E-03	5.004E+10	8.749E+00	0.	3.073E+05	1.490E+00	-1.000E+10	3.438E-04	(MATERIAL 1)	S N B	18
19	2.385E-04	2.977E-03	4.809E+10	9.157E+00	0.	3.073E+05	1.490E+00	-1.000E+10	3.553E-04	(MATERIAL 1)	S N B	19
20	2.462E-04	3.215E-03	4.629E+10	9.562E+00	0.	3.073E+05	1.490E+00	-1.000E+10	3.668E-04	(MATERIAL 1)	S N B	20
21	2.538E-04	3.462E-03	4.460E+10	9.965E+00	0.	3.073E+05	1.490E+00	-1.000E+10	3.782E-04	(MATERIAL 1)	S N B	21
22	2.615E-04	3.715E-03	4.303E+10	1.037E+01	0.	3.073E+05	1.490E+00	-1.000E+10	3.897E-04	(MATERIAL 1)	S N B	22
23	2.692E-04	3.977E-03	4.156E+10	1.076E+01	0.	3.073E+05	1.490E+00	-1.000E+10	4.012E-04	(MATERIAL 1)	S N B	23
24	2.769E-04	4.246E-03	4.019E+10	1.116E+01	0.	3.073E+05	1.490E+00	-1.000E+10	4.126E-04	(MATERIAL 1)	S N B	24
25	2.846E-04	4.523E-03	3.889E+10	1.155E+01	0.	3.073E+05	1.490E+00	-1.000E+10	4.241E-04	(MATERIAL 1)	S N B	25
26	2.923E-04	4.808E-03	3.766E+10	1.195E+01	0.	3.073E+05	1.490E+00	-1.000E+10	4.355E-04	(MATERIAL 1)	S N B	26
27	3.000E-04	5.100E-03	3.651E+10	1.234E+01	0.	3.073E+05	1.490E+00	-1.000E+10	4.470E-04	(MATERIAL 1)	S N B	27
28	3.077E-04	5.400E-03	3.542E+10	1.272E+01	0.	3.073E+05	1.490E+00	-1.000E+10	4.585E-04	(MATERIAL 1)	S N B	28
29	3.154E-04	5.708E-03	3.438E+10	1.311E+01	0.	3.073E+05	1.490E+00	-1.000E+10	4.699E-04	(MATERIAL 1)	S N B	29
30	3.231E-04	6.023E-03	3.340E+10	1.349E+01	0.	3.073E+05	1.490E+00	-1.000E+10	4.814E-04	(MATERIAL 1)	S N B	30
31	3.308E-04	6.346E-03	3.246E+10	1.388E+01	0.	3.073E+05	1.490E+00	-1.000E+10	4.928E-04	(MATERIAL 1)	S N B	31
32	3.385E-04	6.677E-03	3.157E+10	1.426E+01	0.	3.073E+05	1.490E+00	-1.000E+10	5.043E-04	(MATERIAL 1)	S N B	32
33	3.462E-04	7.015E-03	3.071E+10	1.463E+01	0.	3.073E+05	1.490E+00	-1.000E+10	5.158E-04	(MATERIAL 1)	S N B	33
34	3.538E-04	7.362E-03	2.990E+10	1.501E+01	0.	3.073E+05	1.490E+00	-1.000E+10	5.272E-04	(MATERIAL 1)	S N B	34
35	3.615E-04	7.715E-03	2.912E+10	1.539E+01	0.	3.073E+05	1.490E+00	-1.000E+10	5.387E-04	(MATERIAL 1)	S N B	35
36	3.692E-04	8.077E-03	2.838E+10	1.576E+01	0.	3.073E+05	1.490E+00	-1.000E+10	5.502E-04	(MATERIAL 1)	S N B	36
37	3.769E-04	8.446E-03	2.766E+10	1.613E+01	0.	3.073E+05	1.490E+00	-1.000E+10	5.616E-04	(MATERIAL 1)	S N B	37
38	3.846E-04	8.823E-03	2.698E+10	1.650E+01	0.	3.073E+05	1.490E+00	-1.000E+10	5.731E-04	(MATERIAL 1)	S N B	38
39	3.923E-04	9.208E-03	2.632E+10	1.687E+01	0.	3.073E+05	1.490E+00	-1.000E+10	5.845E-04	(MATERIAL 1)	S N B	39
40	4.000E-04	9.600E-03	2.568E+10	1.723E+01	0.	3.073E+05	1.490E+00	-1.000E+10	5.960E-04	(MATERIAL 1)	S N B	40
41	5.000E-04	1.000E-02	2.500E+10	1.768E+01	0.	3.073E+05	1.490E+00	-1.000E+10	7.450E-04	(MATERIAL 1)	S N B	41
42	6.000E-04	1.050E-02	2.422E+10	1.820E+01	0.	3.073E+05	1.490E+00	-1.000E+10	8.978E-04	(MATERIAL 1)	S N B	42
43	7.051E-04	1.110E-02	2.337E+10	1.878E+01	0.	3.073E+05	1.490E+00	-1.000E+10	1.051E-03	(MATERIAL 1)	S N B	43
44	8.077E-04	1.181E-02	2.246E+10	1.943E+01	0.	3.073E+05	1.490E+00	-1.000E+10	1.203E-03	(MATERIAL 1)	S N B	44
45	9.103E-04	1.262E-02	2.152E+10	2.013E+01	0.	3.073E+05	1.490E+00	-1.000E+10	1.356E-03	(MATERIAL 1)	S N B	45
46	1.013E-03	1.353E-02	2.057E+10	2.087E+01	0.	3.073E+05	1.490E+00	-1.000E+10	1.509E-03	(MATERIAL 1)	S N B	46
47	1.115E-03	1.454E-02	1.961E+10	2.165E+01	0.	3.073E+05	1.490E+00	-1.000E+10	1.662E-03	(MATERIAL 1)	S N B	47
48	1.218E-03	1.565E-02	1.865E+10	2.246E+01	0.	3.073E+05	1.490E+00	-1.000E+10	1.815E-03	(MATERIAL 1)	S N B	48
49	1.321E-03	1.687E-02	1.772E+10	2.329E+01	0.	3.073E+05	1.490E+00	-1.000E+10	1.968E-03	(MATERIAL 1)	S N B	49
50	1.423E-03	1.819E-02	1.681E+10	2.414E+01	0.	3.073E+05	1.490E+00	-1.000E+10	2.120E-03	(MATERIAL 1)	S N B	50

• • • SRI PUFF TEST RUN OF PUFF 66 SAMPLE PROBLEM • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YHL(J) DYN/CM2	C(J) GM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZHL(J) GM/CM2	MATERIAL	COND	J
51	1.520E-03	1.982E-02	1.593E+10	2.581E+01	0.	3.073E+05	1.490E+00	1.000E+10	2.273E-03	(MATERIAL 1)	S N B	51
52	1.628E-03	2.114E-02	1.508E+10	2.588E+01	0.	3.073E+05	1.490E+00	1.000E+10	2.426E-03	(MATERIAL 1)	S N B	52
53	1.731E-03	2.277E-02	1.427E+10	2.670E+01	0.	3.073E+05	1.490E+00	1.000E+10	2.579E-03	(MATERIAL 1)	S N B	53
54	1.833E-03	2.450E-02	1.349E+10	2.764E+01	0.	3.073E+05	1.490E+00	1.000E+10	2.732E-03	(MATERIAL 1)	S N B	54
55	1.936E-03	2.633E-02	1.275E+10	2.892E+01	0.	3.073E+05	1.490E+00	1.000E+10	2.886E-03	(MATERIAL 1)	S N B	55
56	2.038E-03	2.827E-02	1.204E+10	2.939E+01	0.	3.073E+05	1.490E+00	1.000E+10	3.037E-03	(MATERIAL 1)	S N B	56
57	2.141E-03	3.031E-02	1.137E+10	3.020E+01	0.	3.073E+05	1.490E+00	1.000E+10	3.190E-03	(MATERIAL 1)	S N B	57
58	2.244E-03	3.245E-02	1.074E+10	3.112E+01	0.	3.073E+05	1.490E+00	1.000E+10	3.343E-03	(MATERIAL 1)	S N B	58
59	2.346E-03	3.469E-02	1.015E+10	3.196E+01	0.	3.073E+05	1.490E+00	1.000E+10	3.496E-03	(MATERIAL 1)	S N B	59
60	2.449E-03	3.704E-02	9.585E+09	3.280E+01	0.	3.073E+05	1.490E+00	1.000E+10	3.649E-03	(MATERIAL 1)	S N B	60
61	2.551E-03	3.949E-02	9.058E+09	3.362E+01	0.	3.073E+05	1.490E+00	1.000E+10	3.801E-03	(MATERIAL 1)	S N B	61
62	2.654E-03	4.204E-02	8.564E+09	3.443E+01	0.	3.073E+05	1.490E+00	1.000E+10	3.954E-03	(MATERIAL 1)	S N B	62
63	2.756E-03	4.469E-02	8.101E+09	3.522E+01	0.	3.073E+05	1.490E+00	1.000E+10	4.107E-03	(MATERIAL 1)	S N B	63
64	2.859E-03	4.745E-02	7.669E+09	3.601E+01	0.	3.073E+05	1.490E+00	1.000E+10	4.260E-03	(MATERIAL 1)	S N B	64
65	2.962E-03	5.031E-02	7.266E+09	3.677E+01	0.	3.073E+05	1.490E+00	1.000E+10	4.413E-03	(MATERIAL 1)	S N B	65
66	3.064E-03	5.327E-02	6.890E+09	3.752E+01	0.	3.073E+05	1.490E+00	1.000E+10	4.566E-03	(MATERIAL 1)	S N B	66
67	3.167E-03	5.633E-02	6.540E+09	3.826E+01	0.	3.073E+05	1.490E+00	1.000E+10	4.719E-03	(MATERIAL 1)	S N B	67
68	3.269E-03	5.950E-02	6.215E+09	3.898E+01	0.	3.073E+05	1.490E+00	1.000E+10	4.871E-03	(MATERIAL 1)	S N B	68
69	3.372E-03	6.277E-02	5.912E+09	3.969E+01	0.	3.073E+05	1.490E+00	1.000E+10	5.024E-03	(MATERIAL 1)	S N B	69
70	3.474E-03	6.614E-02	5.632E+09	4.039E+01	0.	3.073E+05	1.490E+00	1.000E+10	5.177E-03	(MATERIAL 1)	S N B	70
71	3.577E-03	6.962E-02	5.371E+09	4.107E+01	0.	3.073E+05	1.490E+00	1.000E+10	5.330E-03	(MATERIAL 1)	S N B	71
72	3.679E-03	7.319E-02	5.128E+09	4.174E+01	0.	3.073E+05	1.490E+00	1.000E+10	5.482E-03	(MATERIAL 1)	S N B	72
73	3.782E-03	7.687E-02	4.903E+09	4.240E+01	0.	3.073E+05	1.490E+00	1.000E+10	5.635E-03	(MATERIAL 1)	S N B	73
74	3.885E-03	8.065E-02	4.693E+09	4.305E+01	0.	3.073E+05	1.490E+00	1.000E+10	5.788E-03	(MATERIAL 1)	S N B	74
75	3.987E-03	8.454E-02	4.498E+09	4.369E+01	0.	3.073E+05	1.490E+00	1.000E+10	5.941E-03	(MATERIAL 1)	S N B	75
76	4.090E-03	8.853E-02	4.316E+09	4.432E+01	0.	3.073E+05	1.490E+00	1.000E+10	6.094E-03	(MATERIAL 1)	S N B	76
77	4.192E-03	9.262E-02	4.146E+09	4.494E+01	0.	3.073E+05	1.490E+00	1.000E+10	6.247E-03	(MATERIAL 1)	S N B	77
78	4.295E-03	9.681E-02	3.987E+09	4.555E+01	0.	3.073E+05	1.490E+00	1.000E+10	6.399E-03	(MATERIAL 1)	S N B	78
79	4.397E-03	1.011E-01	3.838E+09	4.615E+01	0.	3.073E+05	1.490E+00	1.000E+10	6.552E-03	(MATERIAL 1)	S N B	79
80	4.500E-03	1.055E-01	3.698E+09	4.674E+01	0.	3.073E+05	1.490E+00	1.000E+10	6.705E-03	(MATERIAL 1)	S N B	80
81	4.750E-03	1.100E-01	3.566E+09	4.734E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	81
82	4.750E-03	1.147E-01	3.438E+09	4.793E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	82
83	4.750E-03	1.195E-01	3.321E+09	4.849E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	83
84	4.750E-03	1.242E-01	3.213E+09	4.903E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	84
85	4.750E-03	1.290E-01	3.112E+09	4.956E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	85
86	4.750E-03	1.337E-01	3.017E+09	5.007E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	86
87	4.750E-03	1.385E-01	2.928E+09	5.056E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	87
88	4.750E-03	1.432E-01	2.845E+09	5.104E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	88
89	4.750E-03	1.480E-01	2.766E+09	5.151E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	89
90	4.750E-03	1.527E-01	2.692E+09	5.196E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	90
91	4.750E-03	1.575E-01	2.621E+09	5.241E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	91
92	4.750E-03	1.622E-01	2.554E+09	5.284E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	92
93	4.750E-03	1.670E-01	2.491E+09	5.326E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	93
94	4.750E-03	1.717E-01	2.430E+09	5.367E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	94
95	4.750E-03	1.765E-01	2.372E+09	5.407E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	95
96	4.750E-03	1.812E-01	2.316E+09	5.446E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	96
97	4.750E-03	1.860E-01	2.263E+09	5.485E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	97
98	4.750E-03	1.907E-01	2.212E+09	5.522E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	98
99	4.750E-03	1.955E-01	2.163E+09	5.559E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	99
100	4.750E-03	2.002E-01	2.116E+09	5.594E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	100

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
101	4.750E-03	2.050E-01	2.071E+09	5.629E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	101
102	4.750E-03	2.097E-01	2.020E+09	5.664E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	102
103	4.750E-03	2.145E-01	1.968E+09	5.697E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	103
104	4.750E-03	2.192E-01	1.916E+09	5.730E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	104
105	4.750E-03	2.240E-01	1.867E+09	5.762E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	105
106	4.750E-03	2.287E-01	1.819E+09	5.794E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	106
107	4.750E-03	2.335E-01	1.773E+09	5.825E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	107
108	4.750E-03	2.382E-01	1.728E+09	5.855E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	108
109	4.750E-03	2.430E-01	1.685E+09	5.885E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	109
110	4.750E-03	2.477E-01	1.643E+09	5.915E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	110
111	4.750E-03	2.525E-01	1.600E+09	5.943E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	111
112	4.750E-03	2.572E-01	1.560E+09	5.972E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	112
113	4.750E-03	2.620E-01	1.520E+09	5.999E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	113
114	4.750E-03	2.667E-01	1.482E+09	6.027E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	114
115	4.750E-03	2.715E-01	1.444E+09	6.053E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	115
116	4.750E-03	2.762E-01	1.407E+09	6.080E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	116
117	4.750E-03	2.810E-01	1.371E+09	6.106E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	117
118	4.750E-03	2.857E-01	1.336E+09	6.131E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	118
119	4.750E-03	2.905E-01	1.302E+09	6.156E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	119
120	4.750E-03	2.952E-01	1.268E+09	6.181E+01	0.	3.073E+05	1.490E+00	1.000E+10	7.077E-03	(MATERIAL 1)	S N B	120
121	0.	3.000E-01	0.	6.181E+01	0.	3.073E+05	1.490E+00	1.000E+10	0.	(MATERIAL 1)	S L R	121
122	7.000E-03	3.000E-01	1.179E+10	6.713E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	1.890E-02	(MATERIAL 2)	S R B	122
123	7.122E-03	3.070E-01	8.830E+09	7.119E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	1.923E-02	(MATERIAL 2)	S N B	123
124	7.245E-03	3.141E-01	6.940E+09	7.443E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	1.956E-02	(MATERIAL 2)	S N B	124
125	7.367E-03	3.214E-01	5.637E+09	7.711E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	1.989E-02	(MATERIAL 2)	S N B	125
126	7.490E-03	3.287E-01	4.668E+09	7.937E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.022E-02	(MATERIAL 2)	S N B	126
127	7.612E-03	3.362E-01	3.923E+09	8.129E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.055E-02	(MATERIAL 2)	S N B	127
128	7.735E-03	3.438E-01	3.335E+09	8.296E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.088E-02	(MATERIAL 2)	S N B	128
129	7.857E-03	3.516E-01	2.843E+09	8.441E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.121E-02	(MATERIAL 2)	S N B	129
130	7.980E-03	3.594E-01	2.474E+09	8.568E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.154E-02	(MATERIAL 2)	S N B	130
131	8.102E-03	3.674E-01	2.156E+09	8.681E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.188E-02	(MATERIAL 2)	S N B	131
132	8.224E-03	3.755E-01	1.887E+09	8.781E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.221E-02	(MATERIAL 2)	S N B	132
133	8.347E-03	3.837E-01	1.664E+09	8.870E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.254E-02	(MATERIAL 2)	S N B	133
134	8.469E-03	3.921E-01	1.465E+09	8.950E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.287E-02	(MATERIAL 2)	S N B	134
135	8.592E-03	4.006E-01	1.298E+09	9.022E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.320E-02	(MATERIAL 2)	S N B	135
136	8.714E-03	4.091E-01	1.154E+09	9.087E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.353E-02	(MATERIAL 2)	S N B	136
137	8.837E-03	4.178E-01	1.028E+09	9.146E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.386E-02	(MATERIAL 2)	S N B	137
138	8.959E-03	4.267E-01	9.181E+08	9.199E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.419E-02	(MATERIAL 2)	S N B	138
139	9.082E-03	4.357E-01	8.217E+08	9.247E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.452E-02	(MATERIAL 2)	S N B	139
140	9.204E-03	4.447E-01	7.369E+08	9.291E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.485E-02	(MATERIAL 2)	S N B	140
141	9.327E-03	4.539E-01	6.628E+08	9.331E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.518E-02	(MATERIAL 2)	S N B	141
142	9.449E-03	4.633E-01	5.957E+08	9.367E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.551E-02	(MATERIAL 2)	S N B	142
143	9.571E-03	4.727E-01	5.349E+08	9.400E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.584E-02	(MATERIAL 2)	S N B	143
144	9.694E-03	4.823E-01	4.844E+08	9.430E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.617E-02	(MATERIAL 2)	S N B	144
145	9.816E-03	4.920E-01	4.374E+08	9.458E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.650E-02	(MATERIAL 2)	S N B	145
146	9.939E-03	5.018E-01	3.958E+08	9.483E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.683E-02	(MATERIAL 2)	S N B	146
147	1.006E-02	5.117E-01	3.594E+08	9.507E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.717E-02	(MATERIAL 2)	S N B	147
148	1.018E-02	5.218E-01	3.249E+08	9.528E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.750E-02	(MATERIAL 2)	S N B	148
149	1.031E-02	5.320E-01	2.947E+08	9.548E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.783E-02	(MATERIAL 2)	S N B	149
150	1.043E-02	5.423E-01	2.676E+08	9.566E+01	2.519E+08	6.245E+05	2.700E+00	2.000E+10	2.816E-02	(MATERIAL 2)	S N B	150

• • • SRI PUFF TEST RUN OF PUFF 66 SAMPLE PROBLEM • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YWL(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZWL(J) GM/CM2	MATERIAL	COND	J
151	1.039E-02	5.527E-01	2.432E+08	9.582E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	2.849E-02	(MATERIAL 2)	S N B	151
152	1.047E-02	5.633E-01	2.211E+08	9.597E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	2.882E-02	(MATERIAL 2)	S N B	152
153	1.080E-02	5.739E-01	2.012E+08	9.611E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	2.915E-02	(MATERIAL 2)	S N B	153
154	1.092E-02	5.847E-01	1.832E+08	9.624E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	2.948E-02	(MATERIAL 2)	S N B	154
155	1.104E-02	5.957E-01	1.670E+08	9.636E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	2.981E-02	(MATERIAL 2)	S N B	155
156	1.116E-02	6.067E-01	1.522E+08	9.647E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.014E-02	(MATERIAL 2)	S N B	156
157	1.129E-02	6.179E-01	1.388E+08	9.657E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.047E-02	(MATERIAL 2)	S N B	157
158	1.141E-02	6.291E-01	1.267E+08	9.667E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.080E-02	(MATERIAL 2)	S N B	158
159	1.153E-02	6.406E-01	1.157E+08	9.675E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.113E-02	(MATERIAL 2)	S N B	159
160	1.165E-02	6.521E-01	1.056E+08	9.683E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.146E-02	(MATERIAL 2)	S N B	160
161	1.178E-02	6.637E-01	9.652E+07	9.690E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.179E-02	(MATERIAL 2)	S N B	161
162	1.190E-02	6.755E-01	8.822E+07	9.697E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.212E-02	(MATERIAL 2)	S N B	162
163	1.202E-02	6.874E-01	8.067E+07	9.703E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.246E-02	(MATERIAL 2)	S N B	163
164	1.214E-02	6.994E-01	7.378E+07	9.709E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.279E-02	(MATERIAL 2)	S N B	164
165	1.227E-02	7.116E-01	6.750E+07	9.715E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.312E-02	(MATERIAL 2)	S N B	165
166	1.239E-02	7.238E-01	6.177E+07	9.719E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.345E-02	(MATERIAL 2)	S N B	166
167	1.251E-02	7.362E-01	5.655E+07	9.724E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.378E-02	(MATERIAL 2)	S N B	167
168	1.263E-02	7.487E-01	5.177E+07	9.728E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.411E-02	(MATERIAL 2)	S N B	168
169	1.276E-02	7.614E-01	4.741E+07	9.732E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.444E-02	(MATERIAL 2)	S N B	169
170	1.288E-02	7.741E-01	4.343E+07	9.736E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.477E-02	(MATERIAL 2)	S N B	170
171	1.300E-02	7.870E-01	3.979E+07	9.739E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.510E-02	(MATERIAL 2)	S N B	171
172	1.400E-02	8.000E-01	3.635E+07	9.742E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.780E-02	(MATERIAL 2)	S N B	172
173	1.424E-02	8.140E-01	3.311E+07	9.745E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.846E-02	(MATERIAL 2)	S N B	173
174	1.449E-02	8.282E-01	3.014E+07	9.748E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.912E-02	(MATERIAL 2)	S N B	174
175	1.473E-02	8.427E-01	2.742E+07	9.751E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	3.978E-02	(MATERIAL 2)	S N B	175
176	1.498E-02	8.575E-01	2.494E+07	9.753E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.044E-02	(MATERIAL 2)	S N B	176
177	1.522E-02	8.724E-01	2.266E+07	9.755E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.111E-02	(MATERIAL 2)	S N B	177
178	1.547E-02	8.877E-01	2.059E+07	9.758E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.177E-02	(MATERIAL 2)	S N B	178
179	1.571E-02	9.031E-01	1.870E+07	9.759E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.243E-02	(MATERIAL 2)	S N B	179
180	1.596E-02	9.189E-01	1.697E+07	9.761E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.309E-02	(MATERIAL 2)	S N B	180
181	1.620E-02	9.348E-01	1.539E+07	9.763E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.375E-02	(MATERIAL 2)	S N B	181
182	1.645E-02	9.510E-01	1.396E+07	9.764E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.441E-02	(MATERIAL 2)	S N B	182
183	1.669E-02	9.675E-01	1.265E+07	9.766E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.507E-02	(MATERIAL 2)	S N B	183
184	1.694E-02	9.842E-01	1.146E+07	9.767E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.573E-02	(MATERIAL 2)	S N B	184
185	1.718E-02	1.001E+00	1.037E+07	9.768E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.640E-02	(MATERIAL 2)	S N B	185
186	1.743E-02	1.018E+00	9.386E+06	9.769E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.706E-02	(MATERIAL 2)	S N B	186
187	1.767E-02	1.036E+00	8.490E+06	9.770E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.772E-02	(MATERIAL 2)	S N B	187
188	1.792E-02	1.053E+00	7.676E+06	9.771E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.838E-02	(MATERIAL 2)	S N B	188
189	1.816E-02	1.071E+00	6.937E+06	9.772E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.904E-02	(MATERIAL 2)	S N B	189
190	1.841E-02	1.089E+00	6.266E+06	9.773E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	4.970E-02	(MATERIAL 2)	S N B	190
191	1.865E-02	1.108E+00	5.657E+06	9.773E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	5.036E-02	(MATERIAL 2)	S N B	191
192	1.890E-02	1.127E+00	5.106E+06	9.774E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	5.102E-02	(MATERIAL 2)	S N B	192
193	1.914E-02	1.145E+00	4.606E+06	9.774E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	5.169E-02	(MATERIAL 2)	S N B	193
194	1.939E-02	1.165E+00	4.153E+06	9.775E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	5.235E-02	(MATERIAL 2)	S N B	194
195	1.963E-02	1.184E+00	3.743E+06	9.775E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	5.301E-02	(MATERIAL 2)	S N B	195
196	1.988E-02	1.204E+00	3.372E+06	9.776E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	5.367E-02	(MATERIAL 2)	S N B	196
197	2.012E-02	1.223E+00	3.036E+06	9.776E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	5.433E-02	(MATERIAL 2)	S N B	197
198	2.037E-02	1.244E+00	2.732E+06	9.777E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	5.499E-02	(MATERIAL 2)	S N B	198
199	2.061E-02	1.264E+00	2.458E+06	9.777E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	5.565E-02	(MATERIAL 2)	S N B	199
200	2.086E-02	1.285E+00	2.210E+06	9.777E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	5.631E-02	(MATERIAL 2)	S N B	200

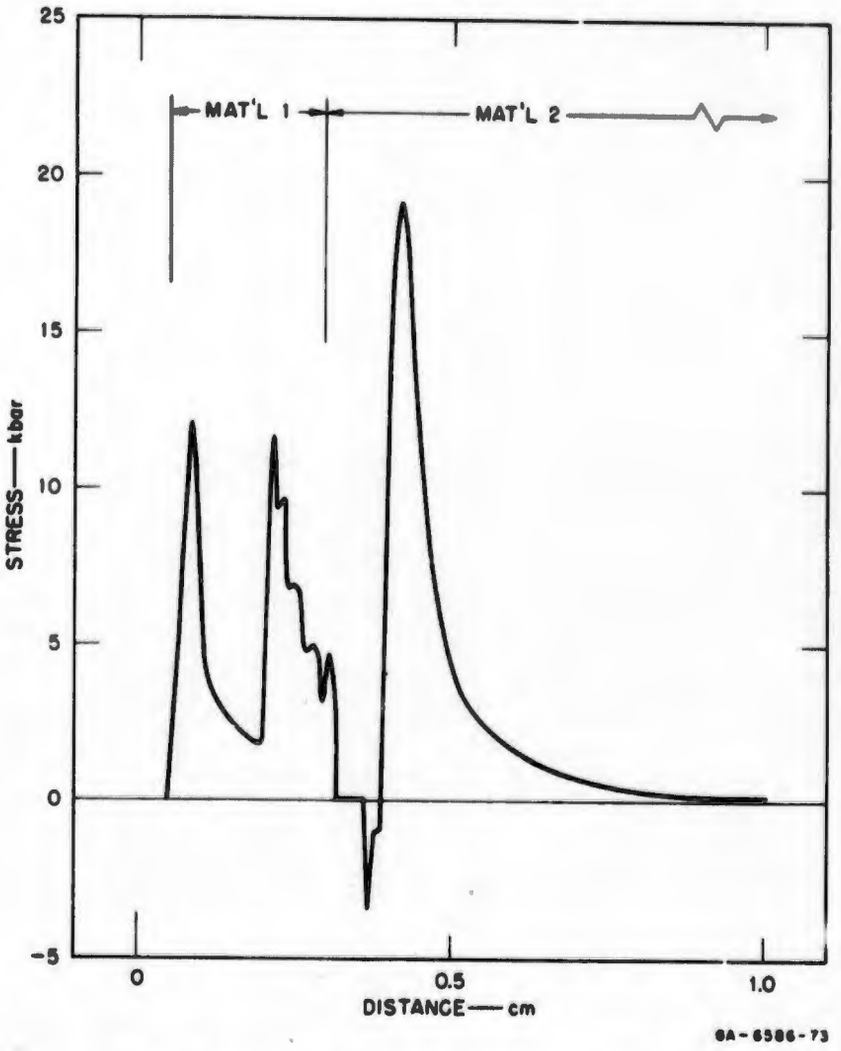
• • • SMI PUFF TEST RUN OF PUFF 66 SAMPLE PROBLEM • • •

J	DX CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
201	2.118E-02	1.305E+00	1.987E+06	9.777E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		5.698E-02	(MATERIAL 2)	S N B	201
202	2.134E-02	1.327E+00	1.984E+06	9.778E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		5.764E-02	(MATERIAL 2)	S N B	202
203	2.150E-02	1.348E+00	1.603E+06	9.778E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		5.830E-02	(MATERIAL 2)	S N B	203
204	2.184E-02	1.369E+00	1.439E+06	9.778E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		5.896E-02	(MATERIAL 2)	S N B	204
205	2.200E-02	1.391E+00	1.291E+06	9.778E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		5.962E-02	(MATERIAL 2)	S N B	205
206	2.233E-02	1.413E+00	1.158E+06	9.778E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.028E-02	(MATERIAL 2)	S N B	206
207	2.257E-02	1.436E+00	1.038E+06	9.779E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.094E-02	(MATERIAL 2)	S N B	207
208	2.282E-02	1.458E+00	9.297E+05	9.779E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.160E-02	(MATERIAL 2)	S N B	208
209	2.306E-02	1.481E+00	8.326E+05	9.779E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.227E-02	(MATERIAL 2)	S N B	209
210	2.331E-02	1.504E+00	7.453E+05	9.779E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.293E-02	(MATERIAL 2)	S N B	210
211	2.355E-02	1.527E+00	6.669E+05	9.779E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.359E-02	(MATERIAL 2)	S N B	211
212	2.380E-02	1.551E+00	5.964E+05	9.779E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.425E-02	(MATERIAL 2)	S N B	212
213	2.404E-02	1.575E+00	5.331E+05	9.779E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.491E-02	(MATERIAL 2)	S N B	213
214	2.429E-02	1.599E+00	4.763E+05	9.779E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.557E-02	(MATERIAL 2)	S N B	214
215	2.453E-02	1.623E+00	4.254E+05	9.779E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.623E-02	(MATERIAL 2)	S N B	215
216	2.478E-02	1.648E+00	3.797E+05	9.779E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.689E-02	(MATERIAL 2)	S N B	216
217	2.502E-02	1.672E+00	3.388E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.756E-02	(MATERIAL 2)	S N B	217
218	2.527E-02	1.697E+00	3.021E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.822E-02	(MATERIAL 2)	S N B	218
219	2.551E-02	1.723E+00	2.693E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.888E-02	(MATERIAL 2)	S N B	219
220	2.576E-02	1.748E+00	2.399E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		6.954E-02	(MATERIAL 2)	S N B	220
221	2.600E-02	1.774E+00	2.137E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		7.020E-02	(MATERIAL 2)	S N B	221
222	2.625E-02	1.800E+00	1.903E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		7.086E-02	(MATERIAL 2)	S N B	222
223	2.649E-02	1.826E+00	1.694E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		7.152E-02	(MATERIAL 2)	S N B	223
224	2.674E-02	1.852E+00	1.506E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		7.219E-02	(MATERIAL 2)	S N B	224
225	2.722E-02	1.879E+00	1.337E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		7.349E-02	(MATERIAL 2)	S N B	225
226	2.762E-02	1.906E+00	1.186E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		7.458E-02	(MATERIAL 2)	S N B	226
227	2.803E-02	1.934E+00	1.051E+05	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		7.568E-02	(MATERIAL 2)	S N B	227
228	2.843E-02	1.962E+00	9.308E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		7.677E-02	(MATERIAL 2)	S N B	228
229	2.884E-02	1.991E+00	8.220E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		7.787E-02	(MATERIAL 2)	S N B	229
230	2.925E-02	2.019E+00	7.254E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		7.897E-02	(MATERIAL 2)	S N B	230
231	2.965E-02	2.049E+00	6.398E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		8.006E-02	(MATERIAL 2)	S N B	231
232	3.006E-02	2.078E+00	5.635E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		8.116E-02	(MATERIAL 2)	S N B	232
233	3.046E-02	2.108E+00	4.957E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		8.225E-02	(MATERIAL 2)	S N B	233
234	3.087E-02	2.139E+00	4.354E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		8.335E-02	(MATERIAL 2)	S N B	234
235	3.128E-02	2.170E+00	3.822E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		8.444E-02	(MATERIAL 2)	S N B	235
236	3.168E-02	2.201E+00	3.356E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		8.554E-02	(MATERIAL 2)	S N B	236
237	3.209E-02	2.233E+00	2.933E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		8.663E-02	(MATERIAL 2)	S N B	237
238	3.249E-02	2.265E+00	2.564E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		8.773E-02	(MATERIAL 2)	S N B	238
239	3.290E-02	2.297E+00	2.240E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		8.883E-02	(MATERIAL 2)	S N B	239
240	3.330E-02	2.330E+00	1.955E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		8.992E-02	(MATERIAL 2)	S N B	240
241	3.371E-02	2.363E+00	1.703E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		9.102E-02	(MATERIAL 2)	S N B	241
242	3.412E-02	2.397E+00	1.483E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		9.211E-02	(MATERIAL 2)	S N B	242
243	3.452E-02	2.431E+00	1.290E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		9.321E-02	(MATERIAL 2)	S N B	243
244	3.493E-02	2.466E+00	1.119E+04	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		9.430E-02	(MATERIAL 2)	S N B	244
245	3.533E-02	2.501E+00	9.707E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		9.540E-02	(MATERIAL 2)	S N B	245
246	3.574E-02	2.536E+00	8.409E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		9.650E-02	(MATERIAL 2)	S N B	246
247	3.614E-02	2.572E+00	7.277E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		9.759E-02	(MATERIAL 2)	S N B	247
248	3.655E-02	2.608E+00	6.298E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		9.869E-02	(MATERIAL 2)	S N B	248
249	3.696E-02	2.644E+00	5.452E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		9.978E-02	(MATERIAL 2)	S N B	249
250	3.736E-02	2.681E+00	4.719E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00-2.000E+10		1.009E-01	(MATERIAL 2)	S N B	250

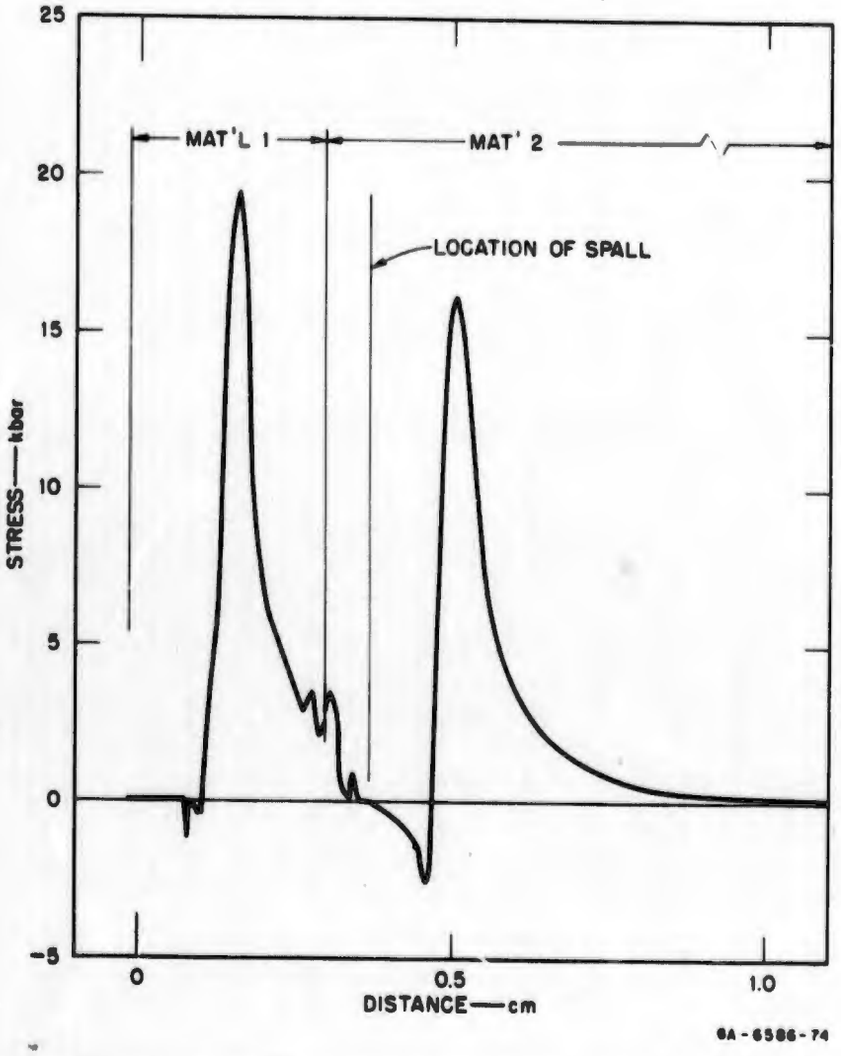
SRI PUFF TEST RUN OF PUFF 66 SAMPLE PROBLEM

J	DR CM	X(J) CM	EPS ERGS/GM	SUMCAL CALS	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
251	3.777E-02	2.719E+00	4.030E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.020E-01	(MATERIAL 2)	S N B	251
252	3.817E-02	2.757E+00	3.466E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.031E-01	(MATERIAL 2)	S N B	252
253	3.858E-02	2.795E+00	2.978E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.042E-01	(MATERIAL 2)	S N B	253
254	3.899E-02	2.833E+00	2.557E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.053E-01	(MATERIAL 2)	S N B	254
255	3.939E-02	2.872E+00	2.198E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.064E-01	(MATERIAL 2)	S N B	255
256	3.980E-02	2.912E+00	1.874E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.075E-01	(MATERIAL 2)	S N B	256
257	4.020E-02	2.951E+00	1.602E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.085E-01	(MATERIAL 2)	S N B	257
258	4.061E-02	2.992E+00	1.368E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.096E-01	(MATERIAL 2)	S N B	258
259	4.101E-02	3.032E+00	1.166E+03	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.107E-01	(MATERIAL 2)	S N B	259
260	4.142E-02	3.073E+00	9.933E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.118E-01	(MATERIAL 2)	S N B	260
261	4.182E-02	3.115E+00	8.449E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.129E-01	(MATERIAL 2)	S N B	261
262	4.223E-02	3.157E+00	7.178E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.140E-01	(MATERIAL 2)	S N B	262
263	4.264E-02	3.199E+00	6.091E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.151E-01	(MATERIAL 2)	S N B	263
264	4.304E-02	3.241E+00	5.161E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.162E-01	(MATERIAL 2)	S N B	264
265	4.345E-02	3.284E+00	4.367E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.173E-01	(MATERIAL 2)	S N B	265
266	4.386E-02	3.328E+00	3.691E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.184E-01	(MATERIAL 2)	S N B	266
267	4.426E-02	3.372E+00	3.114E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.195E-01	(MATERIAL 2)	S N B	267
268	4.467E-02	3.416E+00	2.627E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.206E-01	(MATERIAL 2)	S N B	268
269	4.507E-02	3.461E+00	2.211E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.217E-01	(MATERIAL 2)	S N B	269
270	4.548E-02	3.506E+00	1.859E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.228E-01	(MATERIAL 2)	S N B	270
271	4.588E-02	3.551E+00	1.561E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.239E-01	(MATERIAL 2)	S N B	271
272	4.629E-02	3.597E+00	1.309E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.250E-01	(MATERIAL 2)	S N B	272
273	4.670E-02	3.643E+00	1.096E+02	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.261E-01	(MATERIAL 2)	S N B	273
274	4.710E-02	3.690E+00	9.179E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.272E-01	(MATERIAL 2)	S N B	274
275	4.751E-02	3.737E+00	7.688E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.283E-01	(MATERIAL 2)	S N B	275
276	4.791E-02	3.785E+00	6.388E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.294E-01	(MATERIAL 2)	S N B	276
277	4.832E-02	3.833E+00	5.321E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.305E-01	(MATERIAL 2)	S N B	277
278	4.872E-02	3.881E+00	4.426E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.316E-01	(MATERIAL 2)	S N B	278
279	4.913E-02	3.930E+00	3.676E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.327E-01	(MATERIAL 2)	S N B	279
280	4.954E-02	3.979E+00	3.049E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.337E-01	(MATERIAL 2)	S N B	280
281	4.994E-02	4.028E+00	2.536E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.348E-01	(MATERIAL 2)	S N B	281
282	5.035E-02	4.078E+00	2.098E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.359E-01	(MATERIAL 2)	S N B	282
283	5.075E-02	4.129E+00	1.726E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.370E-01	(MATERIAL 2)	S N B	283
284	5.116E-02	4.179E+00	1.420E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.381E-01	(MATERIAL 2)	S N B	284
285	5.157E-02	4.231E+00	1.173E+01	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.392E-01	(MATERIAL 2)	S N B	285
286	5.197E-02	4.282E+00	9.640E+00	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.403E-01	(MATERIAL 2)	S N B	286
287	5.238E-02	4.334E+00	7.934E+00	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.414E-01	(MATERIAL 2)	S N B	287
288	5.278E-02	4.386E+00	6.509E+00	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.425E-01	(MATERIAL 2)	S N B	288
289	5.319E-02	4.439E+00	5.324E+00	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.436E-01	(MATERIAL 2)	S N B	289
290	5.359E-02	4.492E+00	4.354E+00	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.447E-01	(MATERIAL 2)	S N B	290
291	5.400E-02	4.546E+00	3.554E+00	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	1.458E-01	(MATERIAL 2)	S N B	291
292	0.	4.600E+00	0.	9.780E+01	2.519E+08	6.245E+05	2.700E+00	-2.000E+10	0.	(MATERIAL 2)	S L B	292

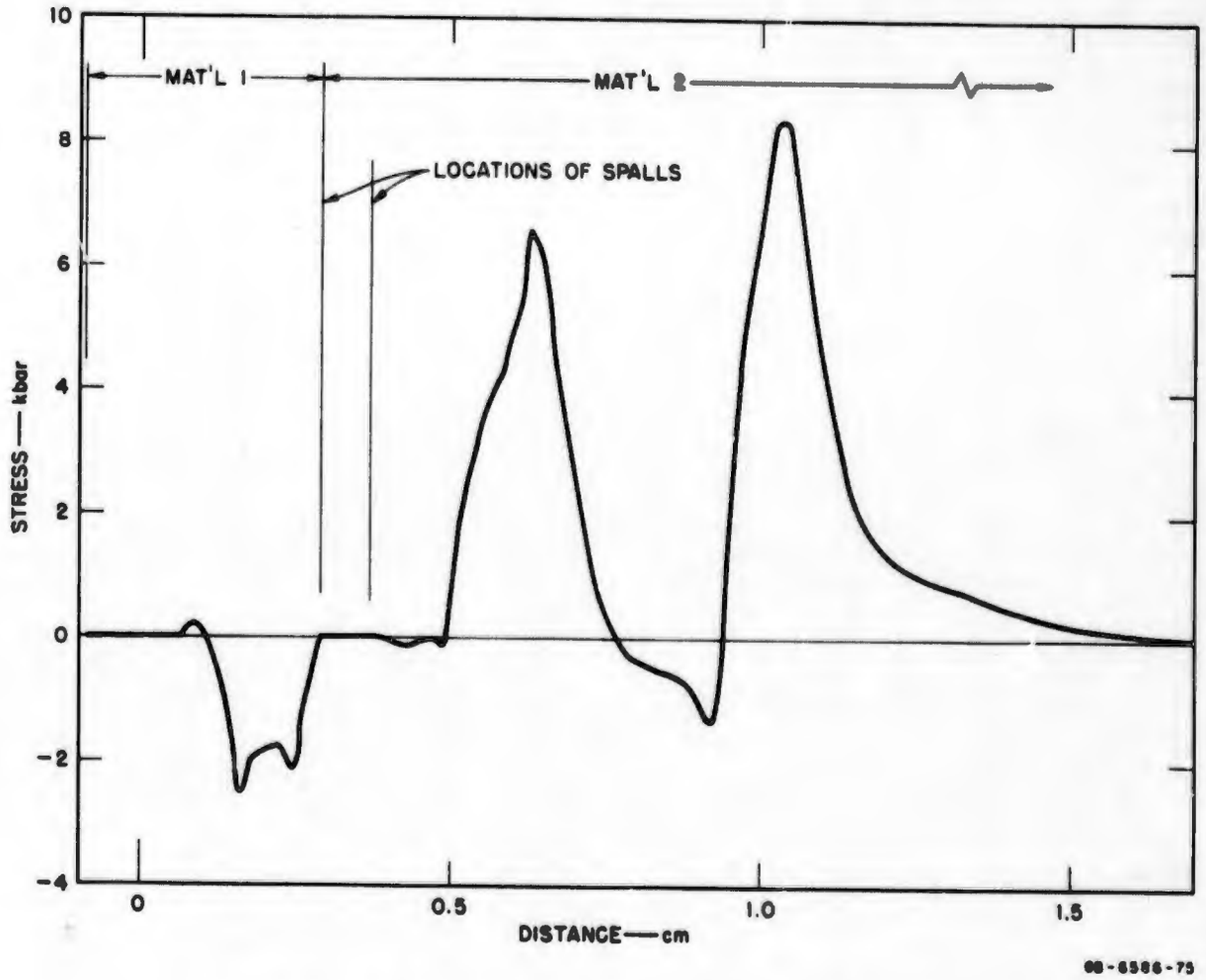
TIME TO COMPLETE GENRAT IS 5.782 SECONDS.



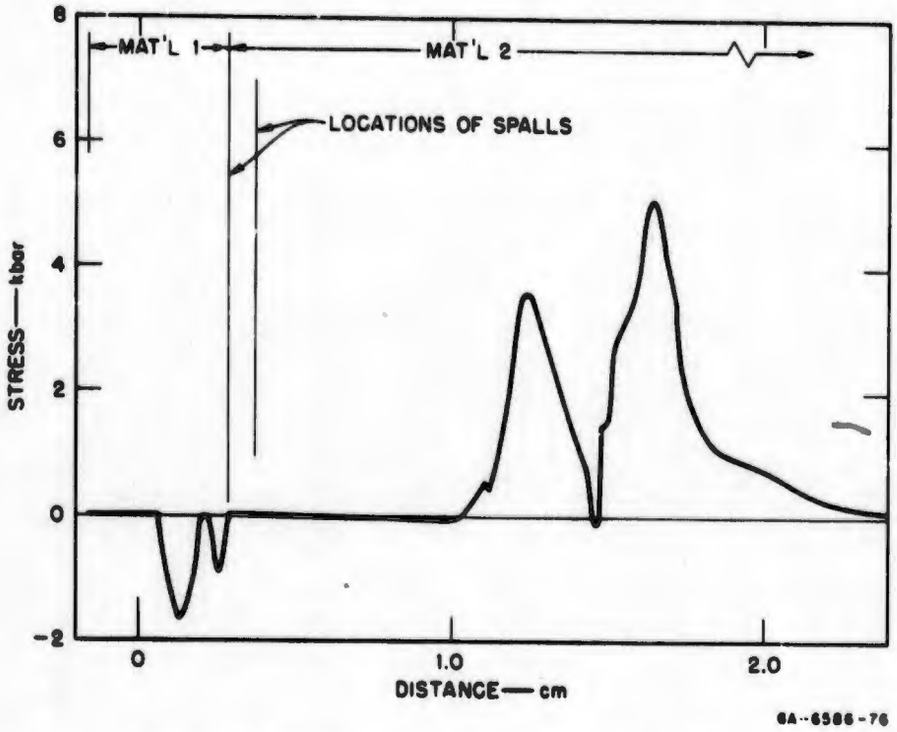
TEST No. 400, EDIT AT CYCLE 360, TIME = 1.979×10^{-7} sec.



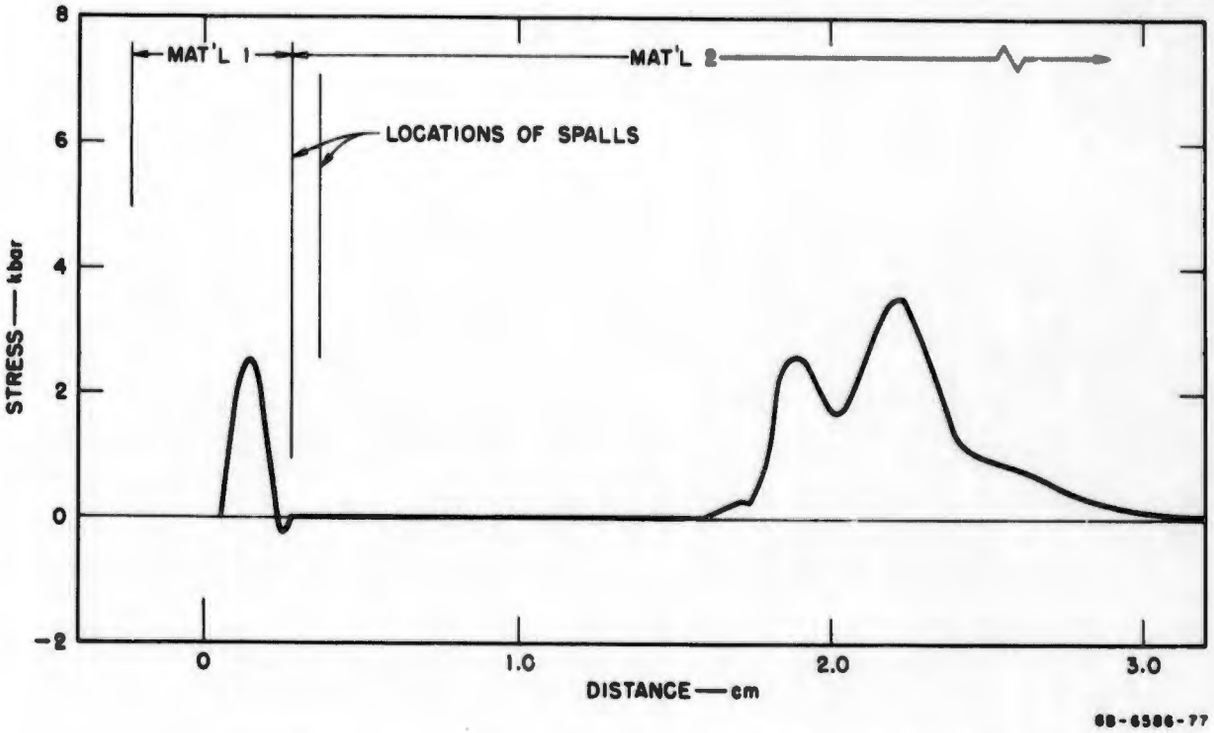
TEST No. 400, EDIT AT CYCLE 391, TIME = 3.54×10^{-7} sec.



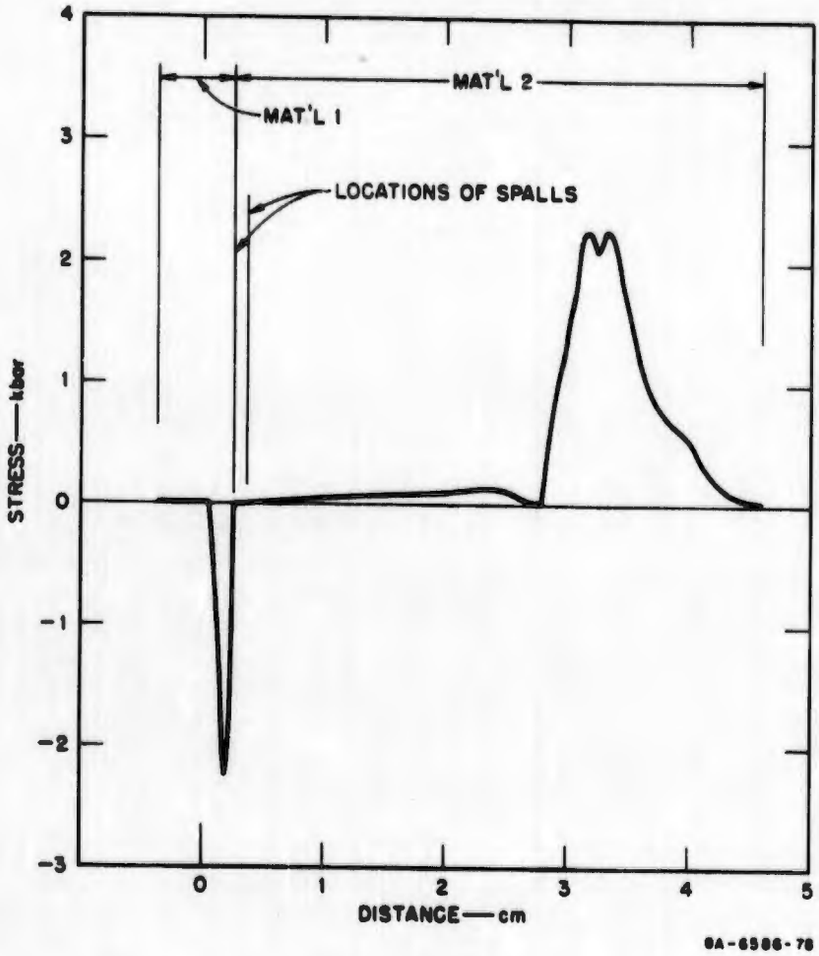
TEST No. 400, EDIT AT CYCLE 572, TIME = 1.312×10^{-6} sec.



TEST No. 400, EDIT AT CYCLE 740, TIME = 2.41×10^{-6} sec.



TEST No. 400, EDIT AT CYCLE 900, TIME = 3.458×10^{-6} sec.



TEST No. 400, EDIT AT CYCLE 1214, TIME = 5.52×10^{-6} sec.

7. Test No. 500

Problem 500 concerns an impact of an aluminum flyer on an aluminum target. The input data are the same as for the P PUFF 66 test problem. The listing included in the following pages contains the input data and the coordinate layout. Several EDIT's and the stress history at the quartz interface are graphed. These graphs are comparable to those provided with the P PUFF 66 test run.

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                    **** SRI PUFF 1 (6400 VERSION) ****

NDATE= 11/18/68     IDENT= 508   P PUFF 66 SAMPLE PROBLEM (NORMAL RUN)

IMPACT OF A 0.1 CM ALUMINUM FLYER ONTO A 2.735 CM ALUMINUM TARGET BACKED BY
A QUARTZ GAGE.  THE COMPUTATION CORRESPONDS TO THE P PUFF 66 TEST RUN.



        * * *   SRI PUFF1 TEST RUN OF P PUFF 66 SAMPLE PROBLEM   * * *
NTEDIT=            6 NJEDIT=             6 NREZON=         2 NSEPRAT=          -0
2 TEDITS= 6.234E-08 2.580E-07 4.000E-07 9.893E-07 2.153E-06 2.821E-06
3 JEDITS=    11    48    64    80    96   112
4 NTA=        3     5
5 JREZON=    58    78
6 NEDTM=      10000 NEDIT=         10000 NPERN=             1                 -0
7 STOPS              JCYCS =        4000  CKS =    4.000E+00 TS =      6.000E-06
8 NMTRLS=          3 MATFL =           1 UZERO =   8.000E+04 IPLOT =          -0

(MATERIAL 1)          RHOS=      2.700E+00 NSR =    0 NYAM =  1 NPOR =  0 NCON =  0
 EOSTC =  7.300E+11   EOSTD =  1.720E+12  EOSTE =  1.220E+11  EOSTG =  2.040E+00
 EOSTH =  2.500E-01   EOSTS =  4.000E+11             1.004E+00            7.548E-12
COSO =    3.240E+00   C1 =     2.500E-01  C2 =       0.
TENS(1)= -1.000E+11  TENS(2)=  0.         TENS(3)= -1.000E+11
YOS  =    2.976E+09   MU =     2.400E+11  YADD =     2.976E+09
NZONES= 1.        20 CELLS IN  1.000E-01 CM           -0.          DELFIN=   1.500E-03

(MATERIAL 2)          RHOS =     2.700E+00 NSR =    0 NYAM =  1 NPOR =  0 NCON =  0
 EOSTC =  7.300E+11   EOSTD =  1.720E+12  EOSTE =  1.220E+11  EOSTG =  2.040E+00
 EOSTH =  2.500E-01   EOSTS =  4.000E+11             1.000E+00            7.549E-12
COSO =    3.240E+00   C1 =     2.500E-01  C2 =       0.
TENS(1)= -1.000E+11  TENS(2)=  0.         TENS(3)= -1.000E+11
YOS  =    2.976E+09   MU =     2.400E+11  YADD =     2.976E+09
NZONES= 3.        20 CELLS IN  3.000E-01 CM, DELX= 9.000E-03           -0.
                  20 CELLS IN  2.380E-01 CM, DELX= 5.000E-03           -0.
                  60 CELLS IN  2.222E+00 CM, DELX= 2.500E-02           -0.

(MATERIAL 3)          RHOS =     2.650E+00 NSR =    0 NYAM =  0 NPOR =  0 NCON =  0
 EOSTC =  8.160E+11   EOSTD =  6.420E+11  EOSTE =  8.870E+10  EOSTG =  6.210E-01
 EOSTH =  2.500E-01   EOSTS =  0.                    5.590E+00            2.017E-12
COSO =    3.240E+00   C1 =     2.500E-01  C2 =       0.
TENS(1)= -1.000E+11  TENS(2)=  0.         TENS(3)= -1.000E+11
NZONES= 1.        20 CELLS IN  1.251E+00 CM           -0.                 -0.
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• • • SRI PUFF1 TEST RUN OF P PUFF 66 SAMPLE PROBLEM • • •

J	DX CM	X(J) CM	U(J) CM/SEC	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
1	8.500E-03	0.	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.295E-02	(MATERIAL 1)	S S B	1
2	8.132E-03	8.500E-03	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.196E-02	(MATERIAL 1)	S N B	2
3	7.763E-03	1.663E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.096E-02	(MATERIAL 1)	S N B	3
4	7.395E-03	2.439E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.997E-02	(MATERIAL 1)	S N B	4
5	7.026E-03	3.179E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.897E-02	(MATERIAL 1)	S N B	5
6	6.658E-03	3.882E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.798E-02	(MATERIAL 1)	S N B	6
7	6.289E-03	4.547E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.698E-02	(MATERIAL 1)	S N B	7
8	5.921E-03	5.176E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.599E-02	(MATERIAL 1)	S N B	8
9	5.553E-03	5.768E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.499E-02	(MATERIAL 1)	S N B	9
10	5.184E-03	6.324E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.400E-02	(MATERIAL 1)	S N B	10
11	4.816E-03	6.842E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.300E-02	(MATERIAL 1)	S N B	11
12	4.447E-03	7.324E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.201E-02	(MATERIAL 1)	S N B	12
13	4.079E-03	7.768E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.101E-02	(MATERIAL 1)	S N B	13
14	3.711E-03	8.176E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.002E-02	(MATERIAL 1)	S N B	14
15	3.342E-03	8.547E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	9.024E-03	(MATERIAL 1)	S N B	15
16	2.974E-03	8.882E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	8.029E-03	(MATERIAL 1)	S N B	16
17	2.605E-03	9.179E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	7.034E-03	(MATERIAL 1)	S N B	17
18	2.237E-03	9.439E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	6.039E-03	(MATERIAL 1)	S N B	18
19	1.868E-03	9.663E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	5.045E-03	(MATERIAL 1)	S N B	19
20	1.500E-03	9.850E-02	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	4.050E-03	(MATERIAL 1)	S N B	20
21	0.	1.000E-01	8.000E+04	1.984E+09	6.270E+05	2.700E+00	1.000E+11	0.	(MATERIAL 1)	S L B	21
22	5.000E-03	1.000E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.350E-02	(MATERIAL 2)	S R B	22
23	6.053E-03	1.050E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.634E-02	(MATERIAL 2)	S N B	23
24	7.105E-03	1.111E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.918E-02	(MATERIAL 2)	S N B	24
25	8.158E-03	1.182E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.203E-02	(MATERIAL 2)	S N B	25
26	9.211E-03	1.263E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.487E-02	(MATERIAL 2)	S N B	26
27	1.026E-02	1.355E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.771E-02	(MATERIAL 2)	S N B	27
28	1.132E-02	1.458E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	3.055E-02	(MATERIAL 2)	S N B	28
29	1.237E-02	1.571E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	3.339E-02	(MATERIAL 2)	S N B	29
30	1.342E-02	1.695E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	3.624E-02	(MATERIAL 2)	S N B	30
31	1.447E-02	1.829E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	3.908E-02	(MATERIAL 2)	S N B	31
32	1.553E-02	1.974E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	4.192E-02	(MATERIAL 2)	S N B	32
33	1.658E-02	2.129E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	4.476E-02	(MATERIAL 2)	S N B	33
34	1.763E-02	2.295E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	4.761E-02	(MATERIAL 2)	S N B	34
35	1.868E-02	2.471E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	5.045E-02	(MATERIAL 2)	S N B	35
36	1.974E-02	2.658E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	5.329E-02	(MATERIAL 2)	S N B	36
37	2.079E-02	2.855E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	5.613E-02	(MATERIAL 2)	S N B	37
38	2.184E-02	3.063E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	5.897E-02	(MATERIAL 2)	S N B	38
39	2.289E-02	3.282E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	6.182E-02	(MATERIAL 2)	S N B	39
40	2.395E-02	3.511E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	6.466E-02	(MATERIAL 2)	S N B	40
41	2.500E-02	3.750E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	6.750E-02	(MATERIAL 2)	S N B	41
42	5.000E-03	4.000E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.350E-02	(MATERIAL 2)	S N B	42
43	5.711E-03	4.050E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.542E-02	(MATERIAL 2)	S N B	43
44	6.421E-03	4.107E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.734E-02	(MATERIAL 2)	S N B	44
45	7.132E-03	4.171E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	1.926E-02	(MATERIAL 2)	S N B	45
46	7.842E-03	4.243E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.117E-02	(MATERIAL 2)	S N B	46
47	8.553E-03	4.321E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.309E-02	(MATERIAL 2)	S N B	47
48	9.263E-03	4.407E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.501E-02	(MATERIAL 2)	S N B	48
49	9.974E-03	4.499E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.693E-02	(MATERIAL 2)	S N B	49
50	1.068E-02	4.599E-01	0.	1.984E+09	6.270E+05	2.700E+00	1.000E+11	2.885E-02	(MATERIAL 2)	S N B	50

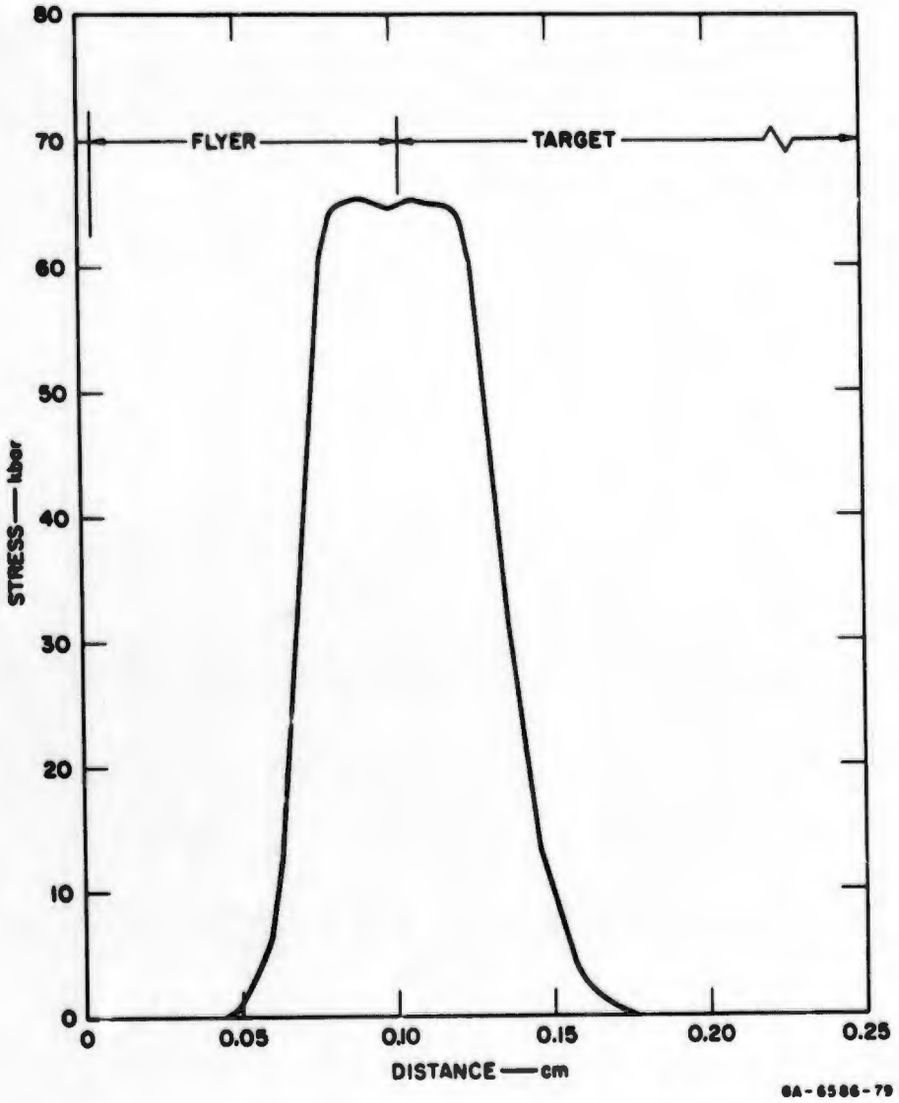
• • • SRI PUFF1 TEST RUN OF P PUFF 66 SAMPLE PROBLEM • • •

J	DX CM	X(J) CM	U(J) CM/SEC	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
51	1.139E-02	4.706E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	3.077E-02	(MATERIAL 2)	S N B	51
52	1.211E-02	4.826E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	3.268E-02	(MATERIAL 2)	S N B	52
53	1.282E-02	4.941E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	3.460E-02	(MATERIAL 2)	S N B	53
54	1.353E-02	5.069E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	3.652E-02	(MATERIAL 2)	S N B	54
55	1.424E-02	5.204E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	3.844E-02	(MATERIAL 2)	S N B	55
56	1.495E-02	5.347E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	4.038E-02	(MATERIAL 2)	S N B	56
57	1.566E-02	5.496E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	4.228E-02	(MATERIAL 2)	S N B	57
58	1.637E-02	5.653E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	4.419E-02	(MATERIAL 2)	S N B	58
59	1.708E-02	5.816E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	4.611E-02	(MATERIAL 2)	S N B	59
60	1.779E-02	5.987E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	4.803E-02	(MATERIAL 2)	S N B	60
61	1.850E-02	6.165E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	4.995E-02	(MATERIAL 2)	S N B	61
62	2.500E-02	6.350E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	6.750E-02	(MATERIAL 2)	S N B	62
63	2.541E-02	6.600E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	6.860E-02	(MATERIAL 2)	S N B	63
64	2.582E-02	6.854E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	6.970E-02	(MATERIAL 2)	S N B	64
65	2.622E-02	7.112E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	7.080E-02	(MATERIAL 2)	S N B	65
66	2.663E-02	7.374E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	7.191E-02	(MATERIAL 2)	S N B	66
67	2.704E-02	7.641E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	7.301E-02	(MATERIAL 2)	S N B	67
68	2.745E-02	7.911E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	7.411E-02	(MATERIAL 2)	S N B	68
69	2.786E-02	8.186E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	7.521E-02	(MATERIAL 2)	S N B	69
70	2.826E-02	8.464E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	7.631E-02	(MATERIAL 2)	S N B	70
71	2.867E-02	8.747E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	7.741E-02	(MATERIAL 2)	S N B	71
72	2.908E-02	9.034E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	7.851E-02	(MATERIAL 2)	S N B	72
73	2.949E-02	9.324E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	7.961E-02	(MATERIAL 2)	S N B	73
74	2.989E-02	9.619E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	8.072E-02	(MATERIAL 2)	S N B	74
75	3.030E-02	9.918E-01	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	8.182E-02	(MATERIAL 2)	S N B	75
76	3.071E-02	1.022E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	8.292E-02	(MATERIAL 2)	S N B	76
77	3.112E-02	1.053E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	8.402E-02	(MATERIAL 2)	S N B	77
78	3.153E-02	1.084E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	8.512E-02	(MATERIAL 2)	S N B	78
79	3.193E-02	1.115E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	8.622E-02	(MATERIAL 2)	S N B	79
80	3.234E-02	1.147E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	8.732E-02	(MATERIAL 2)	S N B	80
81	3.275E-02	1.180E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	8.843E-02	(MATERIAL 2)	S N B	81
82	3.316E-02	1.213E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	8.953E-02	(MATERIAL 2)	S N B	82
83	3.357E-02	1.246E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	9.063E-02	(MATERIAL 2)	S N B	83
84	3.397E-02	1.279E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	9.173E-02	(MATERIAL 2)	S N B	84
85	3.438E-02	1.313E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	9.283E-02	(MATERIAL 2)	S N B	85
86	3.479E-02	1.348E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	9.393E-02	(MATERIAL 2)	S N B	86
87	3.520E-02	1.382E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	9.503E-02	(MATERIAL 2)	S N B	87
88	3.561E-02	1.418E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	9.614E-02	(MATERIAL 2)	S N B	88
89	3.601E-02	1.453E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	9.724E-02	(MATERIAL 2)	S N B	89
90	3.642E-02	1.489E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	9.834E-02	(MATERIAL 2)	S N B	90
91	3.683E-02	1.526E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	9.944E-02	(MATERIAL 2)	S N B	91
92	3.724E-02	1.562E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	1.005E-01	(MATERIAL 2)	S N B	92
93	3.765E-02	1.600E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	1.016E-01	(MATERIAL 2)	S N B	93
94	3.805E-02	1.637E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	1.027E-01	(MATERIAL 2)	S N B	94
95	3.846E-02	1.675E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	1.038E-01	(MATERIAL 2)	S N B	95
96	3.887E-02	1.714E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	1.049E-01	(MATERIAL 2)	S N B	96
97	3.928E-02	1.753E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	1.060E-01	(MATERIAL 2)	S N B	97
98	3.968E-02	1.792E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	1.071E-01	(MATERIAL 2)	S N B	98
99	4.009E-02	1.832E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	1.083E-01	(MATERIAL 2)	S N B	99
100	4.050E-02	1.872E+00	0.	1.984E+09	6.270E+05	2.700E+00	-1.000E+11	1.094E-01	(MATERIAL 2)	S N B	100

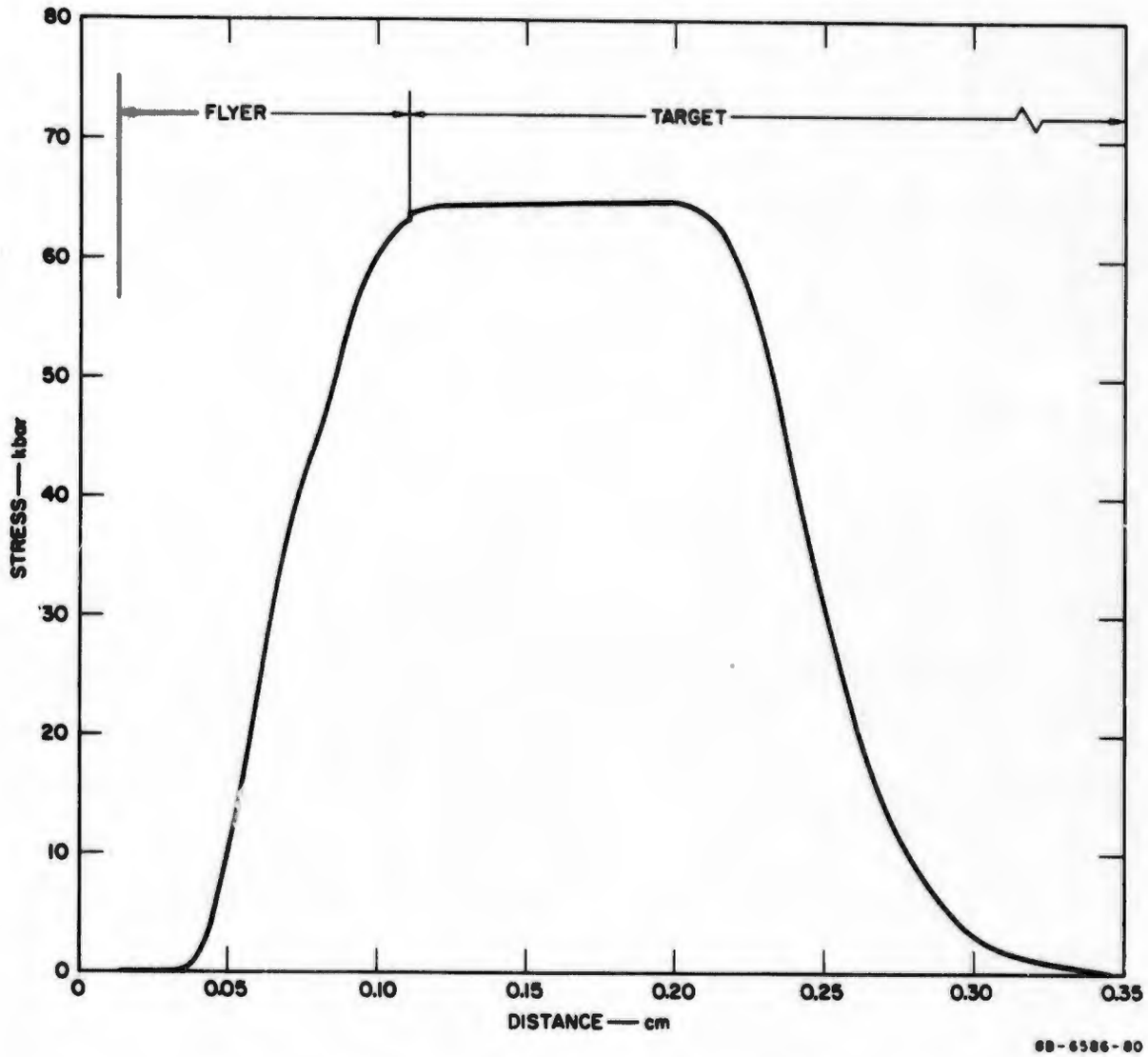
• • • SRI PUFF1 TEST RUN OF P PUFF 66 SAMPLE PROBLEM • • •

J	DX CM	X(J) CM	U(J) CM/SEC	YML(J) DYN/CM2	C(J) CM/SEC	D(J) GM/CM3	T(J) DYN/CM2	ZML(J) GM/CM2	MATERIAL	COND	J
101	4.091E-02	1.012E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.105E-01	(MATERIAL 2)	S N B	101
102	4.132E-02	1.053E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.116E-01	(MATERIAL 2)	S N B	102
103	4.172E-02	1.094E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.127E-01	(MATERIAL 2)	S N B	103
104	4.213E-02	2.036E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.138E-01	(MATERIAL 2)	S N B	104
105	4.254E-02	2.078E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.149E-01	(MATERIAL 2)	S N B	105
106	4.295E-02	2.121E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.160E-01	(MATERIAL 2)	S N B	106
107	4.336E-02	2.164E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.171E-01	(MATERIAL 2)	S N B	107
108	4.376E-02	2.207E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.182E-01	(MATERIAL 2)	S N B	108
109	4.417E-02	2.251E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.193E-01	(MATERIAL 2)	S N B	109
110	4.458E-02	2.295E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.204E-01	(MATERIAL 2)	S N B	110
111	4.499E-02	2.340E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.215E-01	(MATERIAL 2)	S N B	111
112	4.540E-02	2.385E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.226E-01	(MATERIAL 2)	S N B	112
113	4.580E-02	2.430E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.237E-01	(MATERIAL 2)	S N B	113
114	4.621E-02	2.476E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.248E-01	(MATERIAL 2)	S N B	114
115	4.662E-02	2.522E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.259E-01	(MATERIAL 2)	S N B	115
116	4.703E-02	2.569E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.270E-01	(MATERIAL 2)	S N B	116
117	4.744E-02	2.616E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.281E-01	(MATERIAL 2)	S N B	117
118	4.784E-02	2.663E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.292E-01	(MATERIAL 2)	S N B	118
119	4.825E-02	2.711E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.303E-01	(MATERIAL 2)	S N B	119
120	4.866E-02	2.759E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.314E-01	(MATERIAL 2)	S N B	120
121	4.907E-02	2.808E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		1.325E-01	(MATERIAL 2)	S N B	121
122	0.	2.857E+00	0.	1.984E+09	6.270E+05	2.700E+00-1.000E+11		0.	(MATERIAL 2)	S L B	122
123	6.255E-02	2.857E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S R B	123
124	6.255E-02	2.920E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	124
125	6.255E-02	2.982E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	125
126	6.255E-02	3.045E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	126
127	6.255E-02	3.107E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	127
128	6.255E-02	3.170E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	128
129	6.255E-02	3.232E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	129
130	6.255E-02	3.295E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	130
131	6.255E-02	3.357E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	131
132	6.255E-02	3.420E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	132
133	6.255E-02	3.482E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	133
134	6.255E-02	3.545E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	134
135	6.255E-02	3.608E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	135
136	6.255E-02	3.670E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	136
137	6.255E-02	3.733E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	137
138	6.255E-02	3.795E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	138
139	6.255E-02	3.858E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	139
140	6.255E-02	3.920E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	140
141	6.255E-02	3.983E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	141
142	6.255E-02	4.045E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		1.650E-01	(MATERIAL 3)	S N B	142
143	0.	4.108E+00	0.	0.	5.549E+05	2.650E+00-1.000E+11		0.	(MATERIAL 3)	S L B	143

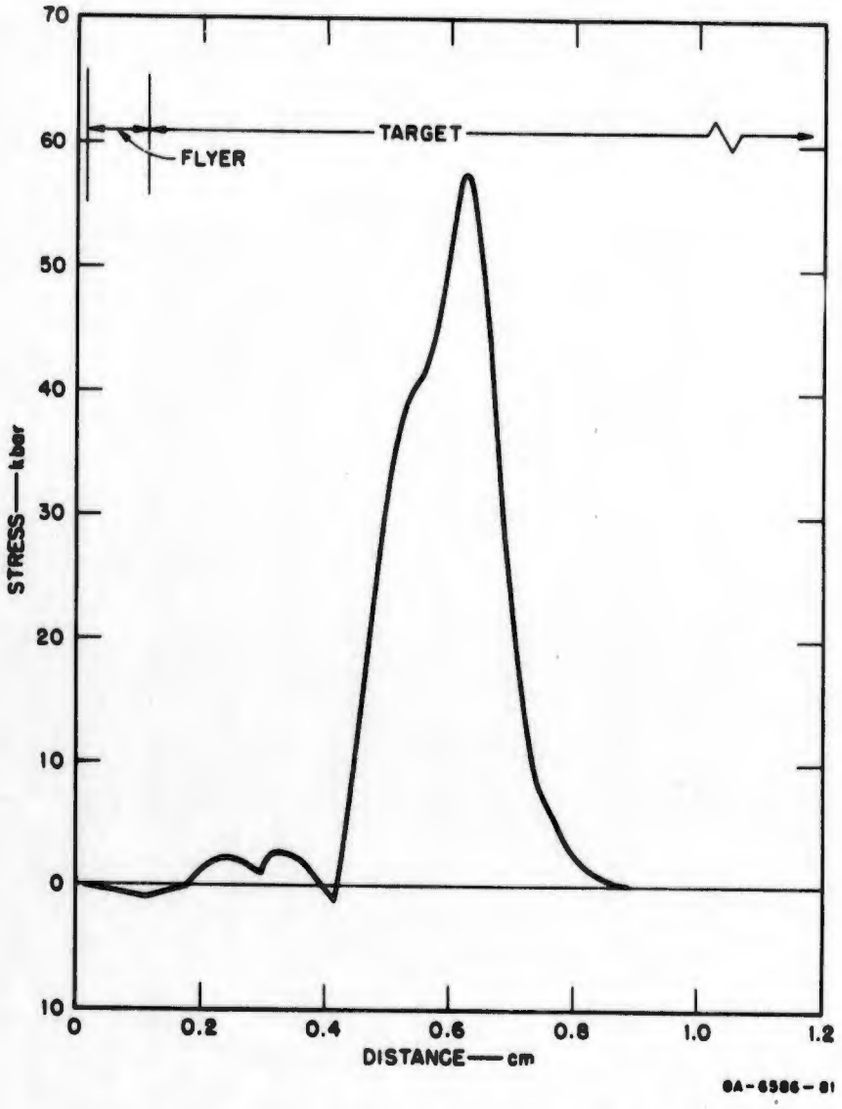
TIME TO COMPLETE GENRAT IS 1.276 SECONDS.



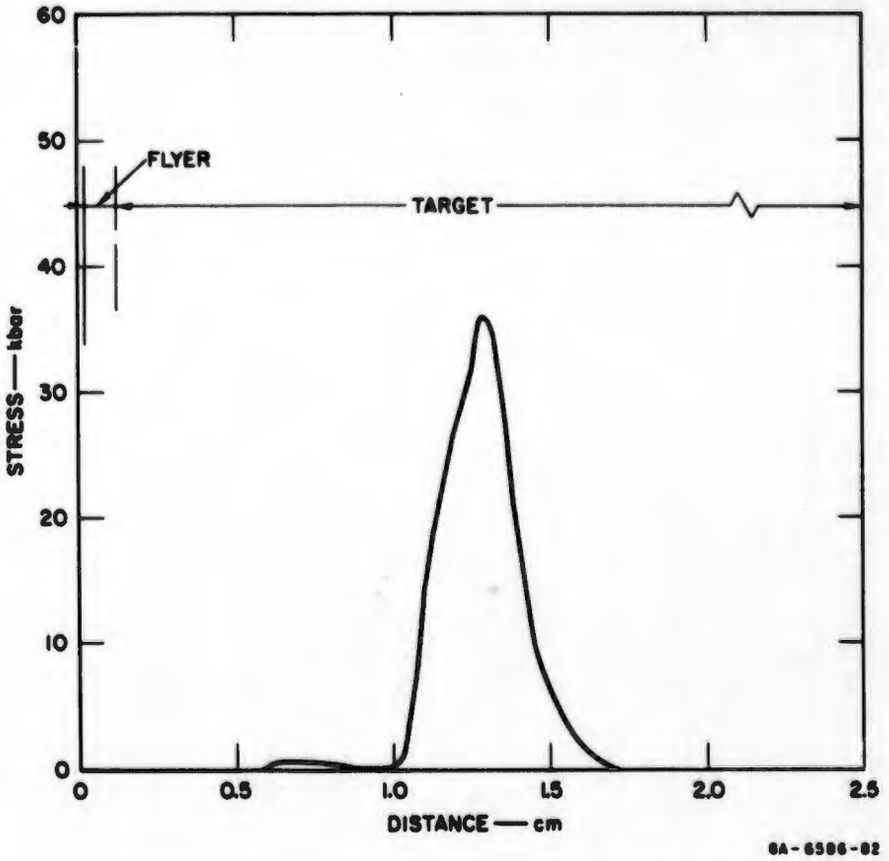
TEST No. 500, EDIT AT CYCLE 57, TIME = 6.234×10^{-8} sec.



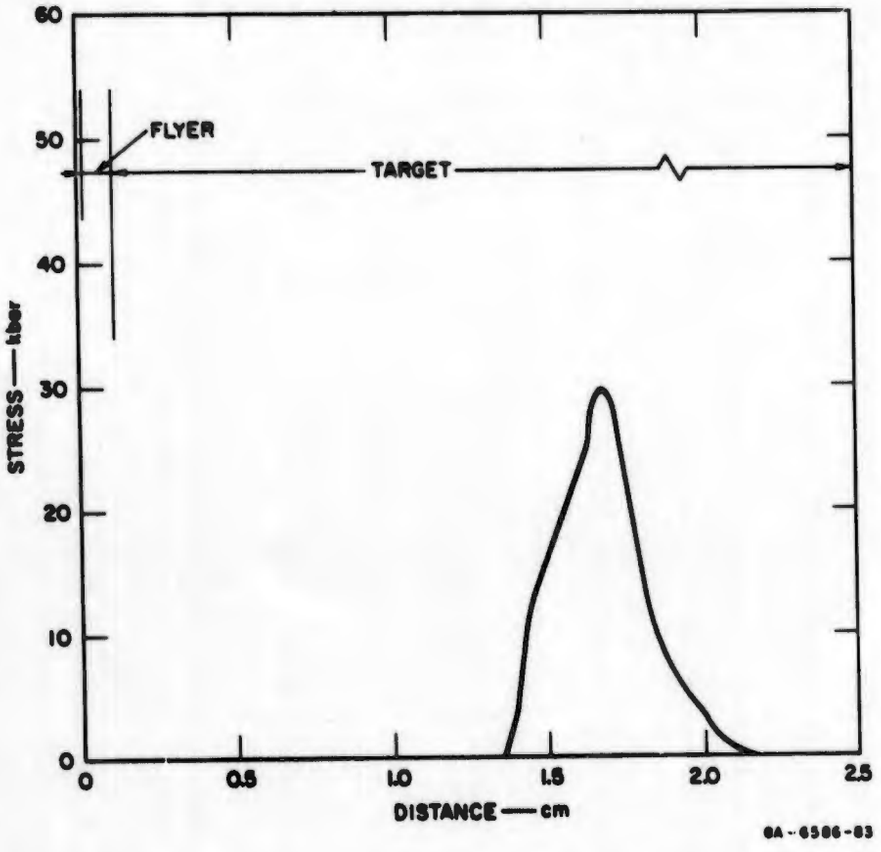
TEST No. 500, EDIT AT CYCLE 210, TIME = 2.558×10^{-7} sec.



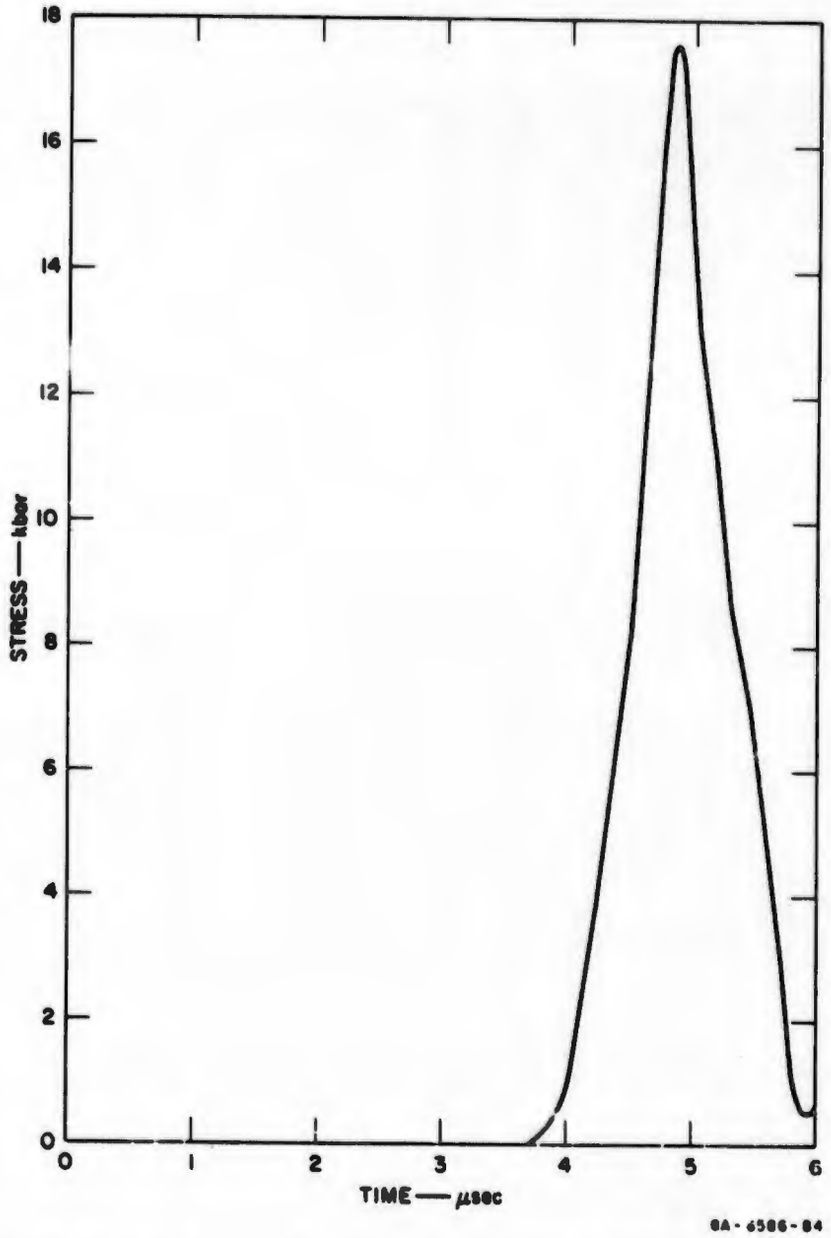
TEST No. 500, EDIT AT CYCLE 406, TIME = 9.893×10^{-7} sec.



TEST No. 500, EDIT AT CYCLE 568, TIME = 2.153×10^{-6} sec.



TEST No. 500, EDIT AT CYCLE 613, TIME = 2.821×10^{-6} sec.



TEST No. 500, STRESS HISTORY AT TARGET-QUARTZ INTERFACE

SECTION IV

SRI PUFF 1 PROGRAM ELEMENTS

In subsequent pages the SRI PUFF 1 program elements for wave propagation calculations are listed. The program requires 49,000 words of storage for loading onto a CDC 6400 and 44,000 words for execution. The program and the listings are divided naturally into two segments, the first for computations and the second for plotting. If the plotting cannot be implemented on the user's computer, then the plotting subroutines should be omitted and the call to PUFPLOT should be removed from EDIT. (There is no other link to the plotting routines.) The program elements are included in the following order:

Main program:	SRI PUFF 1
Computational Subprograms:	EDIT
	EQST
	FMELT
	GENRAT
	HAFSTEP
	HYDRO
	JSTRESS
	POREQST
	SSCAL
Plotting Subroutines:	PUFPLOT
	HISTORY
	HUGONIO
	TPLOTS

```
      PROGRAM SRI PUFF (INPUT,OUTPUT,TAPE10=INPUT,TAPE18=OUTPUT,TAPE6,
     1  TAPE7,TAPE8,TAPE9,TAPE11,TAPE19,FILMFL=10000)
C
C     MAIN PROGRAM  * * *
C        *  CALLS GENRAT TO READ DATA AND INITIALIZE ARRAYS
C        *  CALLS HYDRO FOR EACH CYCLE OF CALCULATIONS
C        *  SETS TIME STEP
C        *  CALLS EDIT, EDTMOM, REZONE AS REQUIRED
C        *  CALLS SCRIBE TO STORE RESULTS AND FOR TERMINAL PRINTOUT
C
      REAL MATL,MU,MUP,MUF,NEW,NET
      INTEGER  M,POROUS,RINTER,SOLID,SPALL
C              MISCELLANEOUS
      COMMON CEF,CKS,DAVG,DELTIM,DCLC,DRHC,DTMIN,DTN,DTNM,DU,DX,ECLD,F,
     1  FIRST,J,JCYCS,JINIT,JFIN,JSMAX,JSTAR,JTS,LSUB(11),MAXPR(11),N,
     2  NCYCS,NPERN,PCLC,RLAST,SLAST,SMAX,TF,TIME,TJ,TS,ULAST,UOLD,
     3  XLAST,XNOW,XOLD
C              EQUATION OF STATE - SOLID
      COMMON COSC(6,6),C1(6,6),C2(6),EMELT(6,5),EQSTA(6),EQSTC(6),
     1  EQSTD(6),EQSTE(6),EQSTG(6),EQSTM(6),EQSTN(6),EQSTS(6),MATL(2,6),
     2  MU(6),RHO(6),RHOS(6),TENS(6,3),YADD(6),YO(6),JAND(6),NPOR(6,2),
     3  M,MUP,NMTRLS
C              EQUATION OF STATE - POROUS
      COMMON AK(6),MUP(6),PORA(4,3),PORB(4,3),PORC(4,3),RHOP(6,3),
     1  YADDP(4,3),ORE*,RHOPV,MP,NC
C              RADIATION DEPOSITION
      COMMON SS(300,5),SSTOP(5),START(5),SCURM,SSTOPM,NSPEC,SSJ,JSS
C              COORDINATE ARRAYS
      COMMON X(300),C(300),CML(300),D(300),DML(300),EML(300),M(300,3),
     1  NEW(300),NET(300),P(300),PML(300),R(300),S(300),SML(300),T(300),
     2 U(300),UML(300),YML(300),ZML(300)
C              HALFSTEP VALUES
      COMMON DH,DHLAST,DUH,EH,PH,RH,RHLAST,SH,SHLAST,UH,UHLAST,XH,XHLAST
C              IDENTIFIERS
      COMMON DISCPT(10),IDENT,JEDIT(20),JREZON(15),NDATE(3),NEDIT,NEDTM,
     1  NJEDIT,NR,NREZON,NSEPRAT,NSPALL,NTEDT,NTEX,NTR(15),TEDIT(50)
C              CONDITION INDICATORS
      COMMON INF,LINTER,MIRROR,NORMAL,POROUS,RINTER,SOLID,SPALL
C              SPALL AND RELAXATION
      COMMON NSR(6),TSR(6,6),USP(50),XSP(50),LRLX,NICK
C
      COMMON /PLOT/ IPLOT,IFPLOT(6),LINES,ITPLOT,NTPLOT,IFLAGT,IHIST(9),
     1  IFLAGJ
C
      COMMON A(2500)
C
100   CALL SECOND(FIRST)  $  XIN=FIRST
      CALL GENRAT
      KNOCK=NICK
      CN=NCYCS=NPERN  $  IT=MIN0(0,NTEDT-1)  $  NT=0  $  SF=0.8
      N=NR=NREZON=1
C
C              CALCULATE AND STORE HYDRODYNAMIC DATA
200   CALL HYDRO
      XINL=XIN  $  CALL SECOND(XIN)  $  DELTIM=XIN-XINL
C          PERIODIC EDITS, PRINTS
      IF (MOD(N,    25) .EQ. 0) 205,210
205   CALTIM=XIN-FIRST
      WRITE(18,89)N,JSTAR,TIME,CALTIM,JTS,DTNM,SMAX,JSMAX
 210  IF(MOD(N,NEDTM).EQ.0) CALL EDTMOM
      IF(MOD(N,NEDIT).EQ.0) CALL EDIT
C
C              STORE DATA IN BUFFER
      CALL SCRIBE
C
C        STOP PARAMETERS
300   IF (TIME .LT. TS) 304,400
304   IF (N .EQ. JCYCS) 400,305
305   IF (X(JSMAX) .LT. CKS) 306,400
306   CALL SSWTCH(2,ISWTCH)
      GO TO (400,500) ISWTCH
C
```

```
400   WRITE (18,41)
      WRITE (18,40) N,JCYCS,TIME,TS,X(JSMAX),CKS,ISWTCH,DTNH
      CALL EDTMCM  $  CALL EDIT  $  LSUB(7)=1  $  CALL SCRIBE
      IF (KNCCK .EC. 5HAGAIN) GO TC 100
      STOP
C
C        TIME STEP CALCULATION
500   DTNH=AMIN1(SF*DTMIN,AMAX1(1.2*DTNH,.035*SF*DTMIN))
      IF (SDURM.EQ. 1.0) 530,506
C
C           COMPUTATION OF SDURM
506   SDURM=1.0
      IF(TIME.LT.SSTOPM)515,530
515   DO 525 NS=1,NSPEC
      IF ((TIME .LT. SSTOP(NS))  .AND. (TIME .GT. START(NS))) 520,525
520   SDURM=AMIN1(SDURM,SSTOP(NS)-START(NS))
525   CONTINUE
      DTNH=AMIN1(DTNH,0.01*SDURM)
530   CN=NCYCS=NPERN
C
C        TIME EDIT
      IF (IT) 560,550,535
 535  CALL EDIT  $NT=NT+1
      IF (NT .EC. NTR(NREZON)) 537,538
537   CALL REZONE  $  NREZCN=NREZCN+1
538   CONTINUE
      IF (NT .EC. NTEDT) 540,545
540   IT=-1  $  GC TC 560
545   IT=0
550   IF (TIME+CN*DTNH .LT. TEDIT(NT+1)) 560,555
555   NCYCS=(TEDIT(NT+1)-TIME)/DTNH+1  $  CN=NCYCS
      DTNH=(TEDIT(NT+1)-TIME)/CN  $  IT=1
560   N=N+1  $  NR=NR+1
      IF (DTNH .GT. C) 200,565
565   N=N-1  $  GO TO 400
C
40    FORMAT (/ 5H  N =,I4,9H, JCYCS =,I4, 8H, TIME =,E10.3,6H, TS =,
     1   E10.3,12H, X(JSMAX) =,E10.3, 7H, CKS =,E10.3,10H, ISWTCH =I3,
     2  8H, DTNH =E10.3)
41    FORMAT (/4X,28H**** CRITERION FOR STOP ****)
89    FORMAT (5H   N=I5,8H, JSTAR=I4,7H, TIME=E10.3,12H, CALC TIME=F10.3
     1,11H SECS, JTS=,I4,7H  DTNH=,E10.3,7H  SMAX=,E10.3,8H  JSMAX=,I4/)
      END
```

```
      SUBROUTINE EDIT
C
C     (INCLUDES ENTRIES EDTMOM, EDDUMP, AND SCRIBE)
C     MAJOR PRINTOUT IS HANDLED BY THIS ROUTINE
C        *  EDIT LISTS COORDINATE QUANTITIES FOR TIME OF EDIT
C        *  EDTMOM COMPUTES AND LISTS MOMENTUM QUANTITIES
C        *  EDDUMP GIVES A MORE COMPLETE EDIT FOR DEBUGGING PURPOSES
C        *  SCRIBE STORES SELECTED RESULTS DURING COMPUTATION AND MAKES
C           A FINAL LISTING OF STRESS HISTORIES
C
      REAL MATL,MU,MUM,MLP,MEM,MET
      INTEGER  M,PORCUS,PINTER,SOLID,SPALL
C              MISCELLANEOUS
      COMMON CFF,CKS,DAVC,DELTIM,DELD,DRHC,DTMIN,DTN,DTNM,DU,DX,EDLD,F,
     1  FIRST,J,JCYCS,JINIT,JFIN,JSMAX,JSTAR,JTS,LSUB(11),MAXPR(11),N,
     2  NCYCS,NPERM,PELC,RLAST,SLAST,SMAX,TF,TIME,TJ,TS,ULAST,UOLD,
     3  XLAST,XNCW,XOLD
C              EQUATION OF STATE - SOLID
      COMMON COSC(6,6),C1(6,6),C2(6),EMELT(6,5),EOSTA(6),EOSTC(6),
     1  EOSTD(6),EOSTE(6),EOSTG(6),EOSTH(6),EOSTA(6),EOSTS(6),MATL(2,6),
     2  MU(6),RHC(6),RHOS(6),TENS(6,3),YADD(6),YC(6),JBND(6),NPCP(6,2),
     3  M,MUM,NPTRLS
C              EQUATION OF STATE - POROUS
      COMMON AK(6),MUP(6),PORA(4,3),PORB(4,3),PORC(4,3),RHOP(6,3),
     1  YADDP(4,3),DREF,RHOFV,MP,NC
C              RADIATION DEPOSITION
      COMMON SS(300,5),SSTOP(5),START(5),SCURM,SSTOPM,NSPEC,SSJ,JSS
C              COORDINATE ARRAYS
      COMMON X(300),C(300),CHL(300),D(300),DHL(300),EHL(300),H(300,3),
     1  MEM(300),MET(300),P(300),PHL(300),R(300),S(300),SHL(300),T(300),
     2 U(300),UHL(300),VHL(300),ZH(300)
C              HALFSTEP VALUES
      COMMON DH,DHLAST,DUH,EH,PH,RH,RHLAST,SH,SHLAST,UH,UHLAST,XH,XHLAST
C              IDENTIFIERS
      COMMON DISCPT(10),IDENT,JEDIT(20),JREZON(15),NDATE(3),NEDIT,NEDTM,
     1  NJEDIT,NR,NREZON,NSEPRAT,NSPALL,NTEDT,NTEX,NTR(15),TEDIT(50)
C              CONDITION INDICATORS
      COMMON INF,LINTER,MIRROR,NORMAL,PORCUS,PINTER,SOLID,SPALL
C              SPALL AND RELAXATION
      COMMON NSR(6),TSR(6,6),USP(50),XSP(50),LRLX,NICK
      COMMON /PLOT/ IPLOT,IFPLOT(6),LINES,ITPLOT,NTPLOT,IFLAGT,IHIST(9),
      COMMON A(2500)
C
      DIMENSION IAY(11),AA(6),XJED(6),XJB(6),MJE(6)
      EQUIVALENCE (JBND(1),JB1), (JBND(2),JB2), (JBND(3),JB3)
C
C
C              PRINTOUT FOR EACH EDIT
      NTEX=NTEX+1
      CALL SECOND(CHANGE)  $  DUR=CHANGE-FIRST
      JSUB=JINIT  $  JSTARD=MIND(JSTAR+1,JFIN-1)  $  NPTS=JSTARD-JSUB+1
      WRITE (18,1026) NTEX,N,TIME,JSTAR,DUR
      TSCALE=TIME*1.E6
      IF (IFPLOT(1) .NE. 0) WRITE (7) NTEX,N,TSCALE,NPTS
      M=1
      DO 9 J=JSUB,JSTARD
      SJ=S(J)*1.E-9
      RJ=R(J)*1.E-9
      IF (IFPLOT(1) .NE. 0) WRITE (7) X(J),SJ,RJ
      NSRM1=NSR(M)+1  $  GO TO (1,1,2,2,1,1,3) NSRM1
1     PAR1=VHL(J)          $  PAR2=SHL(J)-PHL(J) $  GO TO 4
2     PAR1=MEM(J)          $  PAR2=MET(J)        $  GO TO 4
3     PAR1=MEM(J)          $  PAR2=SHL(J)-PHL(J)
4     WRITE (18,1028) J,X(J),U(J),R(J),P(J),S(J),EHL(J),D(J),C(J),J,
     1  H(J,1),H(J,2),H(J,3),MATL(1,M),MATL(2,M),PAR1,PAR2
      IF (J .EQ. JBND(M) ) 8,9
8     M=M+1
      WRITE (18,1029)
9     CONTINUE
      IF (IFPLOT(1) .EQ. 0) RETURN
      MI=M-1
```

```
      IF (MI .LE. 0) GO TO 15
      DO 10 MB=1,MI
      JBM=JANC(MB)
10    XJB(MB)=X(JBM)
15    WRITE (7) MI,(XJB(I),I=1,6)
      RETURN
1026  FORMAT(//5X,13HTIME EDIT NO.I3,7H AT N =I5,8H, TIME =E12.5,14H SEC
     1S, JSTAR =I5,14H, CALC TIME IS F10.3,5H SECS
     2 //4X,1HJ,6X,1HX,6X,1HU,10X,1HR,10X,1HP,10X,1HS,9X,3HEHL,6X,1HD,
     3 10X,1HC,4X,1HJ,2X,4HCOND,19X,20HY, AM, MU   SD OR NT/
     4 5H CELL,5X,2HCM,1X,6HCM/SEC,3(11H   DYN/CM2 ),7X,4HERGS,2X,
     5 6HGM/CM3,5X,6HCM/SEC,1X,4HCELL,26X,19H( DYN/CM2  OR 1/CM))
1028  FORMAT(I5,F7.4,F7.0,4F11.4,F8.4,E11.4,I5,1X,3(A1,1X),2A8,2E11.3)
1029  FORMAT ( )
C*******************************
C
      ENTRY EDDUMP                                                    ENTRY
C
      WRITE (18,2001) N,J,JSTAR,NSPALL,TIME
      DO 401 K=1,NMTRLS
      WRITE (18,2002)MATL(1,K),MATL(2,K), (COSQ(K,I),I=1,6),
     1  (C1(K,I),I=1,6),C2(K)
      WRITE (18,2003) EQSTC(K),EQSTD(K),EQSTE(K),EQSTG(K),EQSTH(K),
     1  EQSTN(K),EQSTS(K),MU(K),RHC(K),RHCS(K),YACD(K),YO(K)
      WRITE (18,2004) (EMELT(K,I),I=1,5),(TENS(K,I),I=1,3),AK(K),MUP(K)
401   CONTINUE
      WRITE (18,2005)
      DO 402 K=JINIT,JFIN
      DX=X(K+1)-X(K)
      WRITE (18,2006) K,X(K),DX,CHL(K),CHL(K),EHL(K),PHL(K),SHL(K),R(K),
     1  T(K),U(K),YHL(K),ZHL(K),(H(K,I),I=1,3)
      IF (H(K,2) .EQ. LINTER) WRITE (18,2007)
402   CONTINUE
      RETURN
2001  FORMAT (11H1EDDUMP, N=I4,4H, J=I3,8H, JSTAR=I3,9H, NSPALL=I3,
     1  7H, TIME=E10.3)
2002  FORMAT (1HC,2A8,4H, C=13F6.3)
2003  FORMAT(6H EQST=12E10.3)
2004  FORMAT(6H MISC=10E10.3)
2005  FORMAT (4HC  J4X,1HX,9X,2HDX,8X,3HCHL,7X,3HDHL,7X,3HEHL,7X,3HPHL,
     1  7X,3HSHL,8X,1HR,9X,1HT,9X,1HU,8X,3HYHL,7X,3HZHL,6X,1HH/)
2006  FORMAT (I5,12E10.3,2X,3A1)
2007  FORMAT ()
C*******************************
C
      ENTRY EDTMOM                                                    ENTRY
      PDTPOS=PDTNEG=0.
      JSTARD=JSTAR+1
C
C               TOTAL MOMENTUM CALCULATION
      EMVNEG=EMVPOS=ESUM=EKSUM=RMAX=0.
      DO 208 J=1,JSTARD
      IF (R(J) .GT. RMAX) 203,204
203   RMAX=R(J)
      JRMAX=J
204   EMV=.5*ZHL(J)*(U(J)+U(J+1))
      IF (EMV .LT. 0.) 205,206
205   EMVNEG=EMVNEG+EMV
      GO TO 207
206   EMVPOS=EMVPOS+EMV
207   CONTINUE
C
C               TOTAL ENERGY CALCULATION (IN CALORIES)
      ESUM=ESUM+EHL(J)*ZHL(J)/4.186E7
      EKSUM=EKSUM+ZHL(J)*(U(J)**2+U(J)*U(J+1)+U(J+1)**2)/6./4.186E7
208   CONTINUE
      ETOTAL=ESUM+EKSUM
      JM=JSMAX+3
C
C               CALCULATE MOMENTUM OF MAIN PULSE
      EMVPL=0.
209   EMVPL=EMVPL+U(JM)*.5*D(JM)*(X(JM+1)-X(JM-1))
```

```
      IF (JM .LT. JSMAX) 210,211
210   IF (U(JM-1) .GT. C.) 211,213
211   IF (JM .GT. 1) 212,213
212   JM=JM-1
      GO TO 209
213   JM=JSMAX+4
C
C               CALCULATE MOMENTUM OF PRECURSOR
      EMVPR=0.
214   EMVPR=EMVPR+.5*U(JM)*C(JM)*(X(JM+1)-X(JM-1))
      IF (JM .GT. JSTAR) 216,215
215   JM=JM+1
      GO TO 214
216   EMVPP=EMVPL+EMVPR
      DTPP=EMVPP/SMAX
      DTPULS=EMVPL/SMAX
C
C               CALCULATE MAXIMUM POTENTIAL MOMENTUM OF VAPOR
      M=1
      EMVBM=0.
      DO 220 J=1,JSTAR
      IF (J .GT. JBND(M)) M=M+1
      DE=EHL(J)-EQSTE(M)
      IF(DE .GT. 0.) 219,221
219   UAVG=(SQRT(U(J-1)*U(J-1)+2.*DE)+SQRT(U(J)*U(J)+2.*DE))/2.
      EMVBM=EMVBM+UAVG*ZHL(J)
220   CONTINUE
221   CONTINUE
C
C               PRINT OUTPUT VARIABLES
      WRITE (18,1035)
      WRITE (18,1034) N,TIME,DTNH,JTS,ETOTAL,JFIN,JSTAR,JSMAX,SMAX,X(JSM
     1AX),DTPP,DTPULS,EMVNEG,EMVPOS,EMVPL,EMVPR,EMVPP,EMVBM,PCTPOS,PCTNE
     2G,X(1),X(JB1),X(JB2),X(JB3),X(JFIN),JRMAX,RMAX,X(JRMAX)
      RETURN
1035  FORMAT(15H1 MOMENTUM EDIT/)
1034  FORMAT (/,7X,5HCYCLE,8X,4HTIME,8X,4HDTNH,9X,3HJTS,6X,6HETOTAL,8X,4
     1HJFIN,7X,5HJSTAR,7X,5HJSMAX,8X,4HSMAX,4X,8HX(JSMAX),/,I12,2F12.4,I
     212,E12.4,3I12,2E12.4,/,8X,4HDTPP,6X,6HDTPULS,6X,6HEMVNEG,6X,6HEMVP
     3OS,7X,5HEMVPL,7X,5HEMVPR,7X,5HEMVPP,7X,5HEMVBM,6X,6HPDTPOS,6X,6HPC
     4TNEG,/,10E12.4,/,8X,4HX(1),4X,8HX(JBND1),4X,8HX(JBND2),4X,8HX(JBND
     53),5X,7HX(JFIN),7X,5HJRMAX,8X,4HRMAX,4X,8HX(JRMAX),/,5E12.4,I12,2F
     612.4)
C*******************************
C
      ENTRY SCRIBE                                                    ENTRY
C
      IF (N .EQ. 1) 250,251
250   IBUF=0.   $  MODLUS=25
      DO 286 I=1,NJEDIT
      DO 284 IM=1,NMTRLS
      IF (JEDIT(I) .LE. JBND(IM)) 286,284
284   CONTINUE
286   MJE(I)=IM
251   IF (LSUB(7)) 290,255,290
C               STORE DATA IN BUFFER
255   IB=50*IBUF+1  $  A(IB)=N  $  A(IB+1)=TIME*1.E6  $  A(IB+17)=JTS
      A(IB+18)=DTNH*1.E9  $  A(IB+19)=DELTIM  $  IB=IB+1
      NINTER = MINO(NMTRLS-1,3)
      IF (NINTER .EQ. 0) GO TO 230
      DO 228 I=1,NINTER
      JB=JBND(I)  $  IB=IB+1
228   A(IB)=(S(JB)+S(JB+1))/2.*1.E-9
      IF (NINTER .EQ. 3) 224,230
230   NLEFT = 3-NINTER
      DO 223 IN=1,NLEFT
      IB=IB+1  $  JE=JEDIT(IN)
223   A(IB)=(S(JE)-P(JE))*1.E-9
224   DO 225 I=1,6
      JE=JEDIT(I)  $  IB=IB+1  $  A(IB)=S(JE)*1.E-9  $  A(IB+6)=M(JE,3)
      A(IB+15)=R(JE)*1.E-9  $  A(IB+27)=A(IB+39)=(S(JE)-P(JE))*1.E-9
```

```
      IF (D(JE) .GT. C.) A(IB+21)=1./D(JE)
      MJ=MJE(I)   $  NSRMJ1=NSR(MJ)+1
      GC TC (225 ,2243,2241,2241,2243,2243,2242) NSRMJ1
2241  A(IB+33)=AEM(JE)   $  A(IB+39)=AET(JE)   $  GC TO 225
2242  A(IB+33)=AEM(JE)   $  GC TO 225
2243  A(IB+33)=YML(JE)*1.E-9
225   CONTINUE
      IBUF=IBUF+1
      IF (IBUF .EQ. MODLUS) 233,240
233   IF (UNIT,6) 233,235,500,501
235   BUFFER OUT (6,1) (A(1),A(50*MODLUS))
      GC TC 270
240   IF (IBUF .EQ. 2*MODLUS) 242,270
242   IF (UNIT,6) 242,245,500,501
245   BUFFER OUT (6,1) (A(50*MODLUS+1),A(100*MODLUS))
      IBUF=0
270   RETURN
C        BUFFER CUT REMAINDER OF AN INCOMPLETE BLOCK
290   IF ( (IBUF .GT. 0) .AND. (IBUF .LT. MODLUS) ) 351,355                    12/17
 351  IF (UNIT,6) 351,352,500,501
352   BUFFER CUT (6,1) (A(1),A(50*IBUF))
      GO TO 365
355   IF (IBUF .GT. MODLUS) 360,365
360   IF (UNIT,6) 360,362,500,501
362   BUFFER CUT (6,1) (A(50*MODLUS+1),A(50*IBUF))
365   IF (UNIT,6) 365,400,500,501
400   REWIND 6
C          ZERO CCMMCN
      DO 301 I=1,2500
301   A(I)=0.
C
      CALL SECOND(XSTART)
      IF (IPLOT .EQ. 0) GO TO 307
C
C                PREPARE TAPE 7 FOR PLOTTING
      DO 302 I=1,6
      JE=JEDIT(I)
302   XJED(I)=X(JE)
      WRITE (7) N,NJEDIT,(JEDIT(I),I=1,6),(XJED(I),I=1,6)
307   INDX=0   $   IBUF=MODLUS   $   NBUF=(N-1)/MODLUS+1   $   LENGTH=MODLUS
      BUFFER IN (6,1) (A(1),A(50*MODLUS))
      DO 325 NB=1,NBUF
308   IF (UNIT,6) 308,309,500,501
309   IF (NB .EC. NBUF) 310,311
C
C                RESET LENGTH FOR INCOMPLETE BLOCK
310   IF (MOD (N,MODLUS) .EQ. 0)   GO TO 314
      LENGTH=MOD(N,MODLUS)   $   GO TO 314
311   IF (IBUF .EQ. 0) 312,313
312   BUFFER IN (6,1) (A(1),A(50*MODLUS))
      GO TO 314
313   BUFFER IN (6,1) (A(50*MODLUS+1),A(100*MODLUS))
314   DO 320 K=1,LENGTH
      INDX=MOD(IBUF+MODLUS,2*MODLUS)+50
C                PRINTCUT OF STRESS HISTORIES (FIRST SCRIBE)
      IF (INDX .EQ. 0) WRITE (18,1041) (JEDIT(JE),JE=1,6)
      NO=A(INDX+1)   $   JTS=A(INDX+18)
      DO 315 IQ=12,17
315   IAY(IQ-6)=A(INDX+IQ)
      WRITE (18,104C) NO,(A(INDX+I),I=2,5),(A(INDX+I),IAY(I),I=6,11),
     1  JTS,(A(INDX+I),I=19,20)
C                PREPARE TAPE 19 FOR SECCNC SCRIBE
      IF (LRLX .GT. 1) WRITE  (19,1092) NC,A(INDX+2),(A(INDX+I),I=39,50)
C                PREPARE TAPES FOR PLOTTING
      IF (IFPLOT(2)+IFPLOT(3) .NE. 0) WRITE (7) (A(INDX+I),I=2,11)
      IF(IFPLOT(3)+IFPLOT(4)+IFPLOT(5).NE.0) WRITE(8)(A(INDX+I),I=27,32)
      IF (IFPLOT(4) .NE. 0) WRITE (9) (A(INDX+I),I=21,26)
      IF (IFPLOT(5) .NE. 0) WRITE (11) (A(INDX+I),I=33,38)
320   IBUF=IBUF+1
      IF (IBUF .EQ. 2*MODLUS) 322,325
322   IBUF=0
```

```
325   CONTINUE
      REWIND 19
C               PRINTOUT OF STRESS HISTORIES (SECOND SCRIBE)
      IF (LRLX .EQ. 1) 600,330
330   NP=(N-1)/50+1      $  ND=50
      DO 345 IP=1,NP
      PRINT 1091, (JEDIT(JE),JE=1,6)
      IF (IP .EQ. NP) 333,340
333   IF (MOD(N,50) .EQ. 0) 340,336
336   ND=MOD(N,50)
340   DO 345 K=1,ND
      READ(19,1092) NC,TIME,(A(I),I=1,6),(AA(I),I=1,6)
      PRINT 1092,NC,TIME,(A(I),AA(I),I=1,6)
345   CONTINUE
      REWIND 19
C
600   CALL SECOND(XEND)
      REWIND 6  $  REWIND 7  $  REWIND 8  $  REWIND 9  $  REWIND 11
C               CALL TO PLOTTING PROGRAM
      IF (IPLOT .EQ. 0) GO TO 620
      PRINT 498
      CALL PUFPLOT (ATEX,IDENT)
      REWIND 7  $  REWIND 8  $  REWIND 9  $  REWIND 11
620   CALL SECOND (FINAL)     $  DUR4=FINAL-FIRST
      DUR=XEND-XSTART  $  DUR2=XEND-FIRST  $  DUR3=FINAL-XEND
      WRITE (18,5012) DUR,DUR2,DUR3,DUR4
      RETURN
C
C               STATUS CHECK PRINTS
500   IF (NB .EQ. NBUF) LENGTH=MOD(N,MODLUS)
      WRITE (18,1061) NB,LENGTH $  GO TO 600
501   IF (NB .EQ. NBUF) LENGTH=MOD(N,MODLUS)
      WRITE (18,1062) NB,LENGTH  $  GO TO 600
498   FORMAT (15H PUFPLOT CALLED //)
1040  FORMAT (I5,4F10.3,6(F9.3,R1),I5,F7.3,F9.3)
1041  FORMAT (81H1 SCRIBE OUTPUT, TIME IN MICROSECS, S IN KPARS, DTNH IN
     1 NANOSECS, DELTIM IN SECS  //
     2       51H    N       TIME     S12/SDJ1  S23/SDJ2  S34/SDJ3  S(I3,
     3  7H)    S(I3,7H)    S(I3,7H)    S(I3,7H)    S(I3,7H)    S(I3,
     4 22H)  JTS   DTNH   DELTIM)
1061  FORMAT(27H EOF ON UNIT 6 IN SCRIBE.  5H  NB=I2, 9H  LENGTH=I3)
1062  FORMAT (38H PARITY ERROR ON UNIT 6 IN SCRIBE, NB=I2,8HLENGTH=I3)
1070  FORMAT(12I5)
1080  FORMAT(2I5,F10.3,I5)
1090  FORMAT(3F10.3)
1091  FORMAT    (113H1SECOND SCRIBE OUTPUT FOR ALL RELAXATION MODELS-  N
     1M,NT(1/CM), GAM(UNITLESS), Y,SD,MU(KILOBARS), TIME(MICROSECS)   //
     215X,6(7X,3HJ =,I4,6X),//5H    N,6X,4HTIME,6(3X,7HY OR NM,3X,7HSD,
     3NT,)/15X,6(5X,5HOR MU,4X,6HOR GAM))
1092  FORMAT (I5,F10.3,12E10.3)
5012  FORMAT (17HOTIME IN SCRIBE =F10.3/17H COMPUTING TIME =F10.3/
     1  17H PLOTTING TIME  =F10.3/17H TOTAL TIME     =F10.3)
      END
```

```
      SUBROUTINE EQST(EJ,DJ,PJ,PJ,CJ)
C
C     COMPUTES PRESSURE AND SOUND SPEED FOR SOLIDS
C        *  MIE-GRUNEISEN FOR COMPRESSION
C        *  EXPANSION EQUATION OF STATE FOR DENSITIES LESS THAN RHOS
C
      REAL MATL,MU,MUP,MUP
C              MISCELLANEOUS
      COMMON CEF,CKS,DAVG,DELTIM,DOLD,DRHO,DTMIN,DTN,DTNH,DU,DX,ECLD,F,
     1  FIRST,J,JCYCS,JINIT,JFIN,JSMAX,JSTAR,JTS,LSUB(11),MAXPR(11),N,
     2  NCYCS,NPERN,POLD,RLAST,SLAST,SMAX,TF,TIME,TJ,TS,ULAST,UOLD,
     3  XLAST,XNOW,XOLD
C              EQUATION OF STATE - SOLID
      COMMON COSQ(6,6),C1(6,6),C2(6),EMELT(6,5),EQSTA(6),EQSTC(6),
     1  EQSTD(6),EQSTE(6),EQSTG(6),EQSTH(6),EQSTN(6),EQSTS(6),MATL(2,6),
     2  MU(6),RHO(6),RHOS(6),TENS(6,3),YACC(6),YO(6),JAND(6),NPOR(6,2),
     3  M,MUM,NMTRLS
C              EQUATION OF STATE - POROUS
      COMMON AK(6),MUP(6),PORA(4,3),PORB(4,3),PORC(4,3),RHOP(6,3),
     1  YACOP(4,3),DREF,RHOPV,MP,NC
C
      VJ=RHOS(MJ)/DJ  $  ENU=1./VJ  $  EMU=ENU-1.
      IF (EMU .GE. 0.) 10,3
C              EQST FOR EXPANDED ZONES
3     ENU2=EQSTN(MJ)*(1.-VJ)*VJ  $  TS1=EQSTE(MJ)
      IF (ENU2 .GT. -10) 4,8
4     TS1=TS1*(1.-EXP(ENU2))
8     EN=(ENU+1.)/2.  $  EN2=EMU+EN*EN
      GHNU=(EQSTG(MJ)-EQSTH(MJ))*(EMU*EN/EN2+.25*EN2/EN)
      TS2=EQSTH(MJ)+GHNU  $  PJ=(EJ-TS1)*DJ*TS2
      IF (CJ .NE. 0.) 9,20
9     CSQ=(EJ-TS1)*(TS2+.5*GHNU)+TS2*(EQSTE(MJ)-TS1)*EQSTN(MJ)*(2.*VJ-1.
     1  )*VJ+PJ*TS2/DJ + 2.*MUM/(DJ+DOLD)
      IF (CSQ .LT. 0.) GO TO 30
      CQ=CSQ+CJ*CJ  $  CJ=CSQ*CJ/CQ+.25*CQ/CJ  $  GO TO 20                12/17
C              EQST FOR COMPRESSED ZONES
10    PH=((EQSTS(MJ)*EMU+EQSTD(MJ))*EMU+EQSTC(MJ))*EMU
      G=EQSTG(MJ)*RHOS(MJ)/DJ  $  PJ=PH*(1.-.5*EMU*G)+G*DJ*EJ
      IF (CJ .NE. 0.) 11,20
11    CSQ=((3.*EQSTS(MJ)*EMU+2.*EQSTD(MJ))*EMU+EQSTC(MJ))*(1.-.5*G*EMU)
     1  /RHOS(MJ)-.5*G/DJ*PH + PJ*G/DJ + 2.*MUM/(DJ+DOLD)
      IF (CSQ .LT. 0.) GO TO 30
      CQ=CSQ+CJ*CJ  $  CJ=CSQ*CJ/CQ+.25*CQ/CJ                            12/17
20    IF (LSUB(4) .GE. MAXPR(4)) GO TO 30
      LSUB(4)=LSUB(4)+1
25    WRITE (18,110) J,N,CSQ,EJ,DJ,PJ
30    RETURN
110   FORMAT (1CH  EQST, J=I3,4H, N=I4,6H, CSQ=E10.3,5H, EJ=E10.3,
     1  5H, DJ=E10.3,5H, PJ=E10.3)
      END
```

```
      FUNCTION FMELT(EJ,MJ)
C
C     COMPUTES VARIATION OF STRENGTH OR MODULUS WITH INTERNAL ENERGY
C
      REAL MATL,MU,MUM
C               MISCELLANEOUS
      COMMON CEF,CKS,DAVG,DELTIM,DELU,DRHC,DTMIN,DTN,DTNH,DU,DX,EOLD,F,
     1  FIRST,J,JCYCS,JINIT,JFIN,JSMAX,JSTAR,JTS,ISUB(11),MAXPR(11),N,
     2  NCYCS,NPERM,PCLC,RLAST,SLAST,SMAX,TF,TIME,TJ,TS,ULAST,UOLD,
     3  XLAST,XNOW,XOLD
C               EQUATION OF STATE - SOLID
      COMMON COSC(6,6),C1(6,6),C2(6),EMELT(6,5),EQSTA(6),EQSTC(6),
     1  EQSTD(6),EQSTE(6),EQSTG(6),EQSTH(6),EQSTN(6),EQSTS(6),MATL(2,6),
     2  MU(6),RHO(6),RHOS(6),TENS(6,3),YADD(6),YC(6),JRND(6),NPOR(6,2),
     3  P,MUM,NPTRLS
C
      IF (EJ .GE. EMELT(MJ,1)) GO TO 30
      IF (EJ .GT. EMELT(MJ,2)) GO TO 20
      IF (EJ .GT. 0.) GO TO 10
C               FOR NEGATIVE ENERGY
      FMELT =1.
      RETURN
C               FOR ENERGY IN FIRST REGION
10    RR=EJ/EMELT(MJ,2)
      FMELT=1.-RR*(1.-EMELT(MJ,4)+4.*EMELT(MJ,3)*(RR-1.))
      RETURN
C               FOR ENERGY IN SECOND REGION
20    RR=(EMELT(MJ,1)-EJ)/(EMELT(MJ,1)-EMELT(MJ,2))
      FMELT=RR*(EMELT(MJ,4)-4.*EMELT(MJ,5)*(RR-1.))
      RETURN
C               FOR ENERGY ABOVE MELTING
30    FMELT=0.
      RETURN
      END
```

```
      SUBROUTINE GENPAT
C
C     READS INPUT DATA AND INITIALIZES ARRAYS
C        *  READS INPUT CARDS
C        *  COMPUTES COORDINATE LAYOUT
C        *  COMPUTES RADIATION DEPOSITION FOR A RADIATION PROBLEM
C        *  INITIALIZES DENSITY, ENERGY, YIELD, SOUND SPEED, TENSILE STRENGTH,
C           CONDITION INDICATORS, PARTICLE VELOCITY
C        *  PRINTS INITIAL LAYOUT
C
      REAL MATL,MU,MUM,MUP,NEM,NET
      INTEGER  M,POROUS,RINTER,SOLID,SPALL
      INTEGER MM
C               MISCELLANEOUS
      COMMON CEF,CKS,DAVG,DELTIM,DOLD,DRHC,DTMIN,DTN,DTNH,DU,DX,EOLD,F,
     1  FIRST,J,JCYCS,JINIT,JFIN,JSMAX,JSTAR,JTS,LSUR(11),MAXPR(11),N,
     2  NCYCS,NPERN,PCLD,RLAST,SLAST,SMAX,TF,TIME,TJ,TS,ULAST,UOLD,
     3  XLAST,XNOW,XOLD
C               EQUATION OF STATE - SOLID
      COMMON COSQ(6,6),C1(6,6),C2(6),EMELT(6,5),EQSTA(6),EQSTC(6),
     1  EQSTD(6),EQSTE(6),EQSTG(6),EQSTM(6),EQSTN(6),EQSTS(6),MATL(2,6),
     2  MU(6),RHO(6),RHOS(6),TENS(6,3),YADD(6),YO(6),JBND(6),NPOR(6,2),
     3  M,MUM,NMTRLS
C               EQUATION OF STATE - POROUS
      COMMON AK(6),MUP(6),PORA(4,3),PORB(4,3),PORC(4,3),RHOP(6,3),
     1  YACCP(4,3),DREF,RHOPV,MP,NC
C               RADIATION DEPOSITION
      COMMON SS(300,5),SSTOP(5),START(5),SDURM,SSTOPM,NSPEC,SSJ,JSS
C               COORDINATE ARRAYS
      COMMON X(300),C(300),CHL(300),D(300),DHL(300),EHL(300),H(300,3),
     1  NEM(300),NET(300),P(300),PHL(300),R(300),S(300),SHL(300),T(300),
     2 U(300),UHL(300),YHL(300),ZHL(300)
C               HALFSTEP VALUES
      COMMON DH,DHLAST,DUH,EH,PH,RH,RHLAST,SH,SHLAST,UH,UHLAST,XH,XHLAST
C               IDENTIFIERS
      COMMON DISCPT(10),IDENT,JEDIT(20),JREZON(15),NDATE(3),NEDIT,NEDTM,
     1  NJEDIT,NR,NREZCN,NSEPRAT,NSPALL,NTEDT,NTEX,NTR(15),TEDIT(50)
C               CONDITION INDICATORS
      COMMON INF,LINTER,MIRROR,NORMAL,POROUS,RINTER,SOLID,SPALL
C               SPALL AND RELAXATION
      COMMON NSR(6),TSR(6,6),USP(50),XSP(50),LRLX,NICK
C
      COMMON /PLOT/ IPLOT,IFPLOT(6),LINES,ITPLOT,NTPLOT,IFLAGT,IHIST(9),
     1  IFLAGJ
C
      COMMON A(14)
      DIMENSION AC(109),AA(6,6,15),B(6,6,15),EDGE(6,6,15),EI(109),
     1  RHOC(6,6),TBL(109),NCON(6),NOE(6,6)
      DIMENSION DELFIN(6,5),DELX(6,5),TH(6,5),NCELLS(6,5),NZONES(6),
     1  IEQUIV(10),RLX(6,8)
C
      EQUIVALENCE (AC,C),(AA,C(110)),(B,C(50)),(EDGE,DHL(290)),
     1  (EI,EHL(230)),(RHOC,H(39)),(TBL,H(75)),(NCON,H(184)),
     2  (NOE,H(190)),(DELFIN,H(226)),(DELX,H(256)),(TH,H(286)),
     3  (NCELLS,H(316)),(NZONES,H(346)),(CEF,IEQUIV)
C
      BEGIN=FIRST
100   DO 103 I=1,9770
103   IEQUIV(I)=0
      FIRST=BEGIN
      LINTER=1RL  $  NORMAL=1RN  $  POROUS=1RP  $  MIRROR=1RM
      RINTER=1RR  $  SOLID=1RS  $  SPALL=1RS  $  NORM=5H*END*
      LRLX=1
C        READ AND PRINT DATA
      WRITE (18,31)
      READ       44,A1,A2,NDATE(1),A3,NDATE(2),A4,NDATE(3)
     1  ,A5,IDENT,A6,A7,A8,A9,A10,A11,A12
      WRITE (18,44)A1,A2,NDATE(1),A3,NDATE(2),A4,NDATE(3)
     1  ,A5,IDENT,A6,A7,A8,A9,A10,A11,A12
      DO 110 KK=1,6
      READ       60,(A(I),I=1,10)
110   WRITE (18,60)(A(I),I=1,10)
```

```
      READ       60, (DISCPT(I),I=1,10)
      WRITE (18,7C)
      WRITE (18,60) (DISCPT(I),I=1,10)
      READ       74,A1,A2,NTEDT,A3,A4,NJEDIT,A5,A6,NREZON,A7,A8,NSFPRAT
      WRITE(18,74)A1,A2,NTEDT,A3,A4,NJEDIT,A5,A6,NREZON,A7,A8,NSFPRAT
      IF (NTEDT .EQ. 0) GO TO 120
      NT=MINO(7,NTEDT)
      READ       76,A1,A2,(TEDIT(I),I=1,NT)
      WRITE (18,76)A1,A2,(TEDIT(I),I=1,NT)
      IF (NTEDT .LE. 7) GO TO 120
      READ       79,(TEDIT(I),I=8,NTEDT)
      WRITE (18,79)(TEDIT(I),I=8,NTEDT)
120   IF (NJEDIT .EQ. 0) GO TO 125
      NJ=MINO(14,NJEDIT)
      READ       78,A1,A2,(JEDIT(I),I=1,NJ)
      WRITE (18,78)A1,A2,(JEDIT(I),I=1,NJ)
      IF (NJEDIT .LE. 14) GO TO 125
      READ       80,(JEDIT(I),I=15,NJEDIT)
      WRITE (18,80)(JEDIT(I),I=15,NJEDIT)
125   IF (NREZON .EQ. 0) GO TO 130
      READ       78,A1,A2,(NTR(I),I=1,NREZON)
      WRITE(18,78) A1,A2,(NTR(I),I=1,NREZON)
      READ       78,A1,A2,(JREZON(I),I=1,NREZON)
      WRITE(18,78) A1,A2,(JREZON(I),I=1,NREZON)
130   READ       74,A1,A2,NEDTM,A3,A4,NEDIT,A5,A6,NPERN,A7,A8,MAXPRN
      WRITE(18,74) A1,A2,NEDTM,A3,A4,NEDIT,A5,A6,NPERN,A7,A8,MAXPRN
      IF (MAXPRN .EQ. 0) GO TO 135
      READ       78,A1,A2,(MAXPR(I),I=1,11)
      WRITE (18,78)A1,A2,(MAXPR(I),I=1,11)
135   READ       72,A1,A2,A3,JCYCS,A4,CKS,A5,TS
      WRITE (18,72)A1,A2,A3,JCYCS,A4,CKS,A5,TS
      READ       73,A1,NMTRLS,A2,MATFL,A3,LZERO,A4,IPLOT
      WRITE (18,73)A1,NMTRLS,A2,MATFL,A3,UZERO,A4,IPLOT
      MP=0
C
C           **** M-LOOP    ****
C
      DO 290 M=1,NMTRLS
      WRITE (18,69)
      READ       90,MATL(1,M),MATL(2,M),A1,RHOS(M),A2,NSR(M),A3,NYAM,
     1  A4,NPOR(M,1),A5,NCON(M)
      WRITE(18,90)MATL(1,M),MATL(2,M),A1,RHOS(M),A2,NSR(M),A3,NYAM,
     1  A4,NPOR(M,1),A5,NCON(M)
      RHO(M)=RHOS(M)
C
C           ****    READ IN EQST VARIABLES    ****
C
      READ       92, A1,A2,EQSTC(M),A3,A4,EQSTD(M),A5,A6,EQSTE(M),A7,A8,
     1EQSTG(M),A9,A10,EQSTH(M),A11,A12,EQSTS(M),A13,A14,EQSTN(M),A15,A16
      EQSTA(M)=EQSTG(M)*RHOS(M)/EQSTC(M)
      EQSTN(M)=EQSTC(M)/(EQSTG(M)*EQSTE(M)*RHOS(M))
      WRITE (18,92) A1,A2,EQSTC(M),A3,A4,EQSTD(M),A5,A6,EQSTE(M),A7,A8,
     1EQSTG(M),A9,A10,EQSTH(M),A11,A12,EQSTS(M),A13,A14,EQSTA(M),A15,
     2A16,EQSTA(M)
C
C           ****    READ IN VISCOSITY AND TENSILE VARIABLES    ****
C
      READ       92,A1,A2,COSO(M,6),A3,A4,C1(M,6),A5,A6,C2(M)
      WRITE (18,92)A1,A2,COSO(M,6),A3,A4,C1(M,6),A5,A6,C2(M)
      READ       92,A1,A2,TENS(M,1), A3,A4,TENS(M,2),A5,A6,TENS(M,3)
      WRITE(18,92) A1,A2,TENS(M,1), A3,A4,TENS(M,2),A5,A6,TENS(M,3)
C
C           ****    READ IN STRESS RELAXATION VARIABLES    ****
C
      NSRM1=NSR(M)+1
      GO TO (220,210,212,212,210,210) NSRM1
210   READ       94,(A(I),RLX(M,I),I=1,4)
      WRITE (18,94)(A(I),RLX(M,I),I=1,4)
      RLX(M,5)=RLX(M,6)=0.  $  GO TO 214
212   READ       94, (A(I),RLX(M,I),I=1,8)
      WRITE (18,94) (A(I),RLX(M,I),I=1,8)
214   LRLX=2
```

```
      DO 216 IR=1,6
216   TSR(M,IR)=RLX(M,IR)
220   EMELT(M,1)=EMELT(M,2)=1.E20  $  EMELT(M,4)=1.
      IF (NYAM .EQ. 0) GO TO 240
      IF (NYAM .EQ. 2) GO TO 230
C
C          ****   READ IN YIELD VARIABLES   ****
C
      READ       92,A1,A2,YOS,  A3,A4,MU(M),A5,A6,YADD(M)
      WRITE (18,92)A1,A2,YOS,  A3,A4,MU(M),A5,A6,YADD(M)
      YO(M)=YOS
      YADD(M)=.666667*YADD(M)/(RHOS(M)*(.2-.5*YOS/MU(M)))
      MU(M)=1.333333*MU(M)
      IF (NYAM .EQ. 1) GO TO 240
C
C          ****   READ IN MELT VARIABLES   ****
C
230   READ       76,A1,A2,(EMELT(M,I),I=1,5)
      WRITE (18,76)A1,A2,(EMELT(M,I),I=1,5)
C
C          ****   READ IN POROUS VARIABLES   ***
C
240   IF (NPOR(M,1) .EQ. 0) GO TO 250
      NP=NPOR(M,1)  $  MP=MP+1  $  NPOR(M,2)=MP
      READ       76,A1,A2,(RHOP(I,MP),I=1,6)
      WRITE (18,76)A1,A2,(RHOP(I,MP),I=1,6)
      RHO(M)=RHOP(1,MP)
      READ       77,A1,A2,(COSC(M,I),I=1,5)
      WRITE (18,77)A1,A2,(COSC(M,I),I=1,5)
      READ       77,A1,A2,(C1(M,I),I=1,5)
      WRITE (18,77)A1,A2,(C1(M,I),I=1,5)
      P2=0.
      DO 245 N=1,NP
      PORA(N,MP)=P1=P2
      READ       92,A1,A2,P2,A3,A4,DELP,A5,A6,YADP(N,MP)
      WRITE (18,92)A1,A2,P2,A3,A4,DELP,A5,A6,YADP(N,MP)
      PORB(N,MP)=(P2-P1)*RHOP(N+1,MP)/(RHOP(N+1,MP)-RHOP(N,MP))
      PORC(N,MP)=4.*DELP*RHOP(N+1,MP)*RHOP(N,MP)/(RHOP(N+1,MP)
     1  -RHOP(N,MP))**2
245   CONTINUE
      PORB(4,MP)=P2  $  PORC(NP,MP)=DELP
      READ       92,A1,A2,AK(M),A3,A4, MUP(M),A5,A6,YO(M)
      WRITE (18,92)A1,A2,AK(M),A3,A4, MUP(M),A5,A6,YO(M)
      MUP(M)=1.333333*MUP(M)
C
C          ****   READ IN EDGE VARIABLES
C
250   IF (NCON(M) .EQ. 0) GO TO 280
      NCONST=NCON(M)
      DO 260 NC=1,NCONST
      READ       54,A1,NOE(M,NC),A2,A3,RHOC(M,NC)
      WRITE (18,54)A1,NOE(M,NC),A2,A3,RHOC(M,NC)
      NOED=NOE(M,NC)  $  NOE1=NOED+1
      ND0=MINO(7,NOED)  $  ND1=MINO(7,NOE1)
      READ       76,A1,A2,(EDGE(M,NC,ND),ND=1,ND0)
      WRITE (18,76)A1,A2,(EDGE(M,NC,ND),ND=1,ND0)
      IF (NOED .LE. 7) GO TO 253
        READ     79,(EDGE(M,NC,ND),ND=8,NOED)
      WRITE (18,79)(EDGE(M,NC,ND),ND=8,NOED)
253   READ       76,A1,A2,(AA(M,NC,ND),ND=1,ND1)
      WRITE (18,76)A1,A2,(AA(M,NC,ND),ND=1,ND1)
      IF (NOE1 .LE. 7) GO TO 256
      READ       79,(AA(M,NC,ND),ND=8,NOE1)
      WRITE (18,79)(AA(M,NC,ND),ND=8,NOE1)
256   READ       76,A1,A2,(B(M,NC,ND),ND=1,ND1)
      WRITE (18,76)A1,A2,(B(M,NC,ND),ND=1,ND1)
      IF (NOE1 .LE. 7) GO TO 260
      READ       79,(B(M,NC,ND),ND=8,NOE1)
      WRITE (18,79)(B(M,NC,ND),ND=8,NOE1)
260   CONTINUE
C
```

```
C          ****   READ IN ZONING  VARIABLES   ****
C
280   READ       62,A1,NZONES(M),A2,NCELLS(M,1),A3,A4,TH(M,1),A5,A6,DELX
     1  (M,1),A7,A8,DELFIN(M,1)
      WRITE (18,62)A1,NZONES(M),A2,NCELLS(M,1),A3,A4,TH(M,1),A5,A6,DELX
     1  (M,1),A7,A8,DELFIN(M,1)
      IF (NZONES(M) .EQ. 1) GO TO 290
      NZON=NZONES(M)
      DO 285 N=2,NZON
      READ       64,A1,A2,NCELLS(M,N),A3,A4,TH(M,N),A5,A6,DELX(M,N),
     1  A7,A8,DELFIN(M,N)
285   WRITE (18,64)A1,A2,NCELLS(M,N),A3,A4,TH(M,N),A5,A6,DELX(M,N),
     1  A7,A8,DELFIN(M,N)
290   CONTINUE
C
C          ****   END OF M-LOOP****
C
C          ****   CALCULATE ZONING AND INITIALIZE CELL COORDINATES   ****
C
      X(1)=0.
      J = 1
      DO 390 M=1,MATRLS
        NZON=NZONES(M)
        DO 380 NZ=1,NZON
          FN=NCELLS(M,NZ)  $  RATIO=1.  $  FI=0.  $  DX=DELX(M,NZ)
          IF (DX*DELFIN(M,NZ) .EQ. 0.) GO TO 345
C              PREPARE FOR GEOMETRIC PROGRESSION OF CELLS
          RATIO=DELFIN(M,NZ)  $  GO TO 360
C              PREPARE FOR ARITHMETIC PROGRESSION OF CELLS
345       IF (DX .NE. 0.) GO TO 355
          IF (DELFIN(M,NZ) .NE. 0.) GO TO 350
          DX=TH(M,NZ)/FN  $  GO TO 360
350       DX=2.*TH(M,NZ)/FN-DELFIN(M,NZ)
355       FI=2.*(TH(M,NZ)/FN-DX)/(FN-1.)
360       JN=J+NCELLS(M,NZ)  $  J1=J+1
          DO 365 I=J1,JN
            X(I)=X(I-1)+DX
365       DX=RATIO*DX+FI
380     J=JN  $  JBND(M)=J  $  J=J+1
390   X(J)=X(J-1)
      JINIT=1  $  JFIN=J
      IF (MATFL .NE. 0) GO TO 500
C
C**********     RADIATION DEPOSITION
C
      READ       54,A1,NSPEC,A2,A3,ANGLE
      WRITE (18,54)A1,NSPEC,A2,A3,ANGLE
      ANGLE=COS(ANGLE/57.2957795)
      DO 465 NS=1,NSPEC
      READ       60,(A(I),I=1,10)
      WRITE (18,60)(A(I),I=1,10)
      READ       10,A1,NHNU,A2,NBB,A3,NARB,A4,START(NS),A5,SSTOP(NS)
      WRITE (18, 10)A1,NHNU,A2,NBB,A3,NARB,A4,START(NS),A5,SSTOP(NS)
      SSTOPM=AMAX1(SSTOPM,SSTOP(NS) )
      IF (NARB .NE. 0) GO TO 470
      IF (NHNU .EQ. 0) GO TO 420
      NRAD=1  $  TEMP=1.
C
C              ARBITRARY SPECTRUM INPUT
      READ       76, A1,A2,FLUX
      WRITE(18,76) A1,A2,FLUX
      DO 415 NH=1,NHNU
      READ       11,A1,A2,TBL(NH),A3,A4,EI(NH),A5,A6
      WRITE(18, 11)A1,A2,TBL(NH),A3,A4,EI(NH),A5,A6
415   EI(NH)=EI(NH)*ANGLE*FLUX
      NR=1  $  GO TO 430
C
C              BLACK BODY INPUT
420   NRAD=NBB  $  NHNU=105
      IF (NS .NE. 1) GO TO 424
      READ       60,(A(I),I=1,10)
      WRITE (18,60)(A(I),I=1,10)
```

```
      READ        12,(TBL(NH),NH=1,109)
      WRITE (18, 12)(TBL(NH),NH=1,109)
      NR=1
424   READ       92,A1,A2,TEMP,A3,A4,ECAL
      WRITE (18,92)A1,A2,TEMP,A3,A4,ECAL
      ECAL=ECAL*ANGLE
      DO 428 NH=1,109
428   EI(NH)=ECAL*.01*(1.-.9*(NH/100))
C
C               COMPUTATION OF ABSORPTION COEFFICIENT - AC
430   JBEG=1
      DO 460 M=1,NMTRLS
      DO 433 NH=1,109
433   AC(NH)=0.
      NCONST=NCON(M)
      DO 445 NC=1,NCONST
      NEDG=1
      DO 445 NH=1,NHNU
438   IF (NEDG .GT. NOE(M,NC)) GO TO 440
      IF (EDGE(M,NC,NEDG) .GT. TBL(NH)*TEMP) GO TO 440
      NEDG=NEDG+1  $  GO TO 438
440   AC(NH)=AC(NH)+RHOC(M,NC)*AA(M,NC,NEDG)*(TBL(NH)*TEMP)**B(M,NC,NEDG
     1  )/ANGLE
445   CONTINUE
C
C               DISTRIBUTE ENERGY INTO CELLS
      JBND=JBAD(M
      DO 455 J=JBEG,JBNDM
      ESUM=0.
      DX=X(J+1)-X(J)
      DO 450 NH=1,NHNU
      IF (EI(NH) .LT. 1.E-20) GO TO 450
      EIZ=EI(NH)*(1.-EXP(-1.*AC(NH)*DX))
      EI(NH)=EI(NH)-EIZ
      ESUM=EIZ+ESUM
450   CONTINUE
455   SS(J,NS)=ESUM*4.186E7/RHO(M)/DX/(SSTOP(NS)-START(NS))+SS(J,NS)
460   JBEG=JBAD(M)+1
      NR=NR+1
      IF (NR .LE. NRAD) GO TO 424
C               END OF NSPEC LOOP
465   CONTINUE  $  GO TO 500
C
C               ARBITRARY DEPOSITION
470   READ       58,(A(I),I=1,7),EI(1)
      WRITE (18,58)(A(I),I=1,7),EI(1)
      READ       76,A1,A2,(AC(M),M=1,NMTRLS)
      WRITE (18,76)A1,A2,(AC(M),M=1,NMTRLS)
      JBEG=1
      DO 480 M=1,NMTRLS
      JBND=JBAD(M)-1
      DO 475 J=JBEG,JBNDM
      DX=X(J+1)-X(J)
      EIZ=EI(1)*(1.-EXP(-AC(M)*DX))
      EI(1)=EI(1)-EIZ
475   SS(J,1)=EIZ*4.186E7/RHO(M)/DX/(SSTOP(NS)-START(NS))
480   JBEG=JBND(M)+1
C
C          ****   READ IN PLOTTING CONTROLS   ****
C
500   DO 502 I=1,6
502   IFPLOT(I)=0
      PRINT 69
      IF (IPLOT*IPLOT-1) 580,503,509
503   ITPLOT=IFPLOT(1)=IFPLOT(2)=1  $  IFPLOT(3)=IFPLOT(4)=IFPLOT(5)=6
      NTPLOT=15  $  IFLAGT=9*IPLOT  $  IFLAGJ=6*IPLOT
      DO 504 I=1,9
504   IHIST(I)=1
      GO TO 580
509   READ  20,A1,(IFPLOT(I),I=1,6),A2,LINES
      PRINT 20,A1,(IFPLOT(I),I=1,6),A2,LINES
```

```
      IF (IFPLOT(1) .EQ. 0) GO TO 510
      READ  21,A1,A2,ITPLOT,A3,NTPLOT,A4,IFLAGT
      PRINT 21,A1,A2,ITPLOT,A3,NTPLOT,A4,IFLAGT
510   IF (IFPLOT(2) .EQ. 0) GO TO 580
      READ  22,A1,A2,(IHIST(I),I=1,6),A3,(IHIST(I),I=7,9),A4,IFLAGJ
      PRINT 22,A1,A2,(IHIST(I),I=1,6),A3,(IHIST(I),I=7,9),A4,IFLAGJ
C
C               CHECK FOR THE END OF DATA DECK
580   READ       61,(A(I),I=1,7),NICK,NACK
      WRITE (18,61)(A(I),I=1,7),NICK,NACK
      IF (NACK .EQ. NORM) GO TO 600
      WRITE (18,55)
585   READ       61,(A(I),I=1,7),NICK,NACK
      WRITE (18,61)(A(I),I=1,7),NICK,NACK
      IF (NACK .NE. NORM) GO TO 585
      IF (NICK .EQ. SHAGAIN) GO TO 100
      STOP
C
C          ****    INITIALIZE CONDITION,DENSITY,TENSILE AND YIELD VARIABLES   ***
C
600   J=0
      DO 630 M=1,NMTRLS
      EJ=0.  $  CJ=5.E5
      IF (NPOR(M,1) .NE. 0) GO TO 601
      MM=SOLID   $  MUM=MU(M)  $  DOLD=RHO(M)
      CALL ECST(EJ,RHO(M),PJ,M,CJ)                                        12/17
      GO TO 602
601   MM=POROUS  $  DOLD=DREF=RHO(M)  $  NC=1  $  E=1.  $  PJ=0.
      CALL PCRECST(EJ,RHO(M),PJ,M,NPOR(M,2),CJ)                           12/17
602   JN=JBND(M)
      J1=J+1
      DO 610 J=J1,JN
      CHL(J)=C(J)=CJ
      DHL(J)=D(J)=RHO(M)
      M(J,1)=MM
      M(J,2)=NORMAL
      M(J,3)=2
      T(J)=TENS(M,1)
      YHL(J)=.666667*YO(M)
      ZHL(J)=D(J)*(X(J+1)-X(J))
      NSRM1=NSR(M)+1
      GO TO (610,610,605,606,610,610,607) NSRM1
605   NEM(J)=RLX(M,7)  $  NET(J)=RLX(M,8)  $  GO TO 610
606   NEM(J)=RLX(M,5)  $  NET(J)=0.        $  GO TO 610
607   NEM(J)=MU(M)
610   CONTINUE
      M(J1,2)=MINTER
      T(JN)=TENS(M,3)
      M(JN,2)=LINTER
630   CONTINUE
      M(1,2)=M(JFIN,2)=SMALL
      DTNM=1.E-12
      IF (MATFL) 615,700,700
C
C**********     DEPOSITION EDIT
C
700   WRITE (18, 14) (DISCRT(I),I=1,10)
      SUMCAL=0.  $  JREG=1
      DO 740 M=1,NMTRLS
      JBNDM=JBND(M)
      DO 730 J=JREG,JBNDM
      DX=X(J+1)-X(J)
      EPG=0.
      DO 720 NS=1,NSPEC
720   EPG=SS(J,NS)*(SSTOP(NS)-START(NS))+EPG
C
C               TEST FOR SETTING JSTAR
      IF (EPG*EOSTG(M) .LE. 1.E7) GO TO 725
      JSTAR=J
725   CPG=EPG/4.186E7  $  SUMCAL =CPG*ZHL(J)+SUMCAL
      WRITE (18, 15) J,DX,X(J),EPG,SUMCAL,YHL(J),C(J),D(J),T(J),ZHL(J),
     1  MATL(1,M),MATL(2,M),M(J,1),M(J,2),M(J,3),J
```

```
      IF (MOD(J,5C) .NE. 0) GC TC 730
      WRITE (18, 14)(DISCPT(I),I=1,1C)
730C  CCNTINUE  $  JBEG=JBND(M)+1
      WRITE (18,69)
740   CONTINUE
      GC TC 900
C
C                INITIALIZE VELOCITY
800   JFIN2=JBND(MATFL)
      DO 81C J=1,JFIN2
810   U(J)=UHL(J)=UZERO
      JSTAR=JFIN2+3  $  SOURM=1.  $  GO TO 818
815   H(1,2)=MIRRCR  $  JSTAR=3  $  SOURM=1.
      U(1)=.5*UZERO
C
C**********      VELCCITY EDIT
C
818   WRITE (18, 16) (DISCPT(I),I=1,10)
      JBEG=1
      CO 830 M=1,NMTRLS
      JBNCM=JBND(M)
      DO 820 J=JBEG,JBNDM
      DX=X(J+1)-X(J)
      WRITE (18, 17)J,DX,X(J),U(J),YHL(J),C(J),D(J),T(J),ZHL(J),
     1  MATL(1,M),MATL(2,M),H(J,1),H(J,2),H(J,3),J
      IF (MOD(J,50) .EQ. 0)  WRITE (18,16) (DISCPT(I),I=1,10)
820   CCNTINUE   $  JBEG=JBND(M)+1
      WRITE (18,69)
830   CONTINUE
900   CALL SECOND(TWIX)  $  DUR=TWIX-FIRST
      WRITE (18,18) DUR
      WRITE (18,41)
      RETURN
C
10    FORMAT (A7,I3,A7,I3,A7,I3,A8,2X,E1C.3,A8,2X,E10.3)
11    FCRMAT(3(A7,A8,E10.3))
12    FORMAT (8E10.3)
14    FORMAT(1H1,10A8//                                                131H
     1   J     DX          X(J)         EPG         SUMCAL     YHL(J)       C(J)
     2 D(J)         T(J)        ZHL(J)            MATERIAL         COND      J         ,
     3 /102H            CM            CM          ERGS/GM        CALS         DYN/CM2    CM/S
     4EC      GM/CM3      DYN/CM2    GM/CM2                )
15    FORMAT (I4, 9E10.3,2X,2A8,3(X,R1),I5)
16    FORMAT(1H1,1CA8//                                                131H
     1   J     DX          X(J)          U(J)         YHL(J)         C(J)          D(J)
     2 T(J)        ZHL(J)            MATERIAL          COND      J                 ,
     3 /1C2H            CM            CM          CM/SEC       DYN/CM2    CM/SEC      GM/C
     4M3      DYN/CM2    GM/CM2                  )
17    FCRMAT (I4, 8E10.3,2X,2A8,3(X,R1),I5)
18    FORMAT(29H TIME TC CCMPLETE  GENRAT IS F10.3,9H SECONDS.)
20    FORMAT (A1C,6(8X,I2),A9,I1)
21    FCRMAT (A10,3(A8,I2))
22    FORMAT (2A10,6I5,A5,3I5,A8,I2)
31    FORMAT(1H1,25X,35H**** SRI PUFF 1 (6400 VERSICN) **** /)
41    FCRMAT (1H1)
44    FORMAT (2A4,I2,2(A1,I2),4X,A6,I4,6A8,A2)
54    FORMAT(A8,I2,2A5,E1C.3)
58    FCRMAT(7A5,E10.3)
60    FORMAT (10A8)
61    FORMAT (7A10,2A5)
62    FCRMAT(A8,I2,A5,I5,3(2A5,E1C.3))
64    FORMAT(A8,A7,I5,3(2A5,E10.3))
69    FORMAT( )
70    FCRMAT (1H0)
72    FORMAT (3A10,I10,2(A1C,E10.3))
73    FORMAT (2(A1C,I10),A10,E10.3,A10,I10)
74    FCRMAT (4(2A5,I1C))
76    FORMAT(2A5,7E10.3)
77    FORMAT (2A5,5F10.4)
78    FCRMAT(2A5,14I5)
79    FORMAT(10X,7E10.3)
80    FORMAT(10X,14I5)
90    FCRMAT (1X,2A8,5X,A8,E10.3,4(A8,I2))
92    FCRMAT(4(2A5,E10.3))
94    FORMAT (4(A8,2X,E10.3))
95    FCRMAT(38H0ERROR ENCOUNTERED READING INPUT DATA.)
      END
```

```
      SUBROUTINE HALFSTEP
C
C     (INCLUDES ENTRY HSTRESS)
C        *  CALLED BY HYDRO TO COMPUTE X, L, D, F, R, S, P FOR THE
C        *  HALFSTEP POINT BETWEEN J AND J+1
C
      REAL MATL,MU,MUM,MUP,NEM,NET
      INTEGER  M,PORCUS,RINTER,SOLID,SPALL
C             MISCELLANEOUS
      COMMON DEF,DKS,DAVG,DELTIM,DOLD,DRHO,DTMIN,DTN,DTNH,DU,DX,ECLD,F,
     1  FIRST,J,JCYCS,JINIT,JFIN,JSMAX,JSTAR,JTS,LSUB(11),MAXPR(11),N,
     2  NCYCS,NPERN,POLD,RLAST,SLAST,SMAX,TF,TIMF,TJ,TS,ULAST,UOLD,
     3  XLAST,XNOW,XOLD
C             EQUATION OF STATE - SOLID
      COMMON COSQ(6,6),C1(6,6),C2(6),EMELT(6,5),EOSTA(6),EOSTC(6),
     1  EOSTD(6),EOSTE(6),EOSTG(6),EOSTH(6),EOSTN(6),EOSTS(6),MATL(2,6),
     2  ML(6),RHC(6),RHCS(6),TENS(6,3),YACC(6),YO(6),JBND(6),NPOR(6,2),
     3  M,MUM,NMTRLS
C             EQUATION OF STATE - POROUS
      COMMON AK(6),MUP(6),PCRA(4,3),PCRB(4,3),PCRC(4,3),RHOP(6,3),
     1  YACCP(4,3),DREF,RHOPV,MP,NC
C             RADIATION DEPOSITION
      COMMON SS(300,5),SSTOP(5),START(5),SCURM,SSTOPM,NSPEC,SSJ,JSS
C             COORDINATE ARRAYS
      COMMON X(300),C(300),CHL(300),D(300),DHL(300),EHL(300),H(300,3),
     1  NEM(300),NET(300),P(300),PHL(300),R(300),S(300),SHL(300),T(300),
     2 U(300),UHL(300),VHL(300),ZHL(300)
C             HALFSTEP VALUES
      COMMON DH,DHLAST,DUH,EH,PH,RH,RHLAST,SH,SHLAST,UH,UHLAST,XH,XHLAST
C             IDENTIFIERS
      COMMON DISCPT(10),IDENT,JFDIT(20),JREZON(15),NDATE(3),NFDIT,NFDTM,
     1  NJFDIT,NR,NREZON,NSEPRAT,NSPALL,NTECT,NTEX,NTR(15),TFDIT(50)
C             CONDITION INDICATORS
      COMMON INF,LINTER,MIRROR,NORMAL,PORCUS,RINTER,SOLID,SPALL
C             SPALL AND RELAXATION
      COMMON NSR(6),TSR(6,6),USP(50),XSP(50),LRLX,NICK
C
      DIMENSION L(10)
      DO 1 I=1,10
1     L(I)=0
      CC=0.0
      DX=X(J+1)-X(J)  $  ECLD=EHL(J)  $  UHH=.5*(U(J)+U(J+1))
      DCLD=DHL(J)  $  G2=0.
      IF (C(J+1)*C(J)*U(J+1)*U(J)*C2(M) .EQ. 0.) 7,6
6     G2= C2(M)*ABS(C(J+1)-C(J))*RHO(M)/(C(J+1)*C(J)*DOLD)
7     IF ((1.5*DTN-DTNH)*(1.5*DTNH-DTN)) 15,10,10
10    UH=UHL(J)-.5*((DTNH+DTN)/DX+G2)*(R(J+1)-R(J))/DOLD
      GO TO 18
15    UH=UHH-.5*(DTNH/DX+G2)*(R(J+1)-R(J))/DCLD
18    DHL(J)=DH=ZHL(J)/(DX+.5*DTNH*(U(J+1)-U(J)))-DOLD*G2*(U(J+1)-U(J))
      VHL(J)=UH
      XH=.5*(X(J+1)+X(J))+.25*DTNH*(UHH+UH)
      EHL(J)=EH=EOLD-.5*(R(J+1)+R(J))*(1./DH-1./DOLD)+SSCALH(J)
C             HSTRESS ENTRY AND STRESS COMPUTATION
      ENTRY HSTRESS                                                  ENTRY
      F=FMELT(EH,M)
      IF (DH) 20,20,25
20    PRINT 110,N,J,DH,TIME
      CALL EDDUMP  $  LSUB(7)=1  $  N=N-1  $  CALL SCRIBF  $  STOP
C             COMPUTE OLD VALUE OF SD
25    SDH=SHL(J)-PHL(J)  $  TF=1.+EH*EOSTA(M)  $  DREF=DH*TF
C             ESTABLISH ROUTE
      IF (H(J,1) .NE. PORCUS) GO TO 50
      IF (F .GT. 0.) GO TO 40
C             UNCONSOLIDATED
      MUM=0.  $  CALL EOST(EH,DH,PHL(J),M,CC)
      L(3)=32
      SDH=RH=0.
      IF (PHL(J) .LT. 0.) 37,39
37    PHL(J)=SHL(J)=0.  $  GO TO 90
39    H(J,1)=SOLID  $  L(4)=39  $  GO TO 52
```

```
C               SELECT FORCUS REGION
40    RHOPV=F*(RHOP(5 ,MP)-RHOS(M))+RHOS(M)/TF
      L(3)=40
      IF (DH .GT.RHOPV) 49,43
43    NC=0
      L(4)=43
45    NC=NC+1
      IF (DREF .GT. RHOP(NC+1,MP)) 45,60
C               SOLID
49    H(J,1)=SOLID
50    MUM=MU(M)*F   $  CALL EOST(EH,DH,PHL(J),M,CHL(J))
      L(5)=50
53    YADDM=YADD(M)  $  NC=5
      IF (NPOR(M,1)) 55,55,54
  54  DREF=AMAX1(DREF,RHOP(5,MP))
      IF(DREF-RHOP(6,MP))67,55,55
55    COT=COSQ(M,6)  $ C1T=C1(M,6)
      L(6)=55
      GO TO 70
C               PORCUS
60    CALL POREQST (EH,DH,PHL(J),M,MP,CHL(J))
      L(5)=60
      YADDM=YADDP(NC,MP)
67    COT=COSQ(M,NC)+(COSQ(M,NC+1)-COSQ(M,NC))*(DREF-RHOP(NC,MP))
     1  /(RHOP(NC+1,MP)-RHOP(NC,MP))
      C1T=C1(M,NC)+(C1(M,NC+1)-C1(M,NC))*(DREF-RHOP(NC,MP))
     1  /(RHOP(NC+1,MP)-RHOP(NC,MP))
      L(6)=67
C               VELOCITY GRADIENT AND TIME STEP PARAMETERS
70    DUM=-2.*(DH-DOLD)*(X(J+1)-X(J))/((DH+DOLD)*DTNM)
      DUMP=AMIN1(DUM,0.)   $  CS=CHL(J)-DUM/2.
      CF=C1T-COT*DUMP/CS   $  CEF=CS*(1.+CF*(1.+.5*CF))
C               DEVIATOR STRESS
      SDM=SDM+2.*MUM*(DM-DOLD)/(DH+DOLD)
      L(7)=70
      IF (ABS(SDM) .LT. YHL(J)*F) GO TO 80
      YHL(J)=AMIN1(ABS(SDM),YHL(J)+YADDM*ABS(DH-DOLD))
      SDM=SIGN(YHL(J)*F,SDM)
      L(8)=75
C               RESULTANT STRESS
80    SHL(J)=PHL(J)+SDM   $  RH=SHL(J)-.5*CF*CS*DUMM*(DH+DOLD)
90    IF (NSEPRAT .GE. 0) GO TO 100
      IF ((RH .LT. 0.) .AND. (F .EQ. 0.)) 95,100
95    RH=PHL(J)=SHL(J)=SDM=0.
100   IF (LSUB(3) .GE. MAXPR(3)) GO TO 120
      LSUB(3)=LSUB(3)+1
      WRITE (18,5000) J,N,EH,DH,PHL(J),SDM,(L(I),I=1,8)
120   RETURN
110   FORMAT (20H STOP IN HAFSTEP, N=I4,4H, J=I4,4H, D=E10.3,
     1  7H, TIME=E10.3)
5000  FORMAT (15H   HAFSTEP,  J=I3,4H, N=I4,4H EH=E10.3,4H DH=E10.3,
     1  4H PH=E10.3,5H SDM=E10.3,3H L=8I3)
      END
```

```
      SUBROUTINE HYDRC
C
C     SUBROUTINE CONTROLS THE MAIN CALCULATION CYCLE
C        *  CONTAINS 4 PATHS -
C              1.  NORMAL - COORDINATES WITHIN MATERIAL
C              2.  INTERFACE - INTERFACE BETWEEN MATERIALS
C              3.  INTERFACE SPALL - SEPARATED INTERFACE BETWEEN MATERIALS
C              4.  SPALL - COORDINATE AT WHICH SEPARATION HAS OCCURRED
C        *  CALLS HAFSTEP FOR HALFSTEP CALCULATIONS AT EACH COORDINATE
C        *  CALCULATES X, U, C, E, AND CALLS JSTRESS TO OBTAIN STRESSES
C        *  CHECKS FOR SPALLING AND RECOMBINATION
C        *  COMPUTES MINIMUM PERMITTED TIME STEP FOR NEXT CYCLE
C
C        *  SET DOLD,EOLD,DU,P(J),S(J) IN PREPARATION FOR JSTRESS.
      REAL MATL,MU,MUM,MUP,NEW,NET
      INTEGER  M,POROUS,RINTER,SOLID,SPALL
      INTEGER MJ
C             MISCELLANEOUS
      COMMON CEF,CKS,CAVG,DELTIM,DOLD,DRHO,DTMIN,DTN,DTNH,DU,DX,EOLD,F,
     1  FIRST,J,JCYCS,JINIT,JFIN,JSMAX,JSTAR,JTS,LSUB(11),MAXPR(11),N,
     2  NCYCS,NPERM,POLD,RLAST,SLAST,SMAX,TF,TIMF,TJ,TS,ULAST,UOLD,
     3  XLAST,XNOW,XOLD
C             EQUATION OF STATE - SOLID
      COMMON COSQ(6,6),C1(6,6),C2(6),EMELT(6,..),EOSTA(6),EOSTC(6),
     1  EOSTD(6),EOSTE(6),EOSTG(6),EOSTH(6),EOSTN(6),EOSTS(6),MATL(2,6),
     2  MU(6),RHO(6),RHOS(6),TENS(6,3),YADD(6),YO(6),JBND(6),NPOR(6,2),
     3  M,MUM,NMTRLS
C             EQUATION OF STATE - POROUS
      COMMON AK(6),MUP(6),PORA(4,3),PORB(4,3),PORC(4,3),RHOP(6,3),
     1  YADDP(4,3),OREF,RHOPV,MP,NC
C             RADIATION DEPOSITION
      COMMON SS(300,5),SSTOP(5),START(5),SCURP,SSTOPM,NSPEC,SSJ,JSS
C             COORDINATE ARRAYS
      COMMON X(300),C(300),CML(300),D(300),DML(300),EML(300),M(300,3),
     1  MEP(300),MET(300),P(300),PML(300),R(300),S(300),SML(300),T(300),
     2 U(300),UML(300),VML(300),ZML(300)
C             HALFSTEP VALUES
      COMMON DH,DHLAST,DUH,EH,PH,RH,RHLAST,SH,SHLAST,UH,UHLAST,XH,XHLAST
C             IDENTIFIERS
      COMMON DISCPT(10),IDENT,JEDIT(20),JREZON(15),NDATE(3),NEDIT,NEDTM,
     1  NJEDIT,NR,NREZON,NSEPRT,NSPALL,NTECT,NTEX,NTR(15),TEDIT(50)
C             CONDITION INDICATORS
      COMMON INF,LINTER,MIRROR,NORMAL,POROUS,RINTER,SOLID,SPALL
C             SPALL AND RELAXATION
      COMMON NSR(6),TSR(6,6),USP(50),XSP(50),LRLX,NICK
C
      DIMENSION L(10)
C
C
      CALL SECOND(XNOW)  $  CUR=XNOW-FIRST  $  DT=DTMIN=1.                -------
      SMAX=0.
C
C             OUTER HYDRC LOOP
      DO 1000 NN=1,NCYCS
      TIME=TIMF+DTNH
      JSPALL =0
      M=MP=0
      DO 900 J=JINIT,JFIN
      IF (LSUB(1) .GE. MAXPR(1)) GO TO 3
10    WRITE (18,5000) N,J,H(J,2)                                          -------
1     DO 2 I=1,10
2     L(I)=0
C             CHECK FOR THE APPROPRIATE PATH
3     XOLD=X(J)  $  UOLD=U(J) $  ROLD=R(J)
      IF (H(J,2) .EQ. NORMAL) GO TO 100
      IF (H(J,2) .EQ. LINTER) GO TO 900
      IF (H(J,2) .EQ. RINTER) GO TO 200
      IF (H(J,2) .EQ. SPALL ) GO TO 300
      IF (H(J,2) .EQ. MIRROR) 500,400
```

```
C
C**********      NORMAL PATH WITHIN A MATERIAL                                **********
C
100   IF ( (U(J) .EQ. U(J+1)) .AND. (RHLAST .EQ. 0.) .AND.
     1  (NSPEC .EQ. 0) ) 101,102
101   UH=U(J)  $  RH=R(J)  $  XH=.5*(X(J+1)+X(J)+DTNH*U(J))
      L(1)=101
      DH=DHL(J)  $  EH=EHL(J)
      UNEW=U(J)
      X(J)=X(J)+DTNH*U(J)  $  SSJ=SSCAL(J)  $  GO TO 800
102   CALL HAFSTEP
      L(1)=102
      DOLD=.5*(DH+DHLAST)  $  EOLD=.5*(EH+EHLAST)
      P(J)=.5*(PHL(J)+PHL(J-1))  $  YJ=.5*(YHL(J)+YHL(J-1))
      S(J)=.5*(SHL(J)+SHL(J-1))
C               VELOCITY CALCULATION
      U(J)=UOLD-2.*DTNH*(RH-RHLAST)/(ZHL(J-1)+ZHL(J))
C               COORDINATE CALCULATION
      X(J)=X(J)+.5*DTNH*(U(J)+UOLD)
C               DENSITY CALCULATION
      D(J)=DOLD/(1.+.5*DTNH*(U(J+1)-ULAST)/(X(J+1)-XLAST))
C               ENERGY CALCULATION
      SSJ1=SSCAL(J)
      EJ=EOLD-.5*(RH+RHLAST)*(1./D(J)-1./DOLD)+SSJ+SSJ1
      SSJ=SSJ1
C               STRESS CALCULATIONS
      DU=UH-UHLAST  $  YJ=SOLID
      IF ((M(J-1,1) .EQ. PORCUS) .OR. (M(J,1) .EQ. POROUS))  HJ=POROUS
      CALL JSTRESS(M,MP,J,EJ,HJ,YJ)
      UHL(J-1)=.25*(U(J)+UNEW+UOLD+ULAST)
      UNEW=U(J)
      DT=(X(J+1)+U(J+1)*DTNH-X(J))/CEF
      IF(DT.LT.0.0)  DT=1.0
C
C               CHECK STRESS AND SET INDICATORS FOR SPALL
108   IF (R(J) .GT. TJ) GO TO 800
      IF ((NSEPRAT .GE. 0) .OR. (F .GT. 0.)) GO TO 110
      R(J)=S(J)=P(J)=0.  $  GO TO 800
110   JFINP1=JFIN-1
      L(2)=110
      IF (NSPALL .EQ. 0) 114,111
111   DO 113 I=1,NSPALL
      DO 112 JJ=1,JFINM1
      IF (M(JJ,2) .EQ. I) 113,112
112   CONTINUE  $  NSP=M(J,2)=I  $  GO TO 115
113   CONTINUE
114   NSP=NSPALL=M(J,2)=NSPALL+1
115   XSP(NSP)=X(J)  $  USP(NSP)=U(J)
      IF (LSUB(9) .GE. MAXPR(9)) GO TO 120
      DESC=10H SPALLED
      WRITE (18,5115) DESC,N,NN,J,NSPALL,NSP,R(J),TJ,TIME
120   JSPALL =J
      R(J)=S(J)=T(J)=0.
      GO TO 800
C
C**********      INTERFACE                                                    **********
C
C     LEFT VALUES ARE IN (J-1) CELLS AND RIGHT VALUES ARE IN (J) CELLS
200   MLAST=M  $  MPLAST=MP  $  M=M+1  $  MP= NPCR(M,2)
      L(1)=200
      CALL HAFSTEP
      SSJ=SSCAL(J)
C               FIRST ESTIMATE OF UH, HALF STEP VELOCITY AT INTERFACE
205   UH=.5*(U(J)+U(J-1))-DTNH*(R(J+1)-RLAST+4.*(RH-RHLAST))/
     1  (ZHL(J)+ZHL(J-2))/6.
      J1=J-1  $  SSJ1=SSCAL(J1)
      IF (LSUB(10) .GE. MAXPR(10)) GO TO 209
      WRITE (18,5002) U(J),UH,UHLAST,RH,RHLAST,RLAST,R(J-1),R(J),R(J+1)   PRINT
209   ITER=0
210   ITER=ITER+1
      IF (LSUB(10) .GE. MAXPR(10)) GO TO 211
```

```
      WRITE (18,5003) ITER,UM,UM1,UM2,UM3,R(J),R(J-1),RJ1,RJ11,RJ2,RJ12,
     1  S(J),S(J-1)
211   CONTINUE
      S(J)=SHL(J)  $  P(J)=PHL(J)  $  S(J-1)=SHL(J-2)  $ P(J-1)=PHL(J-2)
C
C               RIGHT SIDE ENERGY AND STRESS CALCULATIONS
      DU=2.*(UM-UM)
      DCLD=DH  $  ECLD=EH
      D(J)=DH/(1.+DTNH*(UM-UM)/(X(J+1)-X(J)))
      EJ=EOLD+RH*(1./DOLD-1./D(J))+2.*SSJ
      CALL JSTRESS(M,MP,J,EJ,H(J,1),YHL(J))
C
C               LEFT SIDE ENERGY AND STRESS CALCULATIONS
      DU=2.*(UM-UMLAST)
      DCLD=DHLAST  $  ECLD=EHLAST
      D(J-1)=DHLAST/(1.+DTNH*(UM-UMLAST)/(X(J-1)-XLAST))
      EJ=ECLD+RHLAST*(1./DCLD-1./D(J-1))+2.*SSJ1
      J1=J-1
      CALL JSTRESS(MLAST,MPLAST,J1,EJ,H(J-2,1),YHL(J-2))
C               ITERATION TO COMPUTE INTERFACE VELOCITY AND STRESS
      IF (ITER .GT. 10) 225,213
213   RS=ABS(R(J))+ABS(R(J-1))
      IF (RS .LT. 1.E6) 225,215
215   IF (ABS(R(J)-R(J-1))/RS .GT. .01) 216,225
216   IF (ITER-2) 220,219,217
217   IF ((RJ2-RJ12)*(R(J)-R(J-1)).LT. 0.) 218,219
C               MULTIPLE ITERATION ROUTE
218   UM3=UM2+(UM-UM2)*(RJ12-RJ2)/(R(J)-RJ2-R(J-1)+RJ12)
      UM1=UM  $  UM=UM3  $  RJ1=R(J)  $  RJ11=R(J-1)  $  GO TO 210
C               2ND AND MULTIPLE ITERATION ROUTE
219   UM3=UM1+(UM-UM1)*(RJ11-RJ1)/(R(J)-RJ1-R(J-1)+RJ11)
      RJ2=R(J)  $  RJ12=R(J-1)  $  UM2=UM  $  UM=UM3  $  GO TO 210
C               FIRST ITERATION ROUTE
220   UM1=UM
      IF ((UM-UM)*(UMLAST-UM) .EQ. 0.) 225,222
222   UM=UM-(R(J)-R(J-1))/((R(J)-RCLD)/(UM-UM)+(R(J-1)-ROLD)/
     1  (UMLAST-UM))
      UM=AMIN1(UM,AMAX1(UM,UMLAST))  $  UM=AMAX1(UM,AMIN1(UM,UMLAST))
      RJ11=R(J-1)  $  RJ1=R(J)  $  UM2=UM
      GO TO 210
225   CONTINUE
C               END OF INTERFACE ITERATION
      IF (LSUB(10) .GE. MAXPR(10)) GO TO 226
      WRITE (18,5003) ITER,UM,UM1,UM2,UM3,R(J),R(J-1),RJ1,RJ11,RJ2,RJ12,   PRINT
     1  S(J),S(J-1)                                                        PRINT
      LSUB(10)=LSUB(10)+1
226   CONTINUE                                                            -------
C               COORDINATE CALCULATION
      XM=X(J)+.25*DTNH*(UM+U(J))
      U(J)=U(J-1)=UOLD-2.*DTNH*(RH-RHLAST)/(ZHL(J-2)+ZHL(J))
      IF (N*NN .EQ. 1) U(J)=U(J-1)=UM
      X(J)=X(J-1)=X(J)+.5*DTNH*(U(J)+UCLC)
229   DT=(X(J+1)+U(J+1)*DTNH-X(J))/CEF
      IF(DT.LT.0.0)  DT=1.0
C               EQUALIZE THE STRESSES
      R(J-1)=R(J)=.5*(R(J-1)+R(J))
      UHL(J-2)=.25*(U(J-1)+UNEW+UOLD+ULAST)
      UNEW=U(J)
C
C               CHECK STRESS AND SET INDICATORS FOR SPALL
      IF (R(J-1) .LT. T(J-1)) 230,800
230   H(J,2)=SPALL
      L(2)=230
      IF (LSUB(9) .GE. MAXPR(9)) GO TO 235
      DESC=10H INT SPALL
      WRITE (18,5230) DESC,N,NN,MLAST,M,R(J-1),T(J-1),TIME
      CALL EDDUMP
235   R(J)=R(J-1)=S(J)=S(J-1)=T(J)=T(J-1)=0.
      GO TO 800
```

```
C
C**********      INTERFACE SPALL                                          **********
C
300   IF (J .EQ. JINIT) 330,310
310   MLAST=M  $  MPLAST=MP
      L(1)=310
C               LEFT SIDE
      J1=J-1  $  SSJ1=SSCAL(J1)
      XLCLD=X(J-1)  $  ULCLD=U(J-1)
      U(J-1)=ULCLD+2.*DTNH*RHLAST/ZHL(J-2)
      D(J-1)=DHLAST/(1.+DTNH*(.5*(U(J-1)+ULCLD)-UHLAST)/(X(J-1)-XLAST))
      X(J-1)=XLCLD+.5*DTNH*(U(J-1)+ULCLD)
      DT=1.
      UHL(J-2)=.25*(U(J-1)+UNEW+ULCLD+ULAST)
      IF (J .EQ. JFIN) 900,330
C               RIGHT SIDE
 330  M=M+1
      MP=APCR(M,2)
      L(2)=330
      IF ( (U(J) .EQ. U(J+1)) .AND. (NSPEC .EQ. 0) ) 331,332
331   UH=U(J)  $  RH=R(J)  $  XH=.5*(X(J+1)+X(J)+DTNH*U(J))
      X(J)=X(J)+DTNH*U(J)  $  DT=1.  $  SSJ=SSCAL(J)
      IF (J .EQ. JINIT) 800,335
332   CALL HAFSTEP
      SSJ=SSCAL(J)  $  UOLD=U(J)  $  XOLD=X(J)
      U(J)=UCLD-2.*DTNH*RH/ZHL(J)
      D(J)=DH/(1.+DTNH*(UH-.5*(U(J)+UOLD))/(X(J+1)-X(J)))
      X(J)=XCLD+.5*DTNH*(U(J)+UOLD)
      DT=(X(J+1)+U(J+1)*DTNH-C(J))/CEF
      IF (DT .LT. 0.) DT=1.
      UNEW=U(J)
C               CHECK FOR RECOMBINATION
      IF (J .EQ. JINIT) GO TO 800
335   IF (X(J) .LE. X(J-1)) 361,800
361   IF (LSUB(9) .GE. MAXPR(9)) GO TO 365
      DESC=10HINT RECOMB
      WRITE (18,5230) DESC,N,NN,MLAST,M,R(J-1),T(J-1),TIME
C               RESET ARRAY VARIABLES AND GO TO INTERFACE ROUTE
365   M(J,2)=MINTER  $  X(J)=XCLD  $  X(J-1)=XLCLD  $  U(J)=UOLD
      U(J-1)=ULOLD  $  GO TO 205
C
C**********      SPALL WITHIN A MATERIAL                                  **********
C
C      LEFT VALUES ARE IN J-CELLS AND RIGHT VALUES ARE IN XSP AND USP
C
400   NSP=M(J,2)  $  XCLD=XSP(NSP)  $  UOLD=USP(NSP)
      ULOLD=U(J)  $  T(J)=0.  $  R(J)=0.  $  DX=X(J+1)-XOLD
      L(1)=400
C               LHS CALCULATIONS
      U(J)=ULCLD+2.*DTNH*RHLAST/ZHL(J-1)
      D(J)=DHLAST/(1.+DTNH*(.5*(U(J)+ULOLD)-UHLAST)/(X(J)-XLAST))
      X(J)=X(J)+.5*DTNH*(U(J)+ULOLD)
C               RHS CALCULATIONS
      DOLD=DHL(J)  $  EOLD=EHL(J)
      XH=.5*(X(J+1)+XOLD)+.25*DTNH*(U(J+1)+UOLD)
      UH=.5*(U(J+1)+UCLD)-.5*DTNH*R(J+1)/(DOLD*DX)
      DHL(J)=DH=ZHL(J)/(DX+.5*DTNH*(U(J+1)-UOLD))
      EHL(J)=EH=EOLD-.5*(R(J+1)+R(J))*(1./DH-1./DOLD)+SSCALH(J)
C               PREPARATION FOR HSTRESS IN SPALL
      CALL HSTRESS
      USP(NSP)=UCLD-2.*DTNH*RH/ZHL(J)
      XSP(NSP)=XCLD+.5*DTNH*(USP(NSP)+UOLD)
      C(J)=.5*(DH+DHLAST)
      DT=(X(J+1)+U(J+1)*DTNH-XSP(NSP))/CEF
      IF (DT .LT. 0.) DT=1.
      UHL(J-1)=.25*(U(J)+UNEW+UOLD+ULAST)
      UNEW=USP(NSP)
C               CHECK FOR RECOMBINATION AND RESET QUANTITIES AT J
      IF (XSP(NSP) .LE.X(J)) 410,800
410   D(J)=(ZHL(J)+ZHL(J-1))/(X(J+1)-XLAST+2.*DTNH*(UH-UHLAST))
      L(2)=410
      X(J)=.5*(X(J)+XSP(NSP))
```

```
      M(J,2)=NORMAL
      U(J)=.5*(U(J)+USP(NSP))
      IF (NSP .EQ. NSPALL) NSPALL=NSPALL-1
      IF (LSUB(9) .GE. MAXPR(9)) GO TO 420
      DESC=10HRECOMBINED
      WRITE (18,5115) DESC,N,NN,J,NSPALL,NSP,R(J),TJ,TIME
C                 STRESS CALCULATIONS
420   DU=UH-UHLAST  $  P(J)=S(J)=0.  $  EOLD=.5*(EH+EHLAST)
      DOLD=.5*(DH+DHLAST)
      YJ=.5*(YHL(J)+YHL(J-1)) $ HJ=SCLID  $  SSJ1=SSCAL(J)
      EJ=ECLD-.5*(RH+RHLAST)*(1./D(J)-1./DOLD)+SSJ+SSJ1
      SSJ=SSJ1
      IF ((M(J-1,1) .EQ. POROUS) .OR. (M(J,1) .EQ. POROUS)) HJ=PORCUS
      CALL JSTRESS(N,MP,J,EJ,HJ,YJ)
      DTNH=0.1*DTNH
      GO TO 100
C
C*********      MIRROR AT FRONT SURFACE                                    *******
C
500   M=M+1  $  MP=NPCR(M,2)
      L(1)=500
      CALL HAFSTEP
      DOLD=DH  $  EOLD=EH  $ DU=2.*(UH-U(J))
      D(J)=DOLD/(1.+DTNH*(UH-U(J))/(X(J+1)-X(J)))
      SSJ=SSCAL(J)
      EJ=ECLD+RH*(1./DOLD-1./D(J))+2.*SSJ
      S(J)=SH  $  P(J)=PHL(J)
      CALL JSTRESS(M,MP,J,EJ,M(J,1),YHL(J))
      R(J)=2.*R(J)-S(J)
      X(J)=X(J)+DTNH*U(J)
      DT=(X(J+1)+DTNH*U(J+1)-X(J))/CEF
      UNEW=U(J)
      IF (R(J) .GT. T(J)) GO TO 800
      M(J,2)=SPALL
      L(2)=530
      DESC =10H MIR SPALL
      WRITE (18,5230) DESC,N,NN,M,M,R(J-1),T(J-1),TIME
      P(J)=R(J)=S(J)=T(J)=0.
C
C**********      END OF MIRROR PATH
C
800   CONTINUE
      L(4)=800
C******           END OF CYCLE RESET                                      ********
      XLAST=XOLD  $  ULAST=UOLD  $  RLAST=ROLD
      XHLAST=XH  $  UHLAST=UH  $  RHLAST=RH  $  DHLAST=DH
      EHLAST=EH  $  SHLAST=SH
C
C                 SMAX CALCULATION
      IF (S(J) .GT. SMAX) 820,822
820   SMAX=S(J)  $  JSMAX=J
C
C                 TIME STEP CALCULATION
822   IF (DT .LT. DTMIN) 824,826
824   DTMIN=DT  $  JTS=J
826   CONTINUE
      IF (LSUB(1) .GE. MAXPR(1)) GO TO 850                              -------
      WRITE (18,5050) DT,R(J),S(J),C(J),D(J),T(J),U(J),UH,DH,EH,PHL(J),
     1  RH,XH,(L(I),I=1,5)
      LSUB(1)=LSUB(1)+1                                                 -------
C
C                 JSTAR CALCULATION
850   IF (ABS(U(J)) .LT. 1.E-3) 851,900
851   IF (J .GT. JSTAR) 852,900
852   JSTAR=J-1
      GO TO 990
C                 END OF HYDRO INNER LOOP
900   CONTINUE
      JSTAR=JFIN-1
990   DTN=DTNH
      IF (JSPALL*NSEPRAT .LE. 0) GO TO 1000
      JINIT=JSPALL  $  M(JINIT,2)=SPALL
```

```
C                END OF HYDRC OUTER LOOP
1000   CONTINUE
       IF (LSUB(8) .LT. MAXPR(8)) 1001,1002
1001   CALL SECOND(TWIX)  $  DUR=TWIX-XNOW
       WRITE (18,5010) N,DUR
       LSUB(8)=LSUB(8)+1
1002   RETURN
5000   FORMAT( 16HOHYDRC BEGIN. N=I4,3H J=I4,8H H(J,2)=R1)
5002   FORMAT (19H ***INT FIRST U(J)=E10.3,4H UH=2E10.3,4H RH=2E10.3,
      1  4H, R=4E10.3                                                  /128H
      2 ITER     UM          UM1         UM2         UM3         R(J)       R(J-1)
      3   RJ1         RJ11        RJ2         RJ12        S(J)       S(J-1)       )
5003   FORMAT (I4,12E10.3)
5006   FORMAT (18H ---INT SPALL UM= 2E10.3,4H DU=2E10.3,4H DM=2E10.3,
      1  4H RH=2E10.3,/14X,3H X=2E10.3,3H U=2E10.3,3H E=2E10.3)
5010   FORMAT(22H HYDRO COMPLETE-----N=I4,22H, CALCULATION TIME IS F10.3,
      1  9H SECONDS.//)
5115   FORMAT (1H ,A10,7H N, NN=2I4,4H, J=I4,6H, NSP=2I3,7H, R, T=2E10.3,
      1  7H, TIME=E10.3)
5230   FORMAT (1H ,A10,7H N, NN=2I4,4H, M=2I3,7H, R, T=2E10.3,7H, TIME=,
      1  E10.3)
5050   FORMAT (10H HYDRC CT=E10.3,3H R=E10.3,3H S=E10.3,3H C=E10.3,
      1  3H D=E10.3,3H T=E10.3,3H U=E10.3/  7X,4H UH=E10.3,4H DH=F10.3,
      2  4H EH=E10.3,4H PH=E10.3,4H RH=E10.3,4H XH=E10.3,4H, L=5I4)
       END
```

```
      SUBROUTINE JSTRESS(MJ,MPJ,JJ,EJ,HJ,YJ)
C     CALL ED BY HYDRC TC CCMPUTE R, S, P, AND TC SET T
C        *  CALLS EQST, PORFOST, AND FMELT
C        *  TERMINATES THE PROGRAM FOR A NEGATIVE DENSITY
C
      REAL MATL,MU,MUM,MLP,NEM,NET
      INTEGER  M,PORCUS,RINTER,SOLID,SPALL
      INTEGER MJ
C              MISCELLANEOUS
      COMMCN CEF,CKS,CAVG,CELTIM,DOLD,DRHO,DTMIN,DTN,DTNH,DU,DX,EOLD,F,
     1  FIRST,J,JCYCS,JLIMIT,JFIN,JSMAX,JSTAR,JTS,LSUB(11),MAXPR(11),N,
     2  NCYCS,NPERN,POLD,RLAST,SLAST,SMAX,TF,TIME,TJ,TS,ULAST,UOLD,
     3  XLAST,XNCW,XOLD
C              EQUATION OF STATE - SOLID
      COMMON COSQ(6,6),C1(6,6),C2(6),EMELT(6,5),EQSTA(6),EQSTC(6),
     1  EQSTD(6),EQSTE(6),EQSTG(6),EQSTH(6),EQSTN(6),EQSTS(6),MATL(2,6),
     2  MU(6),RHO(6),RHOS(6),TENS(6,3),YADD(6),YO(6),JBND(6),NPOR(6,2),
     3  M,MUM,NMTRLS
C              EQUATION OF STATE - POROUS
      COMMON AK(6),MUP(6),PORA(4,3),PORB(4,3),PORC(4,3),RHOP(6,3),
     1  YADDP(4,3),DREF,RHOPV,MP,NC
C              RADIATION DEPOSITION
      COMMON SS(300,5),SSTOP(5),START(5),SDURM,SSTOPM,NSPEC,SSJ,JSS
C              COORDINATE ARRAYS
      COMMON X(300),C(300),CHL(300),D(300),DHL(300),EHL(300),H(300,3),
     1  NEM(300),NET(300),P(300),PHL(300),R(300),S(300),SHL(300),T(300),
     2 U(300),UHL(300),YHL(300),ZHL(300)
C              HALFSTEP VALUES
      COMMON DH,DHLAST,DUM,EH,PH,RH,RHLAST,SH,SHLAST,UH,UHLAST,XH,XHLAST
C              IDENTIFIERS
      COMMON DISCPT(10),IDENT,JFDIT(20),JREZCN(15),NDATE(3),NFDIT,NFDTM,
     1  NJEDIT,NR,NREZCN,NSFPRAT,NSPALL,NTEDT,NTEX,NTR(15),TEDIT(50)
C              CCNDITICN INDICATCRS
      COMMON INF,LINTER,MIRROR,NORPAL,PORCLS,RINTER,SOLID,SPALL
C              SPALL AND RELAXATION
      COMMON NSR(6),TSR(6,6),USP(50),XSP(50),LRLX,NICK
C
      DIMENSION L(10)
      DO 1 I=1,10
1     L(I)=0
      CC=0.0
      IF (D(JJ)) 20,20,25
20    PRINT 110,N,JJ,D(JJ),TIME
      CALL EODUMP  $  LSUB(7)=1  $  N=N-1  $  CALL SCRIBE  $  STOP
25    SDJ=S(JJ)-P(JJ)
      F=FMELT(EJ,MJ)  $  TF=1.+EJ*EQSTA(MJ)  $  DREF=D(JJ)*TF
C              ESTABLISH ROUTE
      IF (MJ .EQ. SOLID) 50,30
30    IF (F .GT. 0.) GO TO 40
C              UNCONSOLIDATED REGION
      MUM=0.  $  CALL EQST(EJ,D(JJ),P(JJ),PJ,CC)
      L(2)=32
      IF (P(JJ) .LT. 0.) 37,51
37    P(JJ)=S(JJ)=R(JJ)=0.  $  GO TO 85
C              SELECT POROUS REGION
40    RHOPV=F*(RHOP(5 ,MPJ)-RHOS(MJ) ) + RHOS(MJ)/TF
      L(1)=40
      IF (D(JJ) .GT. RHOPV) 50,43
  43  NC=0
45    NC=NC+1
      IF (DREF .GT. RHOP(NC+1,MPJ)) 45,60
C              PRESSURE, SOUND SPEED, TENSILE STRENGTH IN SOLID
50    MUM=MU(MJ)*F  $  CALL EQST(EJ,D(JJ),P(JJ),MJ,C(JJ))
      L(3)=50
51    YADDM=YADD(MJ)  $  NC=5  $  TJ=T(JJ)*F
      IF (NPOR(MJ,1)) 57,57,56
  56  DREF=AMAX1(DREF,RHOP(5,MPJ))
      L(4)=56
      IF(DREF-RHOP(6,MPJ))67,57,57
57    COT=COSQ(MJ,6)  $  C1T=C1(MJ,6)
      L(5)=57
      GO TO 70
```

```
C               PRESSURE AND TENSILE STRENGTH IN POROUS
60                    CALL POREQST(EJ,D(JJ),P(JJ),PJ,MPJ,C(JJ))
      L(6)=60
      YADDM=YADDP(NC,MPJ)
      TJ=0.
      IF (T(JJ) .NE. 0.) 65,67
65    TJ=(TENS(MJ,2)+(TENS(MJ,1)-TENS(MJ,2))*(DREF-RHO(MJ))/
     1  (RHOP(9,MPJ)-RHO(MJ)))*F
      L(7)=65
67    C0T=COSC(MJ,NC)+(COSC(MJ,NC+1)-COSC(MJ,NC))*(DREF -RHOP(NC,MPJ))
     1  /(RHOP(NC+1,MPJ)-RHOP(NC,MPJ))
      C1T=C1(MJ,NC)+(C1(MJ,NC+1)-C1(MJ,NC))*(DREF -RHOP(NC,MPJ))
     1  /(RHOP(NC+1,MPJ)-RHOP(NC,MPJ))
      L(8)=67
C               ARTIFICIAL VISCOSITY
70    DU=AMIN1(DU,0.)
      L(9)=70
      QJ=(DU*C0T-C1T*C(JJ))*DU*(D(JJ)+DOLD)/2.
C               DEVIATOR STRESS CALCULATION
      SDJ=SDJ+2.*AMU*(D(JJ)-DOLD)/(D(JJ)+DOLD)
      IF (ABS(SDJ) .GT. YJ*F) 75,80
75    SDJ=SIGN(AMIN1(ABS(SDJ),(YJ+YADDM*ABS(D(JJ)-DOLD))*F),SDJ)
C               STRESS COMPUTATION
80    S(JJ)=P(JJ)+SDJ  $  R(JJ)=S(JJ)+QJ
 85   IF(LSUB(2).GE.MAXPR(2)) GO TO 99                                    12/17
      WRITE(18,5000)NC,MJ,MPJ,QJ,SDJ,F,TJ,(L(I),I=1,10)                  12/17
      LSUB(2)=LSUB(2)+1
99    RETURN
 5000 FORMAT(*   JSTRESS NC=*,I1,* MJ=*,I1,* MPJ=*,I1,* QJ=*,E10.3,
     1  * SDJ=*,E10.3,* F=*,E10.3,*TJ=*,E10.3,* L=*,10I3)
110   FORMAT (20H STOP IN JSTRESS, N=I4,4H, J=I4,4H, D=E10.3,
     1  7H, TIME=F10.3)
      END
```

```
      SUBROUTINE POREQST(EJ,DJ,PJ,PJ,MPJ,CJ)
C
C     COMPUTES PRESSURE, BULK AND SHEAR MODULI, AND SOUND SPEED FOR
C     POROUS MATERIAL
C
      REAL MATL,MU,MUP,MUP
C               MISCELLANEOUS
      COMMON CEF,CKS,DAVG,DELTIM,DOLD,DRHO,DTMIN,DTN,DTNH,DU,DX,EOLD,F,
     1  FIRST,J,JCYCS,JIMIT,JPIN,JSMAX,JSTAR,JTS,LSUB(11),MAXPR(11),N,
     2  NCYCS,NPERN,POLD,RLAST,SLAST,SMAX,TF,TIME,TJ,TS,ULAST,UOLD,
     3  XLAST,XNOW,XOLD
C               EQUATION OF STATE - SOLID
      COMMON COSQ(6,6),C1(6,6),C2(6),EMELT(6,5),EQSTA(6),EQSTC(6),
     1  EQSTD(6),EQSTE(6),EQSTG(6),EQSTH(6),EQSTN(6),EQSTS(6),MATL(2,6),
     2  MU(6),RHO(6),RHOS(6),TENS(6,3),YACC(6),YO(6),JBND(6),NPOR(6,2),
     3  M,MUM,NMTRLS
C               EQUATION OF STATE - POROUS
      COMMON AK(6),MUP(6),PORA(4,3),PORB(4,3),PORC(4,3),RHOP(6,3),
     1  YACOP(4,3),DREF,RHOPV,MP,NC
C
      DIMENSION L(10)
      DO 2 I=1,3
2     L(I)=0
      CC=0.0                                                          12/17
      IF (NC-NPOR(MJ,1)) 12,20,65
12    P2=F*(PORA(NC,MPJ)+(1.-RHOP(NC,MPJ)/DREF)*
     1        (PORB(NC,MPJ)+PORC(NC,MPJ)*(RHOP(NC+1,MPJ)/DREF-1.)))
      P1=PORA(2,MPJ)
      L(1)=12
      GO TO 30
C             (DENSITY LIES IN THE LAST POROUS REGION BEFORE SOLID)
20    CALL EQST(EJ,RHOPV,PJOINT,MJ,CC)                                  12/17
C               (SIMPLIFY EXPRESSIONS AND COMPUTE PRESSURE ALONG THE CURVE)
      PAF=PORA(NC,MPJ)*F   $  DN=RHOP(NC,MPJ)/TF
      PCF=4.*PORC(NC,MPJ)*F*DN/(RHOPV-DN)*(RHOPV/DJ-1.)
      P2=PAF+RHOPV/(RHOPV-DN)*(1.-DN/DJ)*(PJOINT-PAF+PCF)
      NO=PINO(NC,2)  $  P1=PORA(NC,MPJ)
      L(1)=20
C               COMPUTE BULK PRESSURE AND SELECT MINIMUM
30    RATIO=AMIN1(1.,AMAX1((P2-P1)/(PORB(4,MPJ)-P1),0.))
      MUM=(MUP(MJ)+(MU(MJ)-MUP(MJ))*RATIO)*F
      BULK=(AK(MJ)+(EQSTC(MJ)-AK(MJ))*RATIO)*F
      PBULK=PJ+BULK*((DJ-DOLD)/(.5*(DJ+DOLD))+EQSTA(MJ)*(EJ-EOLD))
      IF (PBULK .GT. P2) GO TO 45
      IF (NC .EQ. NPOR(MJ,1)) PBULK=AMAX1(PJOINT*(1.-(RHOPV-DJ)/(RHOPV-
     1  RHOS(MJ)/TF)),PBULK)
      L(2)=40
      PJ=PBULK  $  GO TO 50
45    PJ=P2
      L(2)=45
C               SOUND SPEED CALCULATION
50    CSQ=(BULK+PUP)/(.5*(DJ+DOLD))
      IF (CSQ .GT. 0.) 57,65
  57  CC=CSQ+CJ*CJ  $  CJ=CSQ*CJ/CQ+.25*CQ/CJ
      L(3)=57
60    IF(LSUB(5).GE.MAXPR(5)) GO TO 95
65    WRITE (18,110) J,N,MJ,MPJ,NC,EJ,DJ,CJ,PJ,P2,PBULK,BULK,MUM,DREF,
     1  RHOPV,DOLD,TF,EOLD,CSQ,(L(I),I=1,3)
      LSUB(5)=LSUB(5) + 1
  95  CONTINUE
      RETURN
110   FORMAT (11H POREQST J=I3,3H N=I4,3H P=2I2,4H NC=I2,4H EJ=E10.3,
     1  4H DJ=E10.3,4H CJ=E10.3,3H P=3E10.3,5H MOD=2E10.3/5X,2HD=3E10.3,
     2  4H TF=E10.3,6H EOLD=E10.3,5H CSQ=E10.3,3H L=3I3)
      END
```

```
      SUBROUTINE REZONE
C
C     INCREASES CELL SIZES TO GIVE MORE UNIFORM DISTRIBUTION
C        *  STARTS REZONING AT JREZON AND WORKS TOWARD JINIT
C        *  DOES NOT DISTURB LOCATION OF INTERFACES, JEDITS, OR SPALLS
C
      REAL MATL,MU,MLM,MLP,NEM,NET
      REAL MASS,MOM,MASLAST,MOMLAST
      INTEGER  M,PCROSS,MINTER,SCLID,SPALL
      INTEGER MC
C             MISCELLANEOUS
      COMMON CEF,CKS,DAVG,DELTIM,DOLD,DRHO,DTMIN,DTN,DTNM,DU,DX,FOLD,F,
     1  FIRST,J,JCYCS,JINIT,JFIN,JSMAX,JSTAR,JTS,LSUB(11),MAXPR(11),N,
     2  NCYCS,NPERN,POLD,RLAST,SLAST,SMAX,TF,TIME,TJ,TS,ULAST,UOLD,
     3  XLAST,XNOW,XOLD
C             EQUATION OF STATE - SOLID
      COMMON COS(6,6),C1(6,6),C2(6),EMELT(6,5),EOSTA(6),EOSTC(6),
     1  EOSTD(6),EOSTE(6),EOSTG(6),EOSTM(6),EOSTN(6),EOSTS(6),MATL(2,6),
     2  MU(6),RHO(6),RHOS(6),TENS(6,3),YADD(6),YO(6),JBND(6),NPOR(6,2),
     3  M,MUP,NPTRLS
C             EQUATION OF STATE - POROUS
      COMMON AK(6),MUP(6),PORA(4,3),PORB(4,3),PORC(4,3),RHOP(6,3),
     1  YADDP(4,3),DREF,RHOPV,MP,NC
C             RADIATION DEPOSITION
      COMMON SS(300,5),SSTOP(5),START(5),SDURM,SSTOPM,NSPEC,SSJ,JSS
C             COORDINATE ARRAYS
      COMMON X(300),C(300),CML(300),D(300),DML(300),EML(300),H(300,3),
     1  NEM(300),NET(300),P(300),PML(300),R(300),S(300),SML(300),T(300),
     2 U(300),UML(300),YML(300),ZML(300)
C             HALFSTEP VALUES
      COMMON DH,DHLAST,DUH,EH,PH,RH,RHLAST,SH,SHLAST,UH,UHLAST,XH,XHLAST
C             IDENTIFIERS
      COMMON DISCPT(10),IDENT,JEDIT(20),JREZON(15),NDATE(3),NEDIT,NEDTP,
     1  NJEDIT,NR,NREZON,NSEPRAT,NSPALL,NTEDT,NTEX,NTR(15),TEDIT(50)
C             CONDITION INDICATORS
      COMMON INF,LINTER,MIRROR,NORMAL,POROUS,RINTER,SOLID,SPALL
C             SPALL AND RELAXATION
      COMMON NSR(6),TSR(6,6),USP(50),XSP(50),LRLX,NICK
C
      DIMENSION CC(20),DXX(6),EC(20),MC(20,3),MASS(21),MOM(21),
     1  PC(20),RS(21),SC(20),XC(20),YC(20)
C
      CALL SECOND(XNOW)
      JREZON(NREZON)=MINO(JREZON(NREZON),JFIN)
      IF (JREZON(NREZON) .LE. JINIT) GO TO 900
      IF (TIME+DTNM .LT. SSTOPM) GO TO 900
      IF (TIME-.5*DTNM .GT. SSTOPM)  GO TO 2
      TIME =TIME+DTNM  $  SDURM=0.
      DO 1 J=JINIT,JFIN
    1 EML(J)=EML(J)+SSCALH(J)
      TIME=TIME-DTNM  $  SDURM=1.
    2 JLAST=JREZON(NREZON)-1  $  M=0  $  NJ=1
C
C          SECTION 1 - LOCATE JREZON WITH RESPECT TO MATERIAL AND JEDITS
C
    3 M=M+1
      IF (JREZON(NREZON)-JBND(M)-2)6,5,3
    5 JLAST=JLAST-1
    6 NJ=NJEDIT
      MASLAST=ZML(JLAST)  $  MOMLAST=.5*MASLAST*(U(JLAST)+U(JLAST+1))
      RSLAST=.5*MASLAST*(R(JLAST)+R(JLAST+1))  $  TLAST=T(JLAST)
      DO 10 I=1,NJEDIT
      IF (JLAST-JEDIT(I)) 9,10,10
    9 NJ=I-1  $  GO TO 11
   10 CONTINUE
C     **  SET JOLD, THE OLD COORDINATE VALUE, AND JNEW, THE NEW VALUE
C     **  REZONING OCCURS FOR CELLS BETWEEN JOLD AND JLAST.  MIDCELL
C     **  QUANTITIES ARE SET FOR JLAST-1 WHILE COORDINATE QUANTITIES ARE
C     **  SET FOR JLAST.
   11 JOLD=JNEW=JLAST-1  $  NCEL=NPART=0
      LOC=11                                                    --------
      WRITE (18,5000) LOC,JOLD,JNEW,JLAST,M,NJ,NCEL,NPART       PRINT
```

```
C     **  SET DX (CELL DIMENSION) AND XN (COORD TO LEFT OF NEW CELL) FOR
C     **  FIRST GROUP OF CELLS TO BE REZONED
      XN=X(JLAST-1)  $  DX=X(JLAST)-XN
      M1=M-1  $  DXX(M)=DX
      IF (M .EQ. 1) GO TO 13
      DO 12 I=1,M1
12    DXX(I)=DXX(M)*SQRT(EOSTC(I)*RHOS(M)/(EOSTC(M)*RHOS(I)))
13    WRITE (18,5015) (I,DXX(I),I=1,M)                                  -------
C
C           SECTION 2 - FIND REZONABLE SET OF CELLS
C
C           TERMINATION OF REZONABLE SET OF CELLS AT AN INTERFACE (PART 1)
50    IF (M-1) 790,130,52
52    IF (JOLD-JBND(M-1)-1) 790,60,130
60    NPART=1  $ GO TO 500
100   JLAST=JOLD-1
C     **  RETURN WITH JNEW SET TO JBND(M-1)
C        CHECK WHETHER JEDITS COINCIDE WITH JBND(M-1) OR JBND(M-1)+1
      IF (NJ) 790,125,103
103   IF (JOLD-JEDIT(NJ)) 790,105,108
105   JEDIT(NJ)=JNEW+1  $ NJ=NJ-1
108   IF (NJ) 790,125,118
118   IF (JOLD-1-JEDIT(NJ)) 790,120,125
120   JEDIT(NJ)=JNEW  $ NJ=NJ-1
125   M(JNEW+1,2)=M(JOLD,2)  $  X(JNEW)=X(JNEW+1)
      M=M-1  $  JBND(M)=JNEW  $  TLAST=T(JOLD-1)  $  JNEW=JNEW-1
      JOLD=JOLD-2  $  XN=X(JOLD)
      LOC=125                                                           -------
      WRITE (18,5000) LOC,JOLD,JNEW,JLAST,M,NJ,NCEL,NPART               PRINT
      GO TO 50
C
C           TERMINATION AT A SPALL WITHIN MATERIAL (PART 5)
130    IF ((M(JOLD,2) .EQ. SPALL) .OR. (M(JOLD,2) .EQ. NORMAL)) 155,132
132   NPART=5  $  NSP=M(JOLD,2)  $  XSAVE=X(JOLD)  $  USAVE=U(JOLD)
      X(JOLD)=XSP(NSP)  $  U(JOLD)=USP(NSP)  $  GO TO 500
140   JLAST=JOLD  $  USP(NSP)=U(JNEW+1)
      XSP(NSP)=X(JNEW+1)  $  X(JOLD)=XSAVE  $  U(JOLD)=USAVE
C     **  RETURN WITH JNEW =COORD TO LEFT OF SPALL, JOLD=COORD AT SPALL
      M(JNEW+1,2)=NSP
      IF (NJ) 790,145,141
141   IF (JOLD-JEDIT(NJ)) 790,142,145
142   JEDIT(NJ)=JNEW  $  NJ=NJ-1
145   JOLD=JOLD-1
      LOC=145
      WRITE (18,5000) LOC,JOLD,JNEW,JLAST,M,NJ,NCEL,NPART               PRINT
      GO TO 50
C
C           TERMINATION AT INITIAL BOUNDARY  (PART 2)
 155  IF(JOLD-JINIT) 790,160,255                                         12/17
160   NPART=2  $ GO TO 500
200   IF (NJ) 790,800,205
C     **  RETURN WITH JOLD AT INITIAL BOUNDARY, JNEW TO THE LEFT OF INITIAL
C     **  BOUNDARY
205   IF (JOLD-JEDIT(NJ))790,210,790
210   JEDIT(NJ)=JNEW+1  $  GO TO 800
C
C           TERMINATION OF REZONABLE SET OF CELLS AT A JEDIT (PART 3)
255   IF (NJ)  790,355,260
260   IF (JOLD-JEDIT(NJ))790,265,355
265   NPART=3  $  GO TO 500
300   JOLD=JOLD-1  $  JEDIT(NJ)=JNEW+1  $  NJ=NJ-1
C     **  RETURN WITH JOLD AT THE JEDIT, JNEW TO THE LEFT OF JEDIT.  MIDCELL
C     **  QUANTITIES HAVE BEEN RESET UP TO JNEW+1, COORDINATE QUANTITIES
C     **  UP TO JNEW+2
      LOC=300                                                           -------
      WRITE (18,5000) LOC,JOLD,JNEW,JLAST,M,NJ,NCEL,NPART               PRINT
      GO TO 50
C
C           TERMINATION WHEN NUMBER OF REZONABLE OLD CELLS IS 20  (PART 4)
355   IF ((X(JLAST)-X(JOLD))/DXX(M)-18.) 400,360,360
360   NPART=4  $  GO TO 500
400   JOLD=JOLD-1
```

```
      LOC=400
C     **  RETURN WITH JOLD AT PREVIOUS LOCATION, JNEW SET AT COORDINATE TO THE
C     **  LEFT.  MIDCELL QUANTITIES HAVE BEEN RESET UP TO JNEW+1, COORDINATE
C     **  QUANTITIES UP TO JNEW+2
      WRITE (18,5000) LOC,JOLD,JNEW,JLAST,M,NJ,NCEL,NPART                  PRINT
      GO TO 50
  420 JOLD=JOLD-1  $  GO TO 50
C
C           SECTION 3 - COMPUTE NEW CELL COORDINATES AND PROPERTIES
C
  500 NQ=0                                                                  -------
      LOC=500                                                               PRINT
      WRITE (18,5000) LOC,JOLD,JNEW,JLAST,M,NJ,NCEL,NPART
  510 NCEL=MAX1((X(JLAST)-X(JOLD))/DXX(M)+.65,1.)
      IF ((NCEL-1)*(NQ-1) .EQ. 0) GO TO 610
C           CHECK WHETHER REGION OF LARGE CELLS LIES TO LEFT
  601 DXMIN=DXX(M)  $  JLASTP=JLAST-1                                       -------
      LOC=601                                                               PRINT
      WRITE (18,5000) LOC,JOLD,JNEW,JLAST,M,NJ,NCEL,NPART
      DO 603 JX=JOLD,JLASTP
        DELX=X(JX+1)-X(JX)
      IF (DELX-DXMIN) 602,603,603
  602 DXMIN=DELX  $  JXMIN=JX
  603 CONTINUE
      IF (DXMIN-0.8*DXX(M)) 604,750,750
  604 JX=JXMIN+1
      DO 605 I=JOLD,JXMIN
      JX=JX-1  $ DELX=X(JX+1)-X(JX)
      IF (DELX-DXX(M)) 605,605,608
  605 CONTINUE  $  GO TO 610
  608 JOLD=JX+1  $  NPART=4                                                 -------
      LOC=608                                                               PRINT
      WRITE (18,5000) LOC,JOLD,JNEW,JLAST,M,NJ,NCEL,NPART
      NQ=1  $  GO TO 510
C
C           BEGIN COMPUTATIONS FOR NEW COORDINATES
  610 NCEL=MINO(JLAST-JOLD,NCEL)
      DX=(X(JLAST)-X(JOLD))/NCEL
      XSTART=X(JLAST)  $  XN=XSTART-DX
C     **  XN IS NEW COORDINATE LOCATION
      RS(1)=RSLAST  $  MOM(1)=MOMLAST  $  MASS(1)=MASLAST                   -------
      LOC=610                                                               PRINT
      WRITE (18,5002) LOC,NCEL,XSTART,DX,XN
      PP=NPOR(M,2)
      DO 650 I=1,NCEL
      RS(I+1)=MASS(I+1)=MOM(I+1)=ENGY=CS=PS=SX=YS=0.  $  MC(I,1)=SOLID
  615 IF (JLAST .LT. 1) GO TO 625
      XEND=AMAX1(X(JLAST),XN)
      IF (XSTART-XEND) 621,621,619
  619 DMASS=ZML(JLAST)*(XSTART-XEND)/(X(JLAST+1)-X(JLAST))
      MASS(I+1)=MASS(I+1)+DMASS
      MOM(I+1)=MOM(I+1)+DMASS*(U(JLAST)+(U(JLAST+1)-U(JLAST))*((XSTART+
     1  XEND)/2.-X(JLAST))/(X(JLAST+1)-X(JLAST)))
      ENGY=ENGY+DMASS*EML(JLAST)
      RS(I+1)=RS(I+1)+DMASS*(R(JLAST)+(R(JLAST+1)-R(JLAST))*((XSTART+
     1  XEND)/2.-X(JLAST))/(X(JLAST+1)-X(JLAST)))
      PS=PS+DMASS*PML(JLAST)
      SX=SX+DMASS*SML(JLAST)
      YS=YS+DMASS*YML(JLAST)
      CS=CS+DMASS*CML(JLAST)
      XSTART=XEND
      IF (M(JLAST,1) .EQ. POROUS)  MC(I,1)=POROUS
  621 IF (XEND .LE. XN) GO TO 625
      JLAST=JLAST-1  $  GO TO 615
  625 XC(I)=XN              $  DC=MASS(I+1)/DX     $  EC(I)=ENGY/MASS(I+1)
      YC(I)=YS/MASS(I+1) $  SC(I)=SX/MASS(I+1) $  PC(I)=PS/MASS(I+1)
      CC(I)=CS/MASS(I+1)
      IF (MC(I,1) .EQ. SOLID) GO TO 643
      MC(I,1)=POROUS
      IF (EC(I) .GT. EMELT(M,1)) GO TO 640
      RHOPV=FMELT(EC(I),M)*(RHOP(5,PP)-RHOS(M))+RHOS(M)/(1.+FC(I)*
     1  EQSTA(M))
      IF (DC .LT. RHOPV) GO TO 643
      MC(I,1)=SOLID  $  GO TO 643
```

```
640   IF (PC(I) .GT. 0.) GO TO 643
      EC(I)=SC(I)=RS(I+1)=0.
643   K=JNEW+1-I
      LOC=643
      WRITE (IR,5004) LOC,K,XC(I),PC,MOM(I+1),EC(I),RS(I+1),PC(I),
     1  SC(I),VC(I),MASS(I+1),HC(I,1)
650   XN=AMAX1(XN-DX,X(JOLD))
      T(JNEW+1)=TLAST
      DO 670 I=1,NCEL
      J=JNEW+1-I          $  CHL(J)=CC(I)        $  DHL(J)=MASS(I+1)/DX
      EHL(J)=EC(I)        $  PHL(J)=PC(I)        $  SHL(J)=SC(I)
      VHL(J)=VC(I)        $  ZHL(J)=MASS(I+1)    $  H(J,1)=HC(I,1)
      U(J+1)=(MOM(I)+MOM(I+1))/(MASS(I)+MASS(I+1))
      R(J+1)=(RS(I)+RS(I+1))/(MASS(I)+MASS(I+1))
      T(J)=TEAS(M,1)      $  X(J)=XC(I)          $  H(J,2)=NORMAL
670   CONTINUE
      MOMLAST=MOM(NCEL+1)     $  MASLAST=MASS(NCEL+1)
      RSLAST=RS(NCEL+1)       $  TLAST=T(JOLD)
      GO TO (680,680,700,700,685) NPART
680   R(J)=RS(NCEL+1)/MASS(NCEL+1)
685   U(J)=MOM(NCEL+1)/MASS(NCEL+1)     $  T(J)=T(JOLD)
      MOMLAST=MASLAST=RSLAST=0.
700   CONTINUE
      LOC=700                                                          -------
      WRITE (IR,5000) LOC,JOLD,JNEW,JLAST,P,AJ,ACEL,NPART             PRINT
C     SET JNEW AND JLAST IN PREPARATION FOR THE NEXT ZONE CALCULATIONS
      JNEW=J-1   $  JLAST=JOLD
C     RETURN TO APPROPRIATE PART OF REZONE FOR FINAL RESETTING
      GO TO (100,200,300,400,140) NPART
C
C              REARRANGE CELLS WITHOUT REZONING
750   T(JNEW+1)=TLAST
      LOC=750
      TLAST=T(JOLD)           $  MASLAST=ZHL(JOLD)
      MOMLAST=.5*MASLAST*(U(JOLD)+U(JOLD+1))
      RSLAST=.5*MASLAST*(R(JOLD)+R(JOLD+1))
752   JLAST=JLAST-1           $  CHL(JNEW)=CHL(JLAST)
      EHL(JNEW)=EHL(JLAST)    $  PHL(JNEW)=PHL(JLAST)
      SHL(JNEW)=SHL(JLAST)    $  VHL(JNEW)=VHL(JLAST)
      CHL(JNEW)=CHL(JLAST)    $  ZHL(JNEW)=ZHL(JLAST)
      H(JNEW,1)=H(JLAST,1)    $  H(JNEW,2)=H(JLAST,2)
      U(JNEW+1)=U(JLAST+1)    $  R(JNEW+1)=R(JLAST+1)
      T(JNEW)=T(JLAST)        $  X(JNEW)=X(JLAST)
      I=JNEW                  $  JNEW=JNEW-1
      WRITE (IR,5003) LOC,I,X(I),DHL(I),U(I+1),EHL(I),R(I+1),PHL(I),
     1  SHL(I),VHL(I),T(I),ZHL(I),H(I,1)
      IF (JLAST-JOLD) 750,755,752
C     **  JNEW IS TO LEFT OF LAST RENUMBERED CELL. JLAST=JOLD, THE LAST
C     **  OLD COORDINATE RENUMBERED.
755   CONTINUE
      WRITE (IR,5000) LOC,JOLD,JNEW,JLAST,P,AJ,ACEL,NPART             PRINT
      LOC=755
      GO TO (760,760,300,400,765) NPART
760   R(JNEW+1)=R(JLAST)
765   U(JNEW+1)=U(JLAST)      $  T(JNEW+1)=T(JLAST)
      MOMLAST=MASLAST=RSLAST=0.
      LOC=760                                                          -------
      WRITE (IR,5000) LOC,JOLD,JNEW,JLAST,P,AJ,ACEL,NPART             PRINT
      GO TO (100,200,300,400,140) NPART
C
C            ERROR MESSAGE
C
790   WRITE (IR,1000) NPART,JOLD,JNEW,JLAST,AJ,JFRIT(NJ),P,JPAD(M)    PRINT
      CALL EDDUMP  $  LSUB(7)=1  $  CALL SCRIBE  $  STOP
C
C            ENDING ROUTINE - INTERFACE AND BOUNDARY ADJUSTMENTS
C
800   JINIT=JNEW+1  $  H(JINIT,2)=H(JOLD,2)
      IF (H(JINIT,2) .EQ. SMALL) R(JINIT)=S(JINIT)=P(JINIT)=0.
      DO 810 J=JINIT,JFIN
810   C(J)=CHL(J)
```

```
      DO 820 M=1,NMTRLS
      JB=JBND(M)  $  H(JB,2)=LINTER
      IF (H(JB+1,2) .EQ. SMALL) 815,816
815   R(JB+1)=R(JB)=0.  $  GO TO 820
816   R(JB+1)=R(JB)=.5*(R(JB+1)+R(JB))
      U(JB+1)=U(JB)=.5*(U(JB+1)+U(JB))
820   CONTINUE
      CALL EDDUMP
900   CONTINUE
      CALL SECOND(TWIX)  $  DUR=TWIX-XNOW
      WRITE (18,5010) JINIT,DUR
      RETURN
1000  FORMAT (24H ERROR IN REZONE, NPART=I3,6H JOLD=I3,6H JNEW=I3,
     1  7H JLAST=I3,4H NJ=I3,11H JEDIT(NJ)=I3,3H M=I3,9H JBND(M)=I3)
5000  FORMAT (13H REZONE, LOC=I3,7H, JOLD=I3,7H, JNEW=I3,8H, JLAST=I3,
     1  4H, M=I3,5H, NJ=I3,7H, NCEL=I3,8H, NPART=I3)
5002  FORMAT (13H REZONE, LOC=I3,7H, NCEL=I3,5H, XSTART=E10.3,5H, DX=,
     1  E10.3,5H, XN=E10.3)
5003  FORMAT(I5,10F10.3,3X,R1)
5004  FORMAT (2I5,9E10.3,3X,R1)                                          -------
5010  FORMAT(19HOEND REZONE, JINIT=I3,17H, TIME IN REZONE=E10.3,5H SECS)
5015  FORMAT(21H REZONE, DXX VALUES     ,6(I8,F9.6))                     -------
      END
```

```
      FUNCTION SSCAL(JS)
C
C     (INCLUDES ENTRY SSCALH)
C     COMPUTES RADIANT ENERGY FOR DEPOSITION IN EACH CELL DURING THE
C     HYDRODYNAMIC COMPUTATIONS
C        *  SSCAL COMPUTES FOR COORDINATE POINTS
C        *  SSCALH COMPUTES FOR HALFSTEP POINTS AND INITIALIZES ENERGY IN
C           NEW ZONES
C
      REAL MATL,MU,MUP,PUP,NEP,NET
      INTEGER H
C               MISCELLANEOUS
      COMMON CEF,CKS,DAVG,DELTIP,DOLD,DRHC,DTMIN,DTN,DTNH,DU,DX,FOLD,F,
     1  FIRST,J,JCYCS,JINIT,JFIN,JSMAX,JSTAR,JTS,LSUB(11),MAXPR(11),N,
     2  NCYCS,NPERN,PCLD,RLAST,SLAST,SMAX,TF,TIME,TJ,TS,ULAST,UOLD,
     3  XLAST,XNOW,XOLD
C               EQUATION OF STATE - SOLID
      COMMON COS(6,6),C1(6,6),C2(6),EMELT(6,5),EQSTA(6),EQSTC(6),
     1  EQSTD(6),EQSTE(6),EQSTG(6),EQSTH(6),EQSTN(6),EQSTS(6),MATL(2,6),
     2  MU(6),RHO(6),RHOS(6),TENS(6,3),YADD(6),YC(6),JBND(6),NPOR(6,2),
     3  P,PUP,NMTRLS
C               EQUATION OF STATE - POROUS
      COMMON AK(6),MUP(6),PORA(4,3),PORB(4,3),PORC(4,3),RHOP(6,3),
     1  YADDP(4,3),DREF,RHOPV,MP,NC
C               RADIATION DEPOSITION
      COMMON SS(300,5),SSTOP(5),START(5),SDURM,SSTOPM,NSPEC,SSJ,JSS
C               COORDINATE ARRAYS
      COMMON X(300),C(300),CHL(300),D(300),DHL(300),EHL(300),H(300,3),
     1  NEM(300),NET(300),P(300),PHL(300),R(300),S(300),SHL(300),T(300),
     2 U(300),UHL(300),VHL(300),ZHL(300)
C
      DIMENSION L(10)
C
C
      SSCAL=0.
      IF (NSPEC*(SDURM-1.) .EQ. 0.) RETURN
      IF (TIME-.5*DTNH .GT. SSTOPM) RETURN
      DO 1 I=1,10
1     L(I)=0
      L(1)=5
C               ENERGY ADDITION AT COORDINATE POINTS
10    DO 20 I=1,NSPEC
      IF ((TIME-START(I))*(TIME-.5*DTNH-SSTOP(I))) 12,20,20
12    SSCAL=SSCAL+.5*SS(JS,I)*AMIN1(AMIN1(.5*DTNH,TIME-START(I)),
     1  SSTOP(I)-TIME+.5*DTNH)
20    CONTINUE
      GO TO 70
C               ENTRY FOR HALFSTEP CALCULATIONS
C*******************************
C
      ENTRY SSCALH                                                    ENTRY
      DO 39 I=1,10
39    L(I)=0
      SSCAL=0.
      IF (JS .GT. JSS) GO TO 50
      IF (NSPEC*(SDURM-1.) .EQ. 0.) RETURN
      IF (TIME-DTNH-.5*DTN .GT. SSTOPM) GO TO 70
      L(1)=40
C               ENERGY ADDITION IN ACTIVE ZONES - HALF STEP
      L(2)=44
      DO 48 I=1,NSPEC
      IF ((TIME-.5*DTNH-START(I))*(TIME-DTNH-.5*DTN-SSTOP(I))) 46,48,48
46    SSCAL=SSCAL+SS(JS,I)*(AMIN1(SSTOP(I),TIME-.5*DTNH)-
     1  AMAX1(START(I),TIME-DTNH-.5*DTN))
48    CONTINUE
      GO TO 70
C               ENERGY ADDITION FOR NEW ZONES
50    JSS=JS
      L(2)=50
      DO 60 I=1,NSPEC
      IF (TIME-.5*DTNH .LT. START(I)) GO TO 60
      SSCAL=SSCAL+SS(JS,I)*(AMIN1(SSTOP(I),TIME-.5*DTNH)-START(I))
60    CONTINUE
70    IF (LSUB(6) .GE. MAXPR(6)) GO TO 75
      WRITE (18,5000) SSCAL,L(1),L(2)                             -------
      LSUB(6)=LSUB(6)+1                                           -------
75    RETURN
5000  FORMAT(5X,6HSSCAL=E10.3,3H L=2I3)                           -------
      END
```

```
      SUBROUTINE PUFPLOT(NTEXP,IDENTP)
C     THIS SUBROUTINE DIRECTS THE PLOTTING PROCEDURE
      COMMON IDENT,N,NJEDIT,JEDIT(6),XJED(7)
      COMMON /PLCT/ IPLOT,IFPLOT(6),IDUM(14)
      CALL SECOND (BEG)
      NTEX=NTEXP $IDENT=IDENTP
      ANAME=10H L. SEAMAN  $  CHARGE=1CH6736-2      $  XTEN=6HX-3587
      CALL XERCX
      CALL HEADER (ANAME,CHARGE,XTEN)
      IF (IFPLOT(1).EQ.0) GO TO 1
      CALL TPLCTS(NTEX)
      PRINT 20
1     READ (7) N,NJEDIT,(JEDIT(I),I=1,6),(XJED(I),I=1,6)
      N=MINO(N-2,1000)
      IF (IFPLOT(2).EQ.0) GO TO 2
      CALL HISTORY    $PRINT 21
2     IF (IFPLOT(3)+IFPLOT(4)+IFPLOT(5).EQ.0) GO TO 5
      CALL HUGCNIC  $ PRINT 22
5     CALL SECOND (END)  $ DUR=END-BEG    $  PRINT 25, DUR
      RETURN
20    FORMAT(14H TPLCTS CALLED)
21    FORMAT(15H HISTORY CALLED)
22    FORMAT(15H HUGCNIC CALLED)
25    FORMAT (31H TIME TO COMPLETE PLOTTING IS  , F10.3,8H SECONDS)
      END
```

```
      SUBROUTINE HISTORY
C   THIS ROUTINE PRODUCES STRESS VERSUS TIME HISTORIES FOR JEDITS AND INTERFACES
      COMMON IDENT,N,NJEDIT,JEDIT(6),XJED(6),S(1000,6),SIF(1000,3),
     1TLABEL(3),SLABEL(3),TITLE(3)
      COMMON /PLOT/ IPLOT,IFPLOT(6),LINES,IDLM(3),ING(9),IFLAG
      DIMENSION T(1000),SEQV(1000,9)
      EQUIVALENCE (S,SEQV)
      SMAX=SMIN=0.    $ IFS=0    $ JT=0       $ ORIG=0.
      IF (IFLAG.LT.0) IFS=1     $ IFLAG=IABS(IFLAG)
      DO 2 I=1,N
      READ (7) T(I),(SIF(I,J),J=1,3),(S(I,J),J=1,6)
      DO 2 J=1,9
      IF (ING(J).EQ.0) GO TO 2
      SMAX=AMAX1(SMAX,SEQV(I,J))  $ SMIN=AMIN1(SMIN,SEQV(I,J))
2     CONTINUE
      TMAX=T(N) $TMIN=T(1) $MARK=0 $IBLANK=0
C  INDIVIDUAL HISTORIES PLOTTED
      ENCODE (30,212,TLABEL)
      DO 30 J=1,9    $JA=J-6
      IF (ING(J).EQ.0) GO TO 30
      IF(J.LE.6) GO TO 8
      ENCODE (30,211,SLABEL)
      ENCODE (30,210,TITLE)JN,IDENT
      GO TO 9
8     ENCODE (30,213,TITLE)XJED(J),IDENT
      ENCODE (30,214,SLABEL)JEDIT(J)
      JT=JT+1     $ JAC=J-JT
9     PRINT 240,(TITLE(M),M=1,3),TMIN,TMAX,SMIN,SMAX
      CALL LINSET(TMAX,TMIN,SMAX,SMIN,TLABEL,SLABEL,TITLE,LINES)
      IPEN=0
      DO 10 I=1,N
      IF(ABS(SEQV(I,J)).GT.1E-3*SMAX) IPEN=1
      CALL LINPLT(T(I),SEQV(I,J),MARK,IPEN)
10    CONTINUE
      CALL PENEND
30    CONTINUE
      IF (IFLAG.LE.1) GO TO 90
C  SEVERAL JEDITS PLOTTED ON ONE GRAPH
      ENCODE (30,211,SLABEL)
      ENCODE (30,215,TITLE)IDENT
      PRINT 240,(TITLE(M),M=1,3),TMIN,TMAX,SMIN,SMAX
      CALL LINSET (TMAX,TMIN,SMAX,SMIN,TLABEL,SLABEL,TITLE,LINES)
      CALL LINPLT (ORIG,ORIG,MARK,IBLANK)
      L=1   $ K=0   $IFLAG=MINO(IFLAG,NJEDIT)+JAD
      DO 60 J=1,IFLAG
      IF (ING(J).EQ.0)  GO TO 60
      IF (J.EQ.IFLAG) GO TO 42
      DO 35 ID=
      IF (ING(J+ID).NE.0) GO TO 42
35    CONTINUE    $  PRINT 250,J     $ RETURN
42    M=L
      DO 55 I=M,N
      IF(K.EQ.0.AND.S(I,J).LT.1E-3*SMAX)GO TO 55
      K=1  $ IF(J.EQ.IFLAG) GO TO 54
      IF (L.NE.M) GO TO 44
      IF (S(I,J+ID).GT.1E-3*SMAX)L=I
44    IF (IFS.EQ.1)48,46
46    IF (S(I,J).LT.1.05*S(I,J+ID)) GO TO 56
48    IF (I.EQ.N)  GO TO 56
54    CALL LINPLT (T(I),S(I,J),MARK,IPEN)
55    CONTINUE  $ GO TO 60
56    CALL LINPLT (T(L),S(L,J+ID),MARK,IBLANK)
60    CONTINUE
      CALL PENEND
90    RETURN
210   FORMAT (17HINTERFACE STRESS I1,8H, IDENT=I4)
211   FORMAT(30H       STRESS (KILOBARS)        )
212   FORMAT(30H      TIME (MICROSECONDS)       )
213   FORMAT (11HHISTORY, X=F7.4,8H CM, ID=I4)
214   FORMAT(15HSTRESS IN CELL ,I3,12H (KILOBARS) )
215   FORMAT(26H HISTORIES AT JEDITS  ID =,I4)
240   FORMAT (7H PLOT--,3A10,4H  T=,F8.4,4H TO ,F8.4,4H  S=,F9.4,4H TO ,
     1F9.4)
250   FORMAT  (24H COMBINED PLOT ERROR, J=,I1)
      END
```

```
      SUBROUTINE HUGONIC
C  THIS ROUTINE PRODUCES GRAPHS OF STRESS, RESULTANT STRESS, AND DEVIATORIC
C           STRESS VERSUS SPECIFIC VOLUME
      COMMON IDENT,N,NJEDIT,JEDIT(6),XJEC(6),S(1000,6),V(1000,3),
     1SLABEL(3),VLABEL(3),TITLE(3),VMAX(3),VMIN(3),VPMAX(3),VPMIN(3)
      COMMON /PLCT/ IPLOT,IFPLOT(6),LINES,IDUM(13)
      DIMENSION VP(1000,3)
      DO 1 I=1,N
1     READ (8) (V(I,J),J=1,3),(VP(I,J),J=1,3)
      MARK=0    $ L=1
      ENCODE (30,210,VLABEL)
      DO 5 J=1,3
      VMAX(J)=VMIN(J)=V(1,J)  $ VPMAX(J)=VPMIN(J)=VP(1,J)
      DO 5 I=2,N
      VMAX(J)=AMAX1(VMAX(J),V(I,J))  $VPMAX(J)=AMAX1(VPMAX(J),VP(I,J))
      VMIN(J)=AMIN1(VMIN(J),V(I,J))  $VPMIN(J)=AMIN1(VPMIN(J),VP(I,J))
5     CONTINUE
      IF(IFPLOT(3).EQ.0) GO TO 30
      IF(IFPLOT(2).NE.0) GO TO 10
C     READ STRESS FROM TAPE
      DO 8 I=1,N
8     READ (7) TI,(S(I,J),J=1,6),F1,F2,F3
10    NP=MINO(NJEDIT,IFPLOT(L+2))
      SMAX=SMIN=0
      DO 12 J=1,NP
      DO 12 I=1,N
      SMAX=AMAX1(SMAX,S(I,J)) $ SMIN=AMIN1(SMIN,S(I,J))
12    CONTINUE
C     PLOT HUGONIOTS
      DO 20 J=1,NP
      GO TO (21,22,23) L
21    ENCODE (30,211,SLABEL) JEDIT(J)    $ GO TO 25
22    ENCODE (30,212,SLABEL) JEDIT(J)    $ GO TO 25
23    ENCODE (30,213,SLABEL) JEDIT(J)
25    ENCODE (30,215,TITLE)XJEC(J),IDENT
      IF(J.GT.3) GO TO 17
      PRINT 240,(TITLE(M),M=1,3),VMIN(J),VMAX(J),SMIN,SMAX
      CALL LINSET(VMAX(J),VMIN(J),SMAX,SMIN,VLABEL,SLABEL,TITLE,LINES)
      DO 15 I=1,N  $ IPEN=MINO(I-1,1)
15    CALL LINPLT(V(I,J),S(I,J),MARK,IPEN)  $GO TO 20
17    K=J-3
      PRINT 240,(TITLE(M),M=1,3),VPMIN(K),VPMAX(K),SMIN,SMAX
      CALL LINSET(VPMAX(K),VPMIN(K),SMAX,SMIN,VLABEL,SLABEL,TITLE,LINES)
      DO 18 I=1,N  $ IPEN=MINO(I-1,1)
18    CALL LINPLT(VP(I,K),S(I,J),MARK,IPEN)
20    CALL PENEND
      GO TO (30,40,50) L
30    IF (IFPLOT(4).EQ.0) GO TO 40
C     READ RESULTANT STRESS FROM TAPE
      L=2  $ DO 32 I=1,N
32    READ (9) (S(I,J),J=1,6)
      GO TO 10
40    IF(IFPLOT(5).EQ.0) GO TO 50
C     READ DEVIATORIC STRESS FROM TAPE
      L=3  $ DO 42 I=1,N
42    READ (11) (S(I,J),J=1,6)
      GO TO 10
50    RETURN
210   FORMAT (30H SPECIFIC VOLUME (CM3/GRAM3)  )
211   FORMAT (15HSTRESS IN CELL ,I3,12H (KILOBARS)  )
212   FORMAT (19HRESULTANT STRESS J=,I3,8H (KBARS))
213   FORMAT (19HSTRESS DEVIATOR, J=,I3,8H (KBARS))
215   FORMAT (8HHUG.. X=F7.4,11H CM, IDENT=I4)
240   FORMAT (7H PLOT--,3A10,4H  V=,F8.5,4H TO ,F8.5,4H  S=,F9.4,4H TO ,
     1F9.4)
      END
```

```
      SUBROUTINE TPLOTS(NTEX)
C  THIS ROUTINE PRODUCES STRESS VERSUS DISTANCE GRAPHS FOR DESIRED TESTS
      COMMON IDENT,X(300,15),S(300,15),XLABEL(3),YLABEL(3),TITLE(3),
     1NPT(15),XJB(6)
      COMMON /PLOT/ IPLOT,IPPLOT(6),LINES,IT,NT,IFLAG,IDUM(10)
      NT=MINO(NT,15)  $LT=MINO(NTEX,IT+NT-1)  $ IG=0
      MARK=0  $ IPEN=1  $ IBLANK=0  $ IFS=0  $ SMA=SMI=0.
      IF (IFLAG.LT.0) IFS=1     $ IFLAG=IABS(IFLAG)
C  INDIVIDUAL TESTS PLOTTED
      ENCODE (30,211,XLABEL)
      DO 100 I=1,NTEX
      READ (7) NTED,NC,TIME,NPTS      $NPTS1=NPTS+1
      IF(IT.LE.NTED.AND.NTED.LE.LT)10,90
10    IG=IG+1  $ NPT(IG)=NPTS
      DO 13 IP=1,NPTS
      READ (7) X(IP,IG),S(IP,IG),R
      IF (IP.EQ.1) 11,12
11    XMIN=X(IP,IG)  $ SMAX=SMIN=S(IP,IG)
      IF(IG.EQ.1) XMIN1=XMIN     $ GO TO 13
12    XMAX=X(IP,IG)
      SMAX=AMAX1(SMAX,S(IP,IG))  $ SMIN=AMIN1(SMIN,S(IP,IG))
13    CONTINUE
      ENCODE (30,210,TITLE)IG,TIME,IDENT
      ENCODE (30,212,SLABEL)NC
      SMA=AMAX1(SMA,SMAX)   $ SMI=AMIN1(SMI,SMIN)
      PRINT 240,(TITLE(M),M=1,3),XMIN,XMAX,SMI,SMA
      CALL LINSET (XMAX,XMIN,SMA,SMI,XLABEL,SLABEL,TITLE,LINES)
      CALL LINPLT(X(1,IG),S(1,IG),MARK,IBLANK)
      DO 15 IP=2,NPTS
15    CALL LINPLT (X(IP,IG),S(IP,IG),MARK,IPEN)
      READ (7) NM,(XJB(M),M=1,6)
      IF (NM.LE.0) GO TO 80
      DO 70 M=1,NM     $ XB=XJB(M)
      CALL LINPLT(XB,SMI,MARK,IBLANK)
      SINCR=(SMA-SMI)/75.     $ SB=SMI
      DO 70 IN=1,75     $ INK=MOD(IN,2)    $  SB=SB+SINCR
70    CALL LINPLT (XB,SB,MARK,INK)
80    CALL PENEND  $ GO TO 100
90    DO 91 IP=1,NPTS1
91    READ (7)
100   CONTINUE
      IF(IFLAG.LE.1) GO TO 150
C     SEVERAL TESTS PLOTTED ON ONE GRAPH
      IF (IG.LT.2) GO TO 145
      IGPLOT=MINO(IFLAG,IG)
      IBEG=1
105   ENCODE (30,220,TITLE)IBEG,IGPLOT,IDENT
      ENCODE (30,221,SLABEL)
      PRINT 240,(TITLE(M),M=1,3),XMIN,XMAX,SMI,SMA
      CALL LINSET(XMAX,XMIN1,SMA,SMI,XLABEL,SLABEL,TITLE,LINES)
      CALL LINPLT(X(1,1),S(1,1),MARK,IBLANK)
      LP=PP=1
      DO 130 L=IBEG,IGPLOT
      NP=NPT(L)
      DO 120 IP=PP,NP
      IF (IFS.EQ.1) 120,115
115   IF (LP.NE.PP.OR.L.EQ.IG)GO TO 120
      IF (S(IP,L).LT..99*SMA.AND.S(IP,L+1).GT.S(IP,L)*1.05) LP=IP
120   CALL LINPLT (X(IP,L),S(IP,L),MARK,IPEN)
      IF(L.EQ.IG) GO TO 130
      CALL LINPLT (X(LP,L+1),S(LP,L+1),MARK,IBLANK)
      PP=LP
130   CONTINUE
      CALL PENEND
      IF (IGPLOT .GE. IG-1) GO TO 150
      IBEG=IGPLOT+1  $  IGPLOT=IGPLOT+MINO(IFLAG,IG-IGPLOT)
      GO TO 105
145   PRINT 146
150   RETURN
146   FORMAT (23H ONLY ONE TEDIT GRAPHED)
210   FORMAT (5HTEDIT,I2,1H,F7.4,11H MUSECS ID=I4)
211   FORMAT (30H     POSITION (CENTIMETERS)     )
212   FORMAT (15HSTRESS AT CYCLE,I4,11H (KILOBARS))
220   FORMAT (8H TEDITS I2,6H THRU I2,8H, IDENT=I4)
221   FORMAT (30H       STRESS (KILOBARS)        )
240   FORMAT (7H PLOT--,3A10,4H  X=,F8.4,4H TO ,F8.4,4H  S=,F9.4,4H TO ,
     1F9.4)
      END
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UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY *(Corporate author)*
Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, California 94025

2a. REPORT SECURITY CLASSIFICATION
UNCLASSIFIED

2b. GROUP

3. REPORT TITLE
DISTENDED MATERIAL MODEL DEVELOPMENT
Volume II
Test Runs of the SRI PUFF 1 Computer Code

4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)*
21 April 1967 through 1 March 1969

5. AUTHOR(S) *(First name, middle initial, last name)*
L. Seaman

6. REPORT DATE
May 1969

7a. TOTAL NO. OF PAGES
144

7b. NO. OF REFS
0

8a. CONTRACT OR GRANT NO.
F29601-67-C-0073

b. PROJECT NO.
5710

c. Subtasks:
15.018 and 15.025

d.

9a. ORIGINATOR'S REPORT NUMBER(S)
AFWL-TR-68-143, Vol. II

9b. OTHER REPORT NO(S) *(Any other numbers that may be assigned this report)*
SRI Project PCU 6586

10. DISTRIBUTION STATEMENT This document is subject to special export controls and each transmittal to foreign governments or foreign nationals may be made only with prior approval of AFWL (WLRP), Kirtland AFB, NM 87117. Distribution is limited because of the technology discussed in the report.

11. SUPPLEMENTARY NOTES

12. SPONSORING MILITARY ACTIVITY
AFWL (WLRP)
Kirtland AFB, NM 87117

13. ABSTRACT

(Distribution Limitation Statement No. 2)

This volume contains results of the computer runs performed for comparison of the analytical descriptions developed with actual experimental observations.

DD FORM 1 NOV 68 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

UNCLASSIFIED

Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Hugoniot						
Shock hydrodynamics						
Equation of state of metals						
Distended materials						