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BUCKL
X-Ray Energy Deposition Code

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BUCKL
X-Ray Energy Deposition Code

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ABSTRACT

BUCKL is an inexpensive X-ray deposition computer code which considers one-dimensional transport and accounts for two-dimensional effects in a buckling approximation. This manual contains input instructions and sample input.

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INTRODUCTION

The BUCKL X-ray deposition code provides an inexpensive alternative to discrete ordinates or Monte Carlo codes for many applications[1-3]. It considers one-dimensional transport and will account for two-dimensional effects in a buckling approximation.

BUCKL has been employed for many years with the basic numerics unchanged. However, the user interface has been upgraded to a considerable extent and the code converted to FORTRAN 77. The code, complete with graphics, will run on any computer system with a standard compiler. A portable graphics package is employed[4].

A major change in the user interface is a free-form input processor. The new input format is described in this document and an example input set is included.

This version of BUCKL contains the x-ray cross sections of Biggs and Lighthill in data statements inside the code[5]. A cross-section input file is not required.

This document is designed to be on-line computer documentation. It uses only ASCII characters for this reason. The character <> means "not equal to", <= means "less than or equal to", and => means "greater than or equal to".

REFERENCES

1. Cole, R. K., Jr., "BUCKL - A Program for Rapid Calculation of X-Ray Deposition," SC-RR-69-855, Sandia National Laboratories, July 1970.

2. Cole, R. K., Jr., "Modified BBAY Impulse Routine for BUCKL," SC-RR-710038, Sandia National Laboratories, February 1971.

3. Cole, R. K., Jr., "A Spectral Sensitivity Function for X-Ray Induced Blowoff Impulse," SC-RR-70-450, Sandia National Laboratories, June 1970.

4. Padilla, G. C. and Thompson, S. L., "The RSCORS Graphics System," SAND83-2639, Sandia National Laboratories, January 1984.

5. Biggs, F. and Lighthill, R., "Analytic Approximations for X-Ray Cross Sections III," SAND87-0070, Sandia National Laboratories, August, 1988.

6. Rottler, J. S. and Thompson, S. L., "Input Instructions for the Radiation-Hydrodynamics Code CHARTD," SAND87-0651, Sandia National Laboratories, November 1987.

INPUT INSTRUCTIONS

BUCKL employs a free-form input processor. All parameters on a record must be entered except for trailing zeros. Comment records begin with an "*" in column one. An example input set is shown at the end of this document. In the following, the record position of a variable is shown in () after the variable name.

RECORD 1

EMIN(1) = Minimum photon energy (keV).

DE(2) = Energy increment (keV).

EMAX(3) = Maximum photon energy (keV).

If DE <= 0, set to 0.1 by code.
If EMAX < EMIN, set EMAX to EMIN by code.
Trapezoid-rule integration will be used from EMIN to EMAX with increment DE. These values may be changed by the spectrum deck, record set 2.

FLUOR(4) - If = 0, fluorescence is not included in the calculation.
<> 0, fluorescence is included in the calculation.

PRNT(5) - If = 0, full listing output is produced.
<> 0, listing output is suppressed.

PLOT(6) - If > 0, All plotted output is suppressed.
=-1, All available plotted output is produced.
=-2, Eliminates exponential and no fluorescence deposition plots.
= 0, Eliminates exponential and no fluorescence deposition and dDEP/dE plots (normal plot option).

FATAL(7) - If = 0, code will attempt to salvage sequenced jobs when certain errors are encountered.
<> 0, code will terminate when errors are encountered.

RECORD 2

Use one of the following forms; note that option 2.V is new with this version of BUCKL.

RECORD 2.I - Spectrum on file "spectra"

NAME(1) = Name of spectrum - 8 character maximum.

RECORD 2.II - Weighted sum of up to 50 blackbodies.

RECORD 2.II.1

B in column 1.

RECORD 2.II.2

NBB(1) = Number of blackbodies.

W1(2) = Unnormalized relative weight.

T1(3) = Blackbody temperature (keV)

Enter 4 weight/temperature pairs per record (8 numbers) and continue with as many continuation records as required. For example, for 9 (NBB) blackbodies of equal weight with temperatures from 1 to 9:

```
9  1 1  1 2  1 3  1 4
   1 5  1 6  1 7  1 8
   1 9
```

If EMIN, DE and EMAX are zero on record 1, the code will calculate appropriate values.

RECORD 2.III - Uniformly tabulated spectrum.

RECORD 2.III.1 - NOTE fixed format input.

S in column 1.

FMT in column 9-16 = Format for following records.
For example (8F10.3).

RECORD 2.III.2

One or more records with format FMT,

F(i), i = 1, (EMAX-EMIN)/DE + 1

where F(i) is the spectral intensity at E(i) = EMIN + (i-1) * DE.
Note that this is identical to the original BUCKL code.

RECORD 2.IV - Arbitrarily tabulated spectrum - format 1.

RECORD 2.IV.1 - NOTE fixed format input.

S/E in columns 1 to 3.

FMT in column 9-16 = Format for following records.
For example (8F10.3).

NSEG in columns 17-24 = Number of tabulated points.

RECORD 2.IV.2

One or more records with format FMT

E(i), i = 1, NSEG - Tabulation energies

RECORD 2.IV.3

One or more records with format FMT

F(i), i = 1, NSEG - Spectral intensity at E(i).

Note that this is identical to the original BUCKL code.

RECORD 2.V - Arbitrarily tabulated spectrum - format 2.

RECORD 2.V.1

S,E in columns 1 to 3.

RECORD 2.V.2

Enter one energy/spectral intensity pair per record in free format. Terminate with a blank record.

E(i), F(i); for i = 1, NSEG

RECORD 3

FLUX(1) = Incident fluence in cal/cm2.

ANGLE(2) = Angle of incidence measured in degrees from the normal.

IIMP(3) - If = 0, Impulse is not calculated.
<> 0, Impulse is calculated.

ICHARD(4) - If = 0, Deposition data is not written to file.
<> 0, CHARTD format deposition data is written to file "extsou".

ISENSE(5) - If = 0, Impulse spectral sensitivity is not calculated.
<> 0, Impulse spectral sensitivity is evaluated.

The impulse is calculated in the MBBAY approximation as discussed in [2]. Note that input variables, Eo, Es, FLT, PRA and PRB must be defined as appropriate for each material layer on record set 7.

The CHARTD deposition file format is defined in [6].

RECORD 4

TITLE = 80 character identification for printed and plotted output.

RECORD 5 - Fluorescence Data
Present only if FLUOR <> 0 on record 1.

RECORD 5.1

NFL(1) = Number of fluorescence lines.

RECORD 5.2

There are NFL records with

IZ(1) = + or - Z number of fluorescence, + for K, - for L.

The following quantities are optional, BUCKL will generate appropriate values for defaults.

EFL(2) = Mean line energy.

K-YIELD(3) = K efficiency, W(k)

K-JUMP(4) = K jump ratio, f(k)

L-YIELD(5) = L efficiency, W(l)

L-JUMP(6) = L jump ratio, f(l)

If a record is included for an element not present in the problem, or for which the fluorescence efficiency is less than 5 percent, the input will be ignored.

RECORD 6 - Diameter

DIAM(1) = Diameter (cm).

RECORD 7 - Material Layer Specification.

There is one input record set for each material layer in the problem. Spectrum sensors for graphical display may also be defined. Input begins with the side exposed to the incident flux. Layer input is terminated by a blank record.

RECORD 7.1

THICK(1) = Layer thickness (cm).

RHO(2) = Layer density (gm/cm3).

NOZ(3) = Number of elements in material.

NSHELLS(4) = Number of zones in this layer. Also see DX1 below.

Eo(5) = Melt energy (cal/gm).

Es(6) = Sublimation energy (cal/gm).

FLT(7) - If = 0, layer is included in impulse and CHARTD output.
<> 0, layer is ignored in impulse and CHARTD output.

PRA(8) = Preheat value for layer (cal/gm)

PRB(9) = Preheat value for layer

The preheat is defined for the impulse calculation as

PRA exp(-PRB*X)

DX1(10) - If = 0, layer uses constant-size zones.
<> 0, layer uses ratio zoning with the first zone size determined by ABS(DX1).

RECORD 7.2

NZ(1) = Atomic number of first element in layer.

WZ(1) = Unnormalized weight fraction for this element.

Enter 8 atomic number/weight pairs per record (16 numbers); continue with as many continuation records as required.

If RHO = 0 and THICK > 0, the layer is a void.

If THICK = 0 and RHO > 0 or NOZ > 0, the layer is treated as a spectrum sensor. Direct and reverse energy currents and an angle-integrated spectrum are evaluated.

Features concerning impulse options on record set 7:

If Eo = Es = 0 or FLT <> 0, the layer is considered a filter and ignored in performing the impulse integral.

If Eo > 0, the impulse is calculated using MBBAY relations. If Es<=0, a large value is assumed.

If Eo <= 0 and Es > 0, the impulse is calculated using BBAY instead of MBBAY relations.

The impulse integral is terminated when a free surface is encountered and the impulse is listed if this surface is below melt. This free surface can be the rear surface or an internal void.

RECORD 8 - Job Sequencing

This record determines what to do after the above calculation is completed. Enter one of the following as the only field on the record.

FINISHED	-	code will exit.
SPEC/MAT	-	follow by record sets 1-8 for next calculation.
SPECTRUM	-	follow by record sets 1-4 and 8.
MATERIAL	-	follow by record sets 3-8.
FLUOR	-	follow by record sets 3-5 and 8.

Record sets not read under sequencing option will not be changed from the previous run.

EXAMPLE INPUT

```
*
*****************************************************************
*                TEST INPUT FOR BUCKL (THREE LAYER)
*****************************************************************
*
* record 1
*   emin     de      emax       flour    prnt   plot   fatal
    0.01     0.0     122.0       1.0
*
* record set 2   blackbody
B
*   nbb     w    t
     1      1.   5.
*
* record 3
*  flux    angle    iimp     ichard   isense
    50.      0.        1        0        0
*
* record 4  title
TEST PROBLEM 2
*
* record 5  fluorescence data
   4
  26
 -26
  82
 -82
*
* record 6 diameter
5.08
*
* record set 7   layer definitions
*
*  spectrum sensor
0        1.0
0
*  layer 1
*  thick    rho   noz nshells  eo     es    flt   pra  prb  dx1
    1.0    3.985   2    150  597.66  4470.   0     0    0 .000005
*  z1    w1    z2   w2
    8    4.   13    5.
*  spectrum sensor
0        1.0
0
*  layer 2
*  thick    rho   noz nshells  eo     es    flt   pra  prb   dx1
   .635    2.700   1     75  158.64  2848.   0     0    0   .0001
*  z1    w1
   13     1
*  spectrum sensor
0        1.0
0
```

```
*  layer 3
*  thick    rho    noz nshells  eo      es     flt    pra    prb    dx1
   .635    7.846   2     75   251.03  1772.   0      0      0    .0001
*  z1     w1     z2    w2
   26      1     82   0.0001
*
*  done with layers
0
*  record 8 - what next
FINISHED
```

```
BBBB    U   U    CCC    K   K   L
B   B   U   U   C   C   K  K    L
B   B   U   U   C       K K     L
BBBB    U   U   C       KK      L
B   B   U   U   C       K K     L
B   B   U   U   C   C   K  K    L
BBBB     UUU     CCC    K   K   LLLLL
```

BUCKL by S L Thompson (505/FTS) 844-4406
Original code and models by R K COLE Jr.
Sandia National Laboratories
Albuquerque, New Mexico 87185

This version of BUCKL contains special features.
See manual (SAND90-0588) details.

X-ray coefficients by Biggs and Lighthill (SAND87-0070)

BUCKL version 2.7b <2/28/90>

```
RECORD 1---5---10---15---20---25---30---35---40---45---50---55---60---65---70---
  1 : *
  2 : ******************************************************************
  3 : *                TEST INPUT FOR BUCKL (THREE LAYER)
  4 : ******************************************************************
  5 : *
  6 : * record 1
  7 : *   emin     de      emax       flour    prnt   plot   fatal
  8 :     0.01     0.0     122.0       1.0
  9 : *
 10 : * record set 2   blackbody
 11 : B
 12 : *   nbb     w    t
 13 :     1      1.   5.
 14 : *
 15 : * record 3
 16 : *  flux    angle    iimp     ichard   isense
 17 :    50.      0.        1        0        0
 18 : *
 19 : * record 4  title
 20 : TEST PROBLEM 2
 21 : *
 22 : * record 5  fluorescence data
 23 :    4
 24 :   26
 25 :  -26
 26 :   82
 27 :  -82
 28 : *
 29 : * record 6 diameter
 30 : 5.08
 31 : *
 32 : * record set 7   layer definitions
 33 : *
 34 : *  spectrum sensor
 35 : 0        1.0
 36 : 0
 37 : *  layer 1
 38 : *  thick    rho   noz nshells  eo     es    flt   pra  prb  dxl
 39 :     1.0    3.985   2    150  597.66  4470.   0     0    0 .000005
 40 : *  z1    w1    z2   w2
 41 :     8    4.   13    5.
 42 : *  spectrum sensor
 43 : 0        1.0
 44 : 0
 45 : *  layer 2
 46 : *  thick    rho   noz nshells  eo     es    flt   pra  prb   dxl
 47 :    .635    2.700   1     75  158.64  2848.   0     0    0   .0001
 48 : *  z1    w1
 49 :    13     1
 50 : *  spectrum sensor
 51 : 0        1.0
 52 : 0

RECORD 1---5---10---15---20---25---30---35---40---45---50---55---60---65---70---
```

```
RECORD 1---5---10---15---20---25---30---35---40---45---50---55   60   65---70---

  53 : *  layer 3
  54 : *  thick    rho   noz nshells  eo     es    flt   pra   prb   dxl
  55 :    .635    7.846   2     75  251.03  1772.   0     0     0   .0001
  56 : *  z1    w1    z2   w2
  57 :    26     1    82  0.0001
  58 : *
  59 : *  done with layers
  60 : 0
  61 : *  record 8 - what next
  62 : FINISHED

RECORD 1---5---10---15---20---25---30---35---40---45---50---55---60---65---70---
```

```
BUCKL CALCULATION (MODL + ADDITIONAL FEATURES)

 B.BODY SPECTRUM
      B.BODY TEMPERATURE=  5.000E+00

EMIN=   0.01000  DE=   0.30651  EMAX= 122.00000  FLUOR=  1.0
PRNT=       0.0  PLOT=     0.0  FATAL=      0.0

FLUX=    50.00000 CAL/SQCM      ANGLE=   0.0000    IIMP=   1
                                ICHARD=   0       ISENSE=   0

LAYER  THICKNESS  DIAM(CM)
  1     0.000000     5.080   SPECTRUM SENSOR

LAYER  THICKNESS  DIAM(CM)  DENSITY
  2     1.000000     5.080    3.985    Z=  8  WT.FR.= 0.4444
                                        Z= 13  WT.FR.= 0.5556
          ratio zoning  dxl=    4.9446E-06       nzones= 150
                        dxlast= 6.5306E-02 ratio= 1.0653E+00

LAYER  THICKNESS  DIAM(CM)
  3     0.000000     5.080   SPECTRUM SENSOR

LAYER  THICKNESS  DIAM(CM)  DENSITY
  4     0.635000     5.080    2.700    Z= 13  WT.FR.= 1.0000
          ratio zoning  dxl=    9.8544E-05       nzones=  75
                        dxlast= 5.6162E-02 ratio= 1.0883E+00

LAYER  THICKNESS  DIAM(CM)
  5     0.000000     5.080   SPECTRUM SENSOR

LAYER  THICKNESS  DIAM(CM)  DENSITY
  6     0.635000     5.080    7.846    Z= 26  WT.FR.= 0.9999
                                        Z= 82  WT.FR.= 0.0001
          ratio zoning  dxl=    9.8544E-05       nzones=  75
                        dxlast= 5.6162E-02 ratio= 1.0883E+00

LAYER  THICKNESS  DIAM(CM)
  7     0.000000     5.080   SPECTRUM SENSOR

THESE ELEMENTS ALLOWED TO FLUORESCE
  Z  FL.ENERGY    YIELD    K-JUMP    L-JUMP
 82   77.8122    0.9614    0.7915
 82   11.6926    0.3972    0.7915    0.7698
 26    6.5154    0.3226    0.8958

TEST PROBLEM 2
```

TEST PROBLEM 2

INCIDENT FLUX = 5.00E+01 AT 0.0 DEGREES FROM THE NORMAL

X(CM)	AB,AB	AB,TOT	NO FLUOR	DEP/A,T	DEP(CAL/GM)	SUM DEP
0.00000E+00			+current=	5.000E+01	-current=	7.280E-01

X(CM)	AB,AB	AB,TOT	NO FLUOR	DEP/A,T	DEP(CAL/GM)	SUM DEP
0.00000E+00	1.346E+03	1.346E+03	1.348E+03	1.002	1.348E+03	0.000E+00
4.94456E-06	1.313E+03	1.313E+03	1.316E+03	1.002	1.316E+03	2.624E-02
1.02120E-05	1.283E+03	1.283E+03	1.285E+03	1.002	1.285E+03	5.354E-02
1.58234E-05	1.255E+03	1.255E+03	1.257E+03	1.002	1.257E+03	8.196E-02
2.18012E-05	1.228E+03	1.228E+03	1.230E+03	1.002	1.230E+03	1.116E-01
2.81694E-05	1.202E+03	1.202E+03	1.204E+03	1.002	1.204E+03	1.425E-01
3.49535E-05	1.177E+03	1.177E+03	1.180E+03	1.002	1.180E+03	1.747E-01
4.21805E-05	1.154E+03	1.154E+03	1.156E+03	1.002	1.156E+03	2.083E-01
4.98795E-05	1.131E+03	1.131E+03	1.133E+03	1.002	1.133E+03	2.434E-01
5.80812E-05	1.108E+03	1.108E+03	1.111E+03	1.002	1.111E+03	2.801E-01
6.68185E-05	1.087E+03	1.086E+03	1.089E+03	1.002	1.089E+03	3.184E-01
7.61263E-05	1.065E+03	1.065E+03	1.067E+03	1.002	1.067E+03	3.584E-01
8.60420E-05	1.044E+03	1.044E+03	1.046E+03	1.002	1.046E+03	4.001E-01
9.66051E-05	1.023E+03	1.023E+03	1.025E+03	1.002	1.025E+03	4.437E-01
1.07858E-04	1.002E+03	1.002E+03	1.004E+03	1.002	1.004E+03	4.892E-01
1.19846E-04	9.811E+02	9.810E+02	9.834E+02	1.002	9.834E+02	5.367E-01
1.32616E-04	9.605E+02	9.604E+02	9.627E+02	1.002	9.627E+02	5.862E-01
1.46221E-04	9.399E+02	9.398E+02	9.422E+02	1.003	9.422E+02	6.378E-01
1.60714E-04	9.195E+02	9.194E+02	9.218E+02	1.003	9.218E+02	6.917E-01
1.76153E-04	8.992E+02	8.991E+02	9.015E+02	1.003	9.015E+02	7.477E-01
1.92600E-04	8.791E+02	8.790E+02	8.814E+02	1.003	8.814E+02	8.062E-01
2.10122E-04	8.591E+02	8.590E+02	8.614E+02	1.003	8.614E+02	8.670E-01
2.28787E-04	8.394E+02	8.392E+02	8.417E+02	1.003	8.417E+02	9.303E-01
2.48672E-04	8.198E+02	8.197E+02	8.221E+02	1.003	8.221E+02	9.963E-01
2.69855E-04	8.005E+02	8.004E+02	8.028E+02	1.003	8.028E+02	1.065E+00
2.92421E-04	7.815E+02	7.814E+02	7.838E+02	1.003	7.838E+02	1.136E+00
3.16461E-04	7.628E+02	7.626E+02	7.651E+02	1.003	7.651E+02	1.210E+00
3.42071E-04	7.444E+02	7.442E+02	7.466E+02	1.003	7.466E+02	1.288E+00
3.69353E-04	7.263E+02	7.261E+02	7.285E+02	1.003	7.285E+02	1.368E+00
3.98416E-04	7.085E+02	7.083E+02	7.108E+02	1.003	7.108E+02	1.451E+00
4.29378E-04	6.911E+02	6.909E+02	6.934E+02	1.004	6.934E+02	1.538E+00
4.62361E-04	6.740E+02	6.738E+02	6.763E+02	1.004	6.763E+02	1.628E+00
4.97498E-04	6.573E+02	6.571E+02	6.596E+02	1.004	6.596E+02	1.721E+00
5.34929E-04	6.410E+02	6.407E+02	6.432E+02	1.004	6.432E+02	1.818E+00
5.74805E-04	6.250E+02	6.247E+02	6.272E+02	1.004	6.272E+02	1.919E+00
6.17285E-04	6.093E+02	6.090E+02	6.115E+02	1.004	6.115E+02	2.024E+00
6.62538E-04	5.939E+02	5.937E+02	5.962E+02	1.004	5.962E+02	2.133E+00
7.10747E-04	5.789E+02	5.786E+02	5.812E+02	1.004	5.812E+02	2.246E+00
7.62104E-04	5.642E+02	5.639E+02	5.665E+02	1.005	5.665E+02	2.364E+00
8.16814E-04	5.499E+02	5.495E+02	5.521E+02	1.005	5.521E+02	2.485E+00
8.75097E-04	5.358E+02	5.354E+02	5.380E+02	1.005	5.380E+02	2.612E+00
9.37186E-04	5.220E+02	5.216E+02	5.242E+02	1.005	5.242E+02	2.743E+00
1.00333E-03	5.084E+02	5.080E+02	5.106E+02	1.005	5.106E+02	2.880E+00
1.07379E-03	4.952E+02	4.948E+02	4.974E+02	1.005	4.974E+02	3.021E+00
1.14886E-03	4.821E+02	4.817E+02	4.844E+02	1.005	4.844E+02	3.168E+00
1.22882E-03	4.694E+02	4.689E+02	4.716E+02	1.006	4.716E+02	3.320E+00
1.31401E-03	4.568E+02	4.564E+02	4.590E+02	1.006	4.590E+02	3.478E+00
1.40476E-03	4.445E+02	4.441E+02	4.467E+02	1.006	4.467E+02	3.642E+00
1.50143E-03	4.325E+02	4.320E+02	4.347E+02	1.006	4.347E+02	3.812E+00
1.60442E-03	4.206E+02	4.201E+02	4.228E+02	1.006	4.228E+02	3.988E+00
1.71414E-03	4.089E+02	4.084E+02	4.111E+02	1.007	4.111E+02	4.170E+00
1.83102E-03	3.975E+02	3.969E+02	3.997E+02	1.007	3.997E+02	4.359E+00
1.95553E-03	3.862E+02	3.857E+02	3.884E+02	1.007	3.884E+02	4.554E+00
2.08817E-03	3.752E+02	3.746E+02	3.773E+02	1.007	3.773E+02	4.757E+00
2.22947E-03	3.643E+02	3.637E+02	3.665E+02	1.008	3.665E+02	4.966E+00
2.38000E-03	3.537E+02	3.530E+02	3.558E+02	1.008	3.558E+02	5.183E+00
2.54036E-03	3.432E+02	3.425E+02	3.453E+02	1.008	3.453E+02	5.407E+00
2.71120E-03	3.329E+02	3.322E+02	3.350E+02	1.008	3.350E+02	5.638E+00
2.89318E-03	3.228E+02	3.221E+02	3.249E+02	1.009	3.249E+02	5.878E+00
3.08705E-03	3.128E+02	3.121E+02	3.149E+02	1.009	3.149E+02	6.125E+00
3.29358E-03	3.031E+02	3.024E+02	3.052E+02	1.009	3.052E+02	6.380E+00
3.51360E-03	2.935E+02	2.928E+02	2.956E+02	1.010	2.956E+02	6.643E+00
3.74799E-03	2.842E+02	2.834E+02	2.862E+02	1.010	2.862E+02	6.915E+00
3.99768E-03	2.750E+02	2.742E+02	2.770E+02	1.010	2.770E+02	7.195E+00
4.26367E-03	2.660E+02	2.651E+02	2.680E+02	1.011	2.680E+02	7.484E+00
4.54704E-03	2.571E+02	2.563E+02	2.591E+02	1.011	2.591E+02	7.782E+00
4.84891E-03	2.485E+02	2.476E+02	2.505E+02	1.012	2.505E+02	8.088E+00
5.17049E-03	2.400E+02	2.391E+02	2.420E+02	1.012	2.420E+02	8.404E+00
5.51307E-03	2.317E+02	2.308E+02	2.337E+02	1.013	2.337E+02	8.728E+00
5.87802E-03	2.236E+02	2.226E+02	2.255E+02	1.013	2.255E+02	9.062E+00
6.26680E-03	2.157E+02	2.147E+02	2.176E+02	1.014	2.176E+02	9.405E+00
6.68097E-03	2.079E+02	2.069E+02	2.098E+02	1.014	2.098E+02	9.758E+00
7.12219E-03	2.003E+02	1.993E+02	2.022E+02	1.015	2.022E+02	1.012E+01
7.59221E-03	1.929E+02	1.919E+02	1.948E+02	1.015	1.948E+02	1.049E+01
8.09293E-03	1.857E+02	1.846E+02	1.875E+02	1.016	1.875E+02	1.087E+01
8.62635E-03	1.786E+02	1.775E+02	1.805E+02	1.017	1.805E+02	1.126E+01
9.19460E-03	1.718E+02	1.706E+02	1.736E+02	1.017	1.736E+02	1.167E+01
9.79996E-03	1.650E+02	1.639E+02	1.668E+02	1.018	1.668E+02	1.208E+01
1.04448E-02	1.585E+02	1.573E+02	1.603E+02	1.019	1.603E+02	1.250E+01
1.11318E-02	1.521E+02	1.509E+02	1.539E+02	1.020	1.539E+02	1.293E+01
1.18637E-02	1.459E+02	1.447E+02	1.476E+02	1.020	1.476E+02	1.337E+01
1.26434E-02	1.399E+02	1.386E+02	1.416E+02	1.021	1.416E+02	1.381E+01
1.34739E-02	1.341E+02	1.328E+02	1.357E+02	1.022	1.357E+02	1.427E+01
1.43587E-02	1.284E+02	1.270E+02	1.300E+02	1.023	1.300E+02	1.474E+01
1.53013E-02	1.228E+02	1.215E+02	1.244E+02	1.024	1.244E+02	1.522E+01
1.63054E-02	1.175E+02	1.161E+02	1.190E+02	1.025	1.190E+02	1.571E+01
1.73751E-02	1.123E+02	1.109E+02	1.138E+02	1.026	1.138E+02	1.620E+01
1.85147E-02	1.072E+02	1.058E+02	1.087E+02	1.027	1.087E+02	1.671E+01
1.97286E-02	1.023E+02	1.009E+02	1.038E+02	1.029	1.038E+02	1.722E+01
2.10219E-02	9.759E+01	9.612E+01	9.901E+01	1.030	9.901E+01	1.774E+01
2.23996E-02	9.301E+01	9.152E+01	9.439E+01	1.031	9.439E+01	1.827E+01
2.38672E-02	8.858E+01	8.707E+01	8.993E+01	1.033	8.993E+01	1.881E+01
2.54307E-02	8.430E+01	8.278E+01	8.562E+01	1.034	8.562E+01	1.936E+01
2.70963E-02	8.017E+01	7.863E+01	8.145E+01	1.036	8.145E+01	1.991E+01
2.88706E-02	7.618E+01	7.463E+01	7.742E+01	1.038	7.742E+01	2.048E+01
3.07608E-02	7.234E+01	7.077E+01	7.354E+01	1.039	7.354E+01	2.104E+01
3.27745E-02	6.864E+01	6.705E+01	6.980E+01	1.041	6.980E+01	2.162E+01
3.49196E-02	6.507E+01	6.347E+01	6.620E+01	1.043	6.620E+01	2.220E+01
3.72048E-02	6.165E+01	6.003E+01	6.273E+01	1.045	6.273E+01	2.279E+01
3.96393E-02	5.835E+01	5.673E+01	5.940E+01	1.047	5.940E+01	2.338E+01
4.22327E-02	5.519E+01	5.355E+01	5.620E+01	1.049	5.620E+01	2.398E+01
4.49955E-02	5.215E+01	5.051E+01	5.312E+01	1.052	5.312E+01	2.458E+01
4.79386E-02	4.924E+01	4.759E+01	5.017E+01	1.054	5.017E+01	2.518E+01
5.10740E-02	4.645E+01	4.480E+01	4.734E+01	1.057	4.734E+01	2.579E+01
5.44141E-02	4.378E+01	4.212E+01	4.463E+01	1.059	4.463E+01	2.641E+01
5.79723E-02	4.122E+01	3.957E+01	4.203E+01	1.062	4.203E+01	2.702E+01
6.17629E-02	3.878E+01	3.713E+01	3.955E+01	1.065	3.955E+01	2.764E+01
6.58010E-02	3.645E+01	3.480E+01	3.718E+01	1.068	3.718E+01	2.825E+01
7.01028E-02	3.423E+01	3.258E+01	3.492E+01	1.072	3.492E+01	2.887E+01
7.46855E-02	3.211E+01	3.047E+01	3.276E+01	1.075	3.276E+01	2.949E+01
7.95674E-02	3.010E+01	2.846E+01	3.071E+01	1.079	3.071E+01	3.011E+01
8.47682E-02	2.818E+01	2.656E+01	2.875E+01	1.083	2.875E+01	3.072E+01
9.03085E-02	2.636E+01	2.475E+01	2.689E+01	1.087	2.689E+01	3.134E+01
9.62107E-02	2.463E+01	2.303E+01	2.512E+01	1.091	2.512E+01	3.195E+01
1.02498E-01	2.299E+01	2.141E+01	2.345E+01	1.095	2.345E+01	3.255E+01
1.09196E-01	2.144E+01	1.987E+01	2.186E+01	1.100	2.186E+01	3.316E+01
1.16332E-01	1.997E+01	1.842E+01	2.035E+01	1.105	2.035E+01	3.376E+01
1.23933E-01	1.858E+01	1.705E+01	1.893E+01	1.110	1.893E+01	3.435E+01
1.32031E-01	1.727E+01	1.576E+01	1.758E+01	1.115	1.758E+01	3.494E+01
1.40658E-01	1.603E+01	1.455E+01	1.631E+01	1.121	1.631E+01	3.552E+01
1.49848E-01	1.487E+01	1.341E+01	1.511E+01	1.127	1.511E+01	3.610E+01
1.59638E-01	1.377E+01	1.234E+01	1.398E+01	1.133	1.398E+01	3.667E+01
1.70067E-01	1.274E+01	1.133E+01	1.292E+01	1.140	1.292E+01	3.723E+01

1.81178E-01	1.177E+01	1.039E+01	1.192E+01	1.147	1.192E+01	3.778E+01
1.93014E-01	1.087E+01	9.518E+00	1.099E+01	1.154	1.099E+01	3.832E+01
2.05623E-01	1.002E+01	8.700E+00	1.011E+01	1.162	1.011E+01	3.884E+01
2.19055E-01	9.222E+00	7.938E+00	9.288E+00	1.170	9.288E+00	3.936E+01
2.33364E-01	8.479E+00	7.229E+00	8.520E+00	1.179	8.520E+00	3.987E+01
2.48608E-01	7.786E+00	6.572E+00	7.803E+00	1.187	7.803E+00	4.037E+01
2.64847E-01	7.140E+00	5.962E+00	7.135E+00	1.197	7.135E+00	4.085E+01
2.82147E-01	6.539E+00	5.398E+00	6.513E+00	1.207	6.513E+00	4.132E+01
3.00576E-01	5.981E+00	4.877E+00	5.935E+00	1.217	5.935E+00	4.178E+01
3.20209E-01	5.462E+00	4.397E+00	5.398E+00	1.228	5.398E+00	4.222E+01
3.41124E-01	4.981E+00	3.955E+00	4.900E+00	1.239	4.900E+00	4.265E+01
3.63404E-01	4.536E+00	3.550E+00	4.440E+00	1.251	4.440E+00	4.306E+01
3.87140E-01	4.125E+00	3.178E+00	4.015E+00	1.263	4.015E+00	4.346E+01
4.12425E-01	3.745E+00	2.838E+00	3.623E+00	1.276	3.623E+00	4.385E+01
4.39362E-01	3.396E+00	2.529E+00	3.262E+00	1.290	3.262E+00	4.422E+01
4.68057E-01	3.074E+00	2.247E+00	2.930E+00	1.304	2.930E+00	4.457E+01
4.98626E-01	2.778E+00	1.990E+00	2.626E+00	1.319	2.626E+00	4.491E+01
5.31192E-01	2.507E+00	1.759E+00	2.347E+00	1.335	2.347E+00	4.523E+01
5.65884E-01	2.258E+00	1.549E+00	2.092E+00	1.351	2.092E+00	4.554E+01
6.02842E-01	2.031E+00	1.360E+00	1.860E+00	1.367	1.860E+00	4.583E+01
6.42212E-01	1.823E+00	1.191E+00	1.648E+00	1.384	1.648E+00	4.610E+01
6.84154E-01	1.634E+00	1.039E+00	1.456E+00	1.402	1.456E+00	4.636E+01
7.28835E-01	1.462E+00	9.035E-01	1.282E+00	1.419	1.282E+00	4.660E+01
7.76433E-01	1.305E+00	7.828E-01	1.124E+00	1.436	1.124E+00	4.683E+01
8.27139E-01	1.164E+00	6.757E-01	9.815E-01	1.453	9.815E-01	4.704E+01
8.81157E-01	1.035E+00	5.810E-01	8.525E-01	1.467	8.525E-01	4.724E+01
9.38702E-01	9.196E-01	4.975E-01	7.358E-01	1.479	7.358E-01	4.742E+01
1.00000E+00	8.150E-01	4.243E-01	6.300E-01	1.485	6.300E-01	4.759E+01

average deposition in layer is 1.194E+01

1.00000E+00 +current= 1.598E+00 -current= 5.020E-02

X(CM)	AB,AB	AB,TOT	NO FLUOR	DEP/A,T	DEP(CAL/GM)	SUM DEP
1.00000E+00	1.268E+00	6.597E-01	9.796E-01	1.485	9.796E-01	4.759E+01
1.00010E+00	1.267E+00	6.596E-01	9.794E-01	1.485	9.794E-01	4.759E+01
1.00021E+00	1.267E+00	6.594E-01	9.791E-01	1.485	9.791E-01	4.759E+01
1.00032E+00	1.267E+00	6.592E-01	9.788E-01	1.485	9.788E-01	4.759E+01
1.00045E+00	1.267E+00	6.590E-01	9.785E-01	1.485	9.785E-01	4.759E+01
1.00059E+00	1.266E+00	6.588E-01	9.782E-01	1.485	9.782E-01	4.759E+01
1.00074E+00	1.266E+00	6.585E-01	9.779E-01	1.485	9.779E-01	4.759E+01
1.00090E+00	1.265E+00	6.583E-01	9.775E-01	1.485	9.775E-01	4.759E+01
1.00108E+00	1.265E+00	6.580E-01	9.770E-01	1.485	9.770E-01	4.759E+01
1.00127E+00	1.264E+00	6.577E-01	9.766E-01	1.485	9.766E-01	4.759E+01
1.00149E+00	1.264E+00	6.573E-01	9.761E-01	1.485	9.761E-01	4.759E+01
1.00171E+00	1.263E+00	6.570E-01	9.755E-01	1.485	9.755E-01	4.759E+01
1.00196E+00	1.263E+00	6.566E-01	9.749E-01	1.485	9.749E-01	4.760E+01
1.00224E+00	1.262E+00	6.561E-01	9.743E-01	1.485	9.743E-01	4.760E+01
1.00253E+00	1.261E+00	6.557E-01	9.736E-01	1.485	9.736E-01	4.760E+01
1.00285E+00	1.260E+00	6.551E-01	9.728E-01	1.485	9.728E-01	4.760E+01
1.00321E+00	1.259E+00	6.546E-01	9.720E-01	1.485	9.720E-01	4.760E+01
1.00359E+00	1.258E+00	6.540E-01	9.711E-01	1.485	9.711E-01	4.760E+01
1.00400E+00	1.257E+00	6.533E-01	9.701E-01	1.485	9.701E-01	4.760E+01
1.00445E+00	1.256E+00	6.526E-01	9.691E-01	1.485	9.691E-01	4.760E+01
1.00495E+00	1.255E+00	6.518E-01	9.679E-01	1.485	9.679E-01	4.760E+01
1.00548E+00	1.254E+00	6.509E-01	9.666E-01	1.485	9.666E-01	4.760E+01
1.00606E+00	1.252E+00	6.500E-01	9.653E-01	1.485	9.653E-01	4.761E+01
1.00670E+00	1.251E+00	6.490E-01	9.638E-01	1.485	9.638E-01	4.761E+01
1.00739E+00	1.249E+00	6.479E-01	9.622E-01	1.485	9.622E-01	4.761E+01
1.00814E+00	1.247E+00	6.467E-01	9.604E-01	1.485	9.604E-01	4.761E+01
1.00896E+00	1.245E+00	6.454E-01	9.585E-01	1.485	9.585E-01	4.761E+01
1.00984E+00	1.243E+00	6.441E-01	9.565E-01	1.485	9.565E-01	4.762E+01
1.01081E+00	1.240E+00	6.425E-01	9.542E-01	1.485	9.542E-01	4.762E+01
1.01187E+00	1.237E+00	6.409E-01	9.518E-01	1.485	9.518E-01	4.762E+01
1.01301E+00	1.235E+00	6.391E-01	9.492E-01	1.485	9.492E-01	4.762E+01
1.01426E+00	1.232E+00	6.372E-01	9.463E-01	1.485	9.463E-01	4.763E+01
1.01562E+00	1.228E+00	6.351E-01	9.432E-01	1.485	9.432E-01	4.763E+01
1.01709E+00	1.224E+00	6.328E-01	9.399E-01	1.485	9.399E-01	4.763E+01
1.01870E+00	1.221E+00	6.303E-01	9.362E-01	1.485	9.362E-01	4.764E+01
1.02045E+00	1.216E+00	6.277E-01	9.323E-01	1.485	9.323E-01	4.764E+01
1.02235E+00	1.212E+00	6.248E-01	9.281E-01	1.485	9.281E-01	4.765E+01
1.02443E+00	1.207E+00	6.217E-01	9.235E-01	1.485	9.235E-01	4.765E+01
1.02668E+00	1.201E+00	6.183E-01	9.185E-01	1.486	9.185E-01	4.766E+01
1.02914E+00	1.195E+00	6.147E-01	9.131E-01	1.486	9.131E-01	4.766E+01
1.03181E+00	1.189E+00	6.107E-01	9.073E-01	1.486	9.073E-01	4.767E+01
1.03471E+00	1.182E+00	6.065E-01	9.011E-01	1.486	9.011E-01	4.768E+01
1.03788E+00	1.175E+00	6.019E-01	8.943E-01	1.486	8.943E-01	4.769E+01
1.04132E+00	1.167E+00	5.970E-01	8.871E-01	1.486	8.871E-01	4.769E+01
1.04507E+00	1.158E+00	5.917E-01	8.793E-01	1.486	8.793E-01	4.770E+01
1.04914E+00	1.149E+00	5.860E-01	8.708E-01	1.486	8.708E-01	4.771E+01
1.05358E+00	1.139E+00	5.798E-01	8.618E-01	1.486	8.618E-01	4.772E+01
1.05841E+00	1.128E+00	5.732E-01	8.521E-01	1.487	8.521E-01	4.773E+01
1.06366E+00	1.117E+00	5.662E-01	8.417E-01	1.487	8.417E-01	4.775E+01
1.06938E+00	1.104E+00	5.586E-01	8.306E-01	1.487	8.306E-01	4.776E+01
1.07561E+00	1.091E+00	5.505E-01	8.187E-01	1.487	8.187E-01	4.777E+01
1.08238E+00	1.077E+00	5.419E-01	8.060E-01	1.487	8.060E-01	4.779E+01
1.08975E+00	1.062E+00	5.327E-01	7.925E-01	1.488	7.925E-01	4.780E+01
1.09778E+00	1.046E+00	5.229E-01	7.781E-01	1.488	7.781E-01	4.782E+01
1.10651E+00	1.029E+00	5.125E-01	7.628E-01	1.488	7.628E-01	4.784E+01
1.11601E+00	1.011E+00	5.015E-01	7.466E-01	1.489	7.466E-01	4.786E+01
1.12635E+00	9.912E-01	4.898E-01	7.295E-01	1.489	7.295E-01	4.788E+01
1.13761E+00	9.708E-01	4.775E-01	7.114E-01	1.490	7.114E-01	4.790E+01
1.14985E+00	9.492E-01	4.646E-01	6.923E-01	1.490	6.923E-01	4.792E+01
1.16318E+00	9.264E-01	4.510E-01	6.723E-01	1.491	6.723E-01	4.795E+01
1.17769E+00	9.025E-01	4.367E-01	6.513E-01	1.491	6.513E-01	4.797E+01
1.19347E+00	8.774E-01	4.219E-01	6.294E-01	1.492	6.294E-01	4.800E+01
1.21065E+00	8.512E-01	4.064E-01	6.066E-01	1.493	6.066E-01	4.803E+01
1.22935E+00	8.238E-01	3.904E-01	5.829E-01	1.493	5.829E-01	4.806E+01
1.24970E+00	7.954E-01	3.738E-01	5.583E-01	1.494	5.583E-01	4.809E+01
1.27184E+00	7.660E-01	3.567E-01	5.330E-01	1.494	5.330E-01	4.812E+01
1.29594E+00	7.356E-01	3.392E-01	5.070E-01	1.495	5.070E-01	4.816E+01
1.32217E+00	7.044E-01	3.214E-01	4.804E-01	1.495	4.804E-01	4.819E+01
1.35071E+00	6.725E-01	3.033E-01	4.532E-01	1.494	4.532E-01	4.823E+01
1.38177E+00	6.399E-01	2.850E-01	4.256E-01	1.494	4.256E-01	4.827E+01
1.41558E+00	6.068E-01	2.666E-01	3.977E-01	1.492	3.977E-01	4.830E+01
1.45237E+00	5.734E-01	2.481E-01	3.695E-01	1.489	3.695E-01	4.834E+01
1.49240E+00	5.398E-01	2.298E-01	3.411E-01	1.484	3.411E-01	4.838E+01
1.53598E+00	5.061E-01	2.118E-01	3.127E-01	1.477	3.127E-01	4.842E+01
1.58340E+00	4.727E-01	1.940E-01	2.842E-01	1.465	2.842E-01	4.846E+01
1.63500E+00	4.395E-01	1.767E-01	2.557E-01	1.866	3.297E-01	4.850E+01

average deposition in layer is 5.303E-01

1.63500E+00 +current= 6.099E-01 -current= 0.000E+00

X(CM)	AB,AB	AB,TOT	NO FLUOR	DEP/A,T	DEP(CAL/GM)	SUM DEP
1.63500E+00	3.923E+00	1.578E+00	2.285E+00	1.410	2.225E+00	4.850E+01
1.63510E+00	3.910E+00	1.572E+00	2.275E+00	1.412	2.220E+00	4.850E+01
1.63521E+00	3.895E+00	1.566E+00	2.265E+00	1.414	2.215E+00	4.850E+01
1.63532E+00	3.879E+00	1.560E+00	2.254E+00	1.416	2.209E+00	4.851E+01
1.63545E+00	3.862E+00	1.553E+00	2.242E+00	1.418	2.202E+00	4.851E+01
1.63559E+00	3.843E+00	1.545E+00	2.230E+00	1.420	2.194E+00	4.851E+01
1.63574E+00	3.823E+00	1.537E+00	2.216E+00	1.422	2.185E+00	4.851E+01
1.63590E+00	3.801E+00	1.528E+00	2.201E+00	1.423	2.174E+00	4.851E+01
1.63608E+00	3.777E+00	1.518E+00	2.185E+00	1.424	2.162E+00	4.852E+01
1.63627E+00	3.752E+00	1.508E+00	2.167E+00	1.425	2.148E+00	4.852E+01
1.63649E+00	3.724E+00	1.496E+00	2.149E+00	1.425	2.133E+00	4.852E+01
1.63671E+00	3.695E+00	1.484E+00	2.129E+00	1.426	2.116E+00	4.853E+01
1.63696E+00	3.663E+00	1.471E+00	2.107E+00	1.425	2.097E+00	4.853E+01
1.63724E+00	3.629E+00	1.457E+00	2.084E+00	1.425	2.076E+00	4.854E+01
1.63753E+00	3.592E+00	1.442E+00	2.059E+00	1.424	2.053E+00	4.854E+01
1.63785E+00	3.552E+00	1.426E+00	2.033E+00	1.422	2.028E+00	4.855E+01
1.63821E+00	3.510E+00	1.409E+00	2.005E+00	1.421	2.001E+00	4.855E+01
1.63859E+00	3.465E+00	1.390E+00	1.974E+00	1.419	1.972E+00	4.856E+01
1.63900E+00	3.416E+00	1.370E+00	1.942E+00	1.416	1.941E+00	4.857E+01
1.63945E+00	3.364E+00	1.349E+00	1.908E+00	1.414	1.907E+00	4.857E+01

1.63995E+00	3.309E+00	1.326E+00	1.872E+00	1.411	1.871E+00	4.858E+01
1.64048E+00	3.250E+00	1.302E+00	1.833E+00	1.407	1.833E+00	4.859E+01
1.64106E+00	3.188E+00	1.277E+00	1.793E+00	1.404	1.793E+00	4.860E+01
1.64170E+00	3.122E+00	1.250E+00	1.750E+00	1.400	1.750E+00	4.860E+01
1.64239E+00	3.052E+00	1.221E+00	1.705E+00	1.396	1.705E+00	4.861E+01
1.64314E+00	2.978E+00	1.191E+00	1.657E+00	1.391	1.657E+00	4.862E+01
1.64396E+00	2.900E+00	1.159E+00	1.608E+00	1.387	1.608E+00	4.863E+01
1.64484E+00	2.819E+00	1.126E+00	1.556E+00	1.382	1.556E+00	4.864E+01
1.64581E+00	2.733E+00	1.091E+00	1.502E+00	1.377	1.502E+00	4.866E+01
1.64687E+00	2.644E+00	1.055E+00	1.447E+00	1.371	1.447E+00	4.867E+01
1.64801E+00	2.551E+00	1.017E+00	1.389E+00	1.366	1.389E+00	4.868E+01
1.64926E+00	2.455E+00	9.778E-01	1.330E+00	1.360	1.330E+00	4.869E+01
1.65062E+00	2.355E+00	9.372E-01	1.269E+00	1.354	1.269E+00	4.871E+01
1.65209E+00	2.253E+00	8.955E-01	1.207E+00	1.348	1.207E+00	4.872E+01
1.65370E+00	2.148E+00	8.528E-01	1.144E+00	1.342	1.144E+00	4.874E+01
1.65545E+00	2.040E+00	8.092E-01	1.080E+00	1.335	1.081E+00	4.875E+01
1.65735E+00	1.931E+00	7.649E-01	1.016E+00	1.329	1.016E+00	4.877E+01
1.65943E+00	1.821E+00	7.201E-01	9.521E-01	1.322	9.522E-01	4.878E+01
1.66168E+00	1.710E+00	6.751E-01	8.880E-01	1.315	8.881E-01	4.880E+01
1.66414E+00	1.599E+00	6.302E-01	8.246E-01	1.309	8.247E-01	4.882E+01
1.66681E+00	1.489E+00	5.854E-01	7.621E-01	1.302	7.621E-01	4.883E+01
1.66971E+00	1.379E+00	5.412E-01	7.008E-01	1.295	7.009E-01	4.885E+01
1.67288E+00	1.272E+00	4.978E-01	6.412E-01	1.288	6.413E-01	4.887E+01
1.67632E+00	1.166E+00	4.554E-01	5.836E-01	1.282	5.836E-01	4.888E+01
1.68007E+00	1.064E+00	4.143E-01	5.282E-01	1.275	5.282E-01	4.890E+01
1.68414E+00	9.655E-01	3.747E-01	4.753E-01	1.269	4.754E-01	4.892E+01
1.68858E+00	8.710E-01	3.368E-01	4.253E-01	1.263	4.253E-01	4.893E+01
1.69341E+00	7.812E-01	3.009E-01	3.781E-01	1.257	3.781E-01	4.895E+01
1.69866E+00	6.963E-01	2.671E-01	3.341E-01	1.251	3.341E-01	4.896E+01
1.70438E+00	6.168E-01	2.355E-01	2.933E-01	1.246	2.933E-01	4.898E+01
1.71061E+00	5.428E-01	2.062E-01	2.558E-01	1.241	2.558E-01	4.899E+01
1.71738E+00	4.746E-01	1.793E-01	2.216E-01	1.236	2.216E-01	4.900E+01
1.72475E+00	4.121E-01	1.547E-01	1.906E-01	1.232	1.906E-01	4.901E+01
1.73278E+00	3.554E-01	1.325E-01	1.627E-01	1.228	1.627E-01	4.902E+01
1.74151E+00	3.044E-01	1.127E-01	1.380E-01	1.225	1.380E-01	4.904E+01
1.75101E+00	2.588E-01	9.502E-02	1.161E-01	1.222	1.161E-01	4.904E+01
1.76135E+00	2.185E-01	7.949E-02	9.693E-02	1.219	9.693E-02	4.905E+01
1.77261E+00	1.831E-01	6.596E-02	8.031E-02	1.218	8.031E-02	4.906E+01
1.78485E+00	1.523E-01	5.427E-02	6.601E-02	1.216	6.601E-02	4.907E+01
1.79818E+00	1.257E-01	4.427E-02	5.382E-02	1.216	5.382E-02	4.907E+01
1.81269E+00	1.029E-01	3.580E-02	4.352E-02	1.216	4.352E-02	4.908E+01
1.82847E+00	8.367E-02	2.869E-02	3.490E-02	1.217	3.490E-02	4.908E+01
1.84565E+00	6.747E-02	2.278E-02	2.774E-02	1.218	2.774E-02	4.909E+01
1.86435E+00	5.398E-02	1.792E-02	2.186E-02	1.220	2.186E-02	4.909E+01
1.88470E+00	4.285E-02	1.396E-02	1.707E-02	1.223	1.707E-02	4.910E+01
1.90684E+00	3.374E-02	1.077E-02	1.321E-02	1.226	1.321E-02	4.910E+01
1.93094E+00	2.635E-02	8.232E-03	1.013E-02	1.231	1.013E-02	4.910E+01
1.95717E+00	2.041E-02	6.225E-03	7.691E-03	1.236	7.691E-03	4.910E+01
1.98571E+00	1.568E-02	4.658E-03	5.782E-03	1.241	5.783E-03	4.910E+01
2.01677E+00	1.194E-02	3.449E-03	4.304E-03	1.248	4.304E-03	4.910E+01
2.05058E+00	9.022E-03	2.525E-03	3.169E-03	1.255	3.169E-03	4.911E+01
2.08737E+00	6.757E-03	1.828E-03	2.308E-03	1.262	2.308E-03	4.911E+01
2.12740E+00	5.017E-03	1.308E-03	1.661E-03	1.270	1.661E-03	4.911E+01
2.17098E+00	3.693E-03	9.251E-04	1.179E-03	1.275	1.179E-03	4.911E+01
2.21840E+00	2.694E-03	6.461E-04	8.202E-04	1.270	8.202E-04	4.911E+01
2.27000E+00	1.948E-03	4.455E-04	5.355E-04	1.184	5.274E-04	4.911E+01

average deposition in layer is 1.222E-01

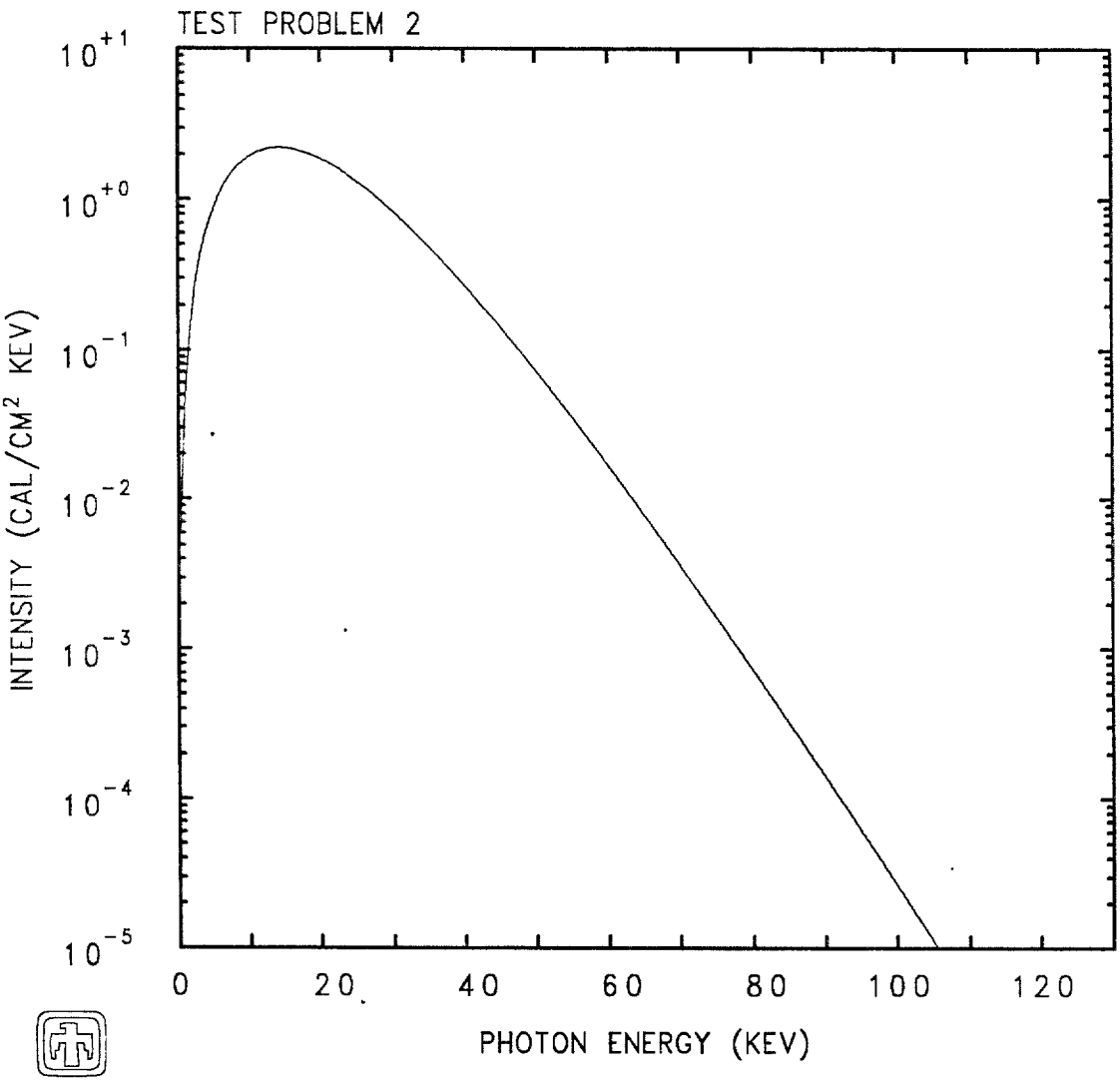
2.27000E+00 +current= 7.594E-04 -current= 0.000E+00

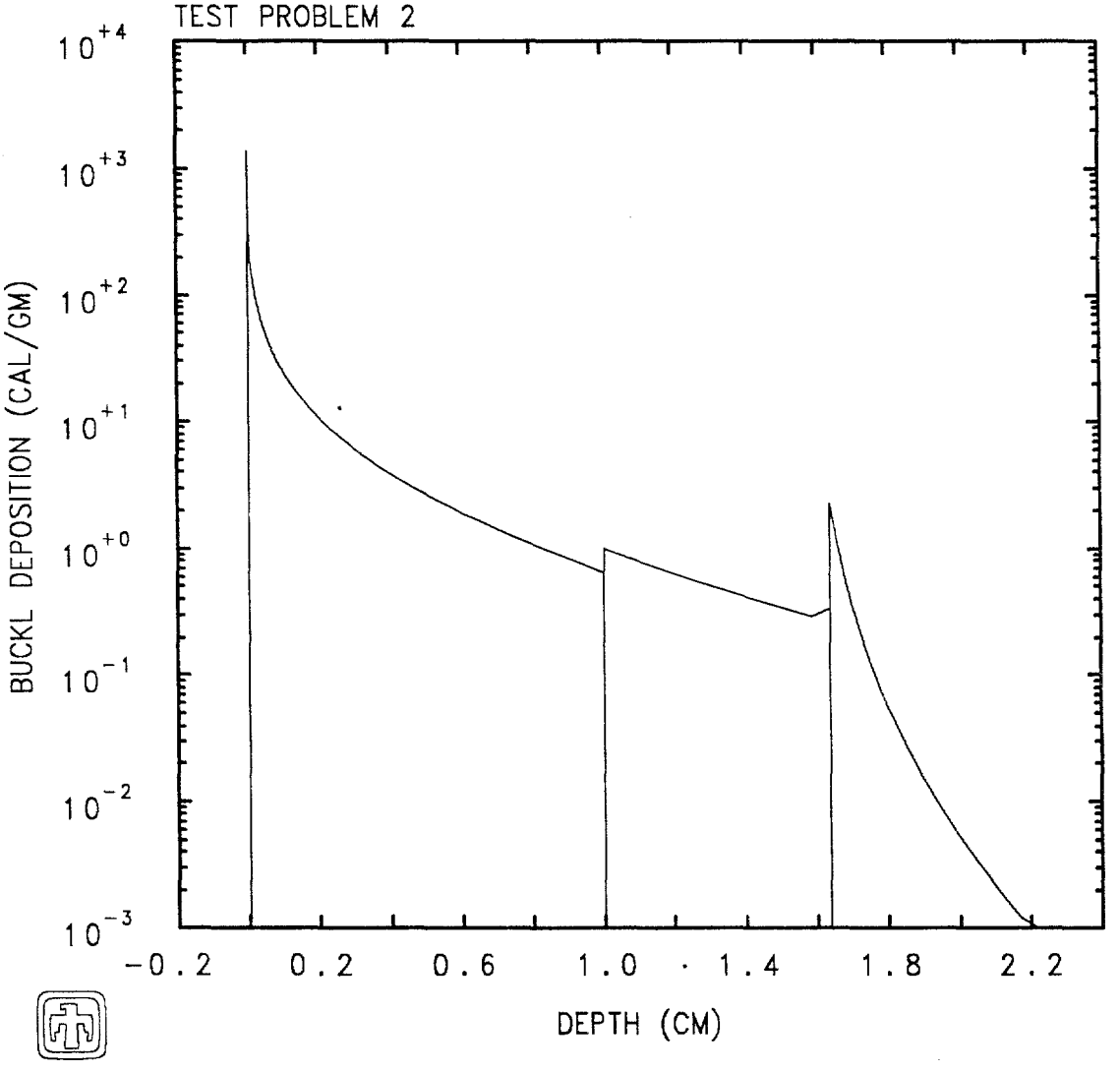
X(CM)	AB,AB	AB,TOT	NO FLUOR	DEP/A,T	DEP(CAL/GM)	SUM DEP

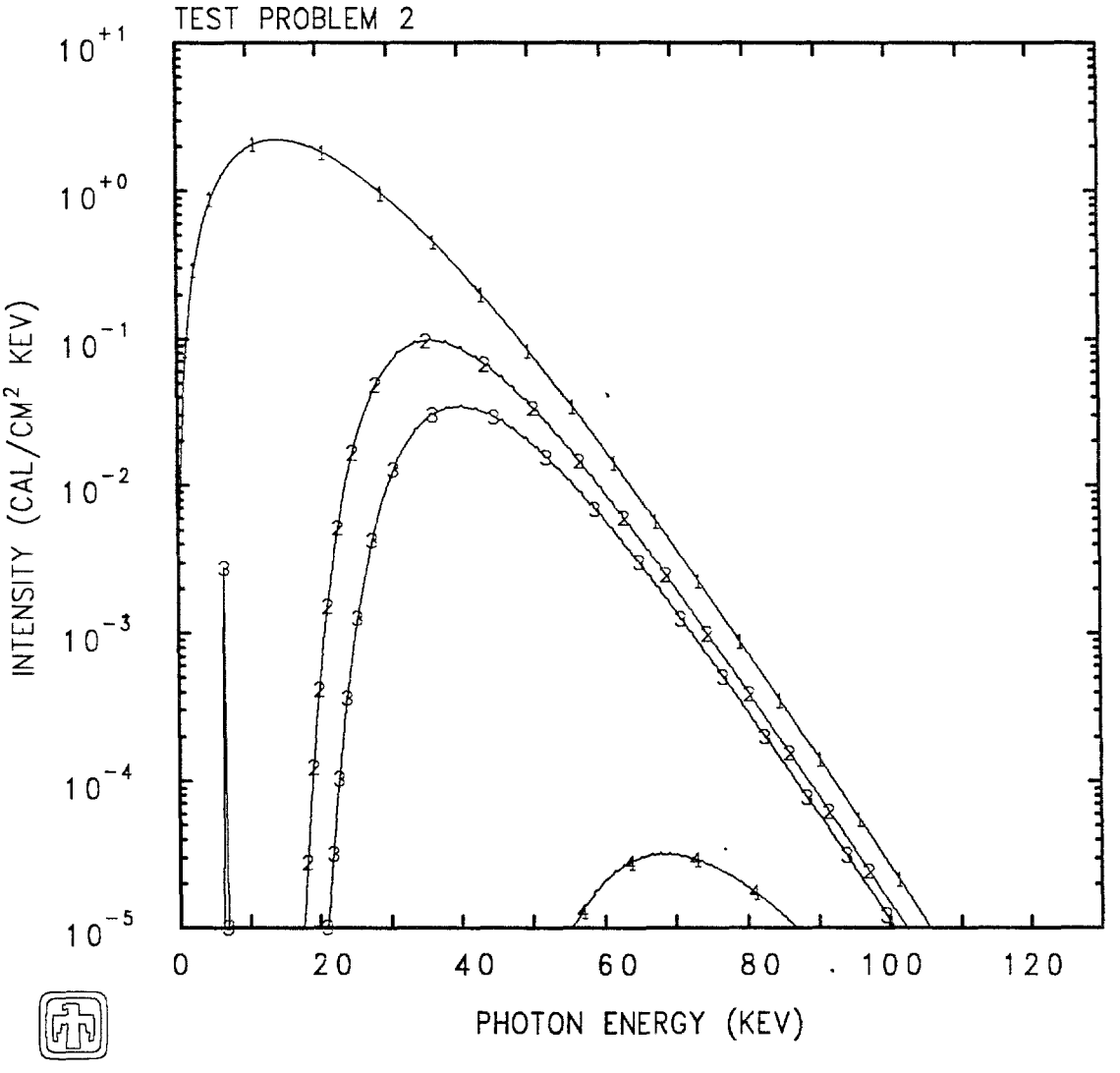
M.T. BBAY IMPULSE CALCULATION

TEST PROBLEM 2

MATERIAL IN LAYER 2 TREATED IN TWO-PHASE THEORY. E0= 597.7 ES= 4470.0
MELT STARTS AT 0.00000 CM. IN LAYER 2
MELT ENDS AT 0.00066 CM. IN LAYER 2
MATERIAL IN LAYER 4 TREATED IN TWO-PHASE THEORY. E0= 158.6 ES= 2848.0
MATERIAL IN LAYER 6 TREATED IN TWO-PHASE THEORY. E0= 251.0 ES= 1772.0
FREE SURFACE AT BACK OF LAYER 6 AT 2.27000 CM.
M.T. BBAY IMPULSE = 80.8 TAPS


TEST PROBLEM 2
INTENSITY (CAL/CM^2 KEV)
10^{+1}
10^{+0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
20
40
60
80
100
120
PHOTON ENERGY (KEV)


TEST PROBLEM 2
BUCKL DEPOSITION (CAL/GM)
10+4
10+3
10+2
10+1
10+0
10-1
10-2
10-3
-0.2
0.2
0.6
1.0
1.4
1.8
2.2
DEPTH (CM)


TEST PROBLEM 2
INTENSITY (CAL/CM² KEV)
10+1
10+0
10-1
10-2
10-3
10-4
10-5
0
20
40
60
80
100
120
PHOTON ENERGY (KEV)

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