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Validation of MCNP4a for Highly Enriched Uranium Using the Battelle Process Safety and Risk Management IBM RS/6000 Workstation

by

Scott B. Negron
Billy L. Lee, Jr.
Robert W. Tayloe, Jr.

January 1996

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to

LOCKHEED MARTIN UTILITY SERVICES, INC.

PORTSMOUTH GASEOUS DIFFUSION PLANT
P.O. Box 628 Piketon, Ohio 45661

Under Contract USECHQ-93-C-0001

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ABSTRACT

This document has been prepared to allow use of the Radiation Shielding & Information Center (RSIC) release of MCNP4a, which has been installed on the Battelle Process Safety and Risk Management (PSRM) IBM RS/6000 workstation, for production calculations for the Portsmouth Gaseous Diffusion Plant (PORTS). This hardware/software configuration is under the configuration control plan listed in Reference 1.

The first portion of this document outlines basic information with regard to validation of MCNP4a using the supplied cross sections and the additional MCNPDAT cross sections. A basic discussion of MCNP is provided, along with discussions of the validation database in general. A description of the statistical analysis then follows.

The results of this validation indicate that the software and data libraries examined may be used with confidence for criticality calculations at the Portsmouth Gaseous Diffusion Plant (PORTS). When the validation results are treated as a single group, there is a 95 percent confidence that 99.9 percent of future calculations of similar critical systems will have a calculated $k_{eff} > 0.95$. Based on this result, the Battelle PSRM Nuclear Safety Group has adopted the calculational acceptance criteria that a calculated $k_{eff} + 2\sigma \leq 0.95$ is safely subcritical.

The conclusion of this document is that MCNP4a and all associated cross section libraries installed on the PSRM IBM RS/6000 are acceptable for use in performing production criticality safety calculations for the Portsmouth Gaseous Diffusion Plant.

1.0 INTRODUCTION

The purpose of this validation is to provide reasonable assurance that the Battelle Process Safety and Risk Management IBM RS/6000 workstation implementation of MCNP4a and all associated cross section libraries are valid for use in the analysis and subsequent evaluation of various plant site activities involving enriched uranium at the Portsmouth Gaseous Diffusion Plant (PORTS).

This validation effort has been patterned after a previous validation study documented in POEF-SH-23 for the Battelle PSRM IBM RS/6000 implementation of the CSAS25 calculational sequence in SCALE-4.2 and the 27 energy group ENDF/B-IV cross section library (Ref. 2). All calculations were performed on the Battelle PSRM IBM RS/6000 workstation. This validation covers the MCNP4a code, the supplied cross-section data set, and the additional MCNPDAT cross section library.

A total of 127 cases, consisting of highly enriched systems (>90% ^{235}U) were run. These cases consisted of various UO_2F_2 and $UO_2(NO_3)_2$ solution systems, oxide-water systems, and several miscellaneous combinations of uranium and moderating materials. All of the executed cases have applicability to operations at PORTS.

The data obtained from the calculations were tabulated and analyzed to determine normality. Based on the statistical analyses, the lower limit for k_{eff} with 95 percent confidence and a 99.9 percent one-sided tolerance is 0.9667. Therefore, for the anticipated range of materials to be encountered at PORTS, the version of MCNP4a (and all cross section libraries used in the validation runs) installed on the Battelle PSRM IBM RS/6000 workstation is safe for production use at PORTS provided $k_{eff} + 2\sigma$ does not exceed a value of 0.95. The margin between 0.95 and 0.9667 has been adopted as an additional safety margin and to allow for consistence with the value of 0.95 that has been traditionally used.

2.0 CALCULATIONAL PROCEDURE

A complete description of the MCNP4a code package can be found in the RSIC-supplied user manual (Ref. 3). MCNP is a monte carlo neutron and photon transport code which uses combinatorial geometry for the construction of three dimensional models. Mnemonic symbols are used to represent two dimensional geometric surfaces (surface cards), which are combined in the cell cards to form three dimensional regions called cells. The cell cards also contain the material number associated with a mixture of isotopes specified at the end of the input deck.

Cells may be combined in many ways to form complex geometric models. All points outside of the model are located in the universe. Each cell (and the universe) must be assigned an importance, which "weights" all particles entering or leaving the cell. The user must also specify the number of particle histories to be run. For criticality (k_{eff}) calculations starting "source" particles, which initiate all fission neutrons, must also be assigned.

The MCNP executable code reads in the input deck and then begins the problem. Cross sections corresponding to the isotopes specified in the material cards are accessed through a directory (XSLIB), which specifies the file and location within the file for each isotope listed.

3.0 DESCRIPTION OF EXPERIMENTS

Complete descriptions of all experiments can be found in References 4—10. Experiments reported in Reference 4 can be broken up into three general groups:

1) Single unreflected cylinders
2) Single cylinders reflected from all six sides
3) Arrays of cylinders reflected from all six sides

The single cylinders were made of either aluminum, stainless steel, or aluminum with a stainless steel sleeve. Cylinders in arrays were all aluminum, although some experiments used stainless steel sleeves. The reflected experiments were performed inside a cube of reflecting material with an inside dimension of $\approx$122 cm. The reflecting material was either $\approx$27.7 cm of concrete or $\approx$20.6 cm of plexiglass. Uranium concentration varied between $\approx$55 gU/l and $\approx$360 gU/l. The fissile solutions were all uranium nitrate.

Experiments included from Reference 5 were either single spheres or single cylinders, all unreflected. The uranyl nitrate solutions had uranium concentrations that varied between $\approx$14gU/l and $\approx$28 gU/l. Some experiments used boron as a soluble poison. The spherical container was made of aluminum while the cylindrical ones were carbon steel.

Reference 6 experiments were all 3-D arrays of identical elements. Each element was a 19.04 cm i.d. plexiglass cylinder filled with 5 liters of uranyl nitrate. The uranyl nitrate had a uranium concentration of 415 gU/l. The entire array was either unreflected or reflected on six sides with paraffin of various thicknesses.

Experiments from Reference 7 used parallelepipeds of uranyl fluoride to achieve criticality. Single units as well as two units side by side were considered. A tight fitting

water reflector existed in some instances and a uranium concentration of 94.18 gU/l was used throughout.

Reference 8 experiments consisted of single spheres of uranyl fluoride, one unreflected and the remainder water reflected. Uranium concentration varied between $\approx$20 and $\approx$213 gU/l.

Experiments reported in Reference 9 used cylinders of uranyl fluoride. These experiments are to be distinguished from the others included in this report in that the uranium concentration was extremely high, either 889.46 or 576.95 gU/l. All had a tight fitting water reflector.

Experiments from Reference 10 consisted of arrays of cans of uranium dioxide. Polyethylene, plexiglass and alcohol were used as reflectors, external moderators, and internal moderators, respectively. The uranium was 93.15% enriched. The UO_2 mass per container was either 0.421 kg, 17 kg, or 20 kg.

4.0 MCNP INPUT FILES

A total of 127 individual input files were run for this validation. These files were obtained through the courtesies of C. Crawford and B. Palmer of the Idaho National Engineering Laboratory (INEL). These files were transmitted electronically from INEL to the Battelle PSRM IBM RS/6000. These files are the same ones used for the INEL validation of MCNP documented in Reference 11.

A few minor changes were made in these files to enable them to run on the Battelle IBM. These changes include changing the isotope ZAID for several isotopes used in the INEL files which have been superseded in the latest version of MCNP. An example of this is 25055.50c, the superseded ZAID for manganese 55, being replaced by 25055.51c. Other than superseded ZAIDs, the only other changes were editing a few files to get them all in an 80 column format. No changes were made that in any way effected the accuracy of the models. Although no direct comparison of the results of the Battelle data was made to the INEL data, a cursory comparison shows excellent agreement.

5.0 RESULTS

The resulting eigenvalues obtained from the 127 cases run are listed in Table 1, along with the standard deviation for each input file. The high and low values of k_{eff} are 1.032 and 0.953, respectively. The average value of k_{eff} is 1.004. The corresponding Reference number is listed in parenthesis next to each filename. This reference gives detailed information regarding the corresponding critical system.

Table 1. Validation Data Set Results

FILENAME (Reference)	k_{eff}	SIGMA	FILENAME (Reference)	k_{eff}	SIGMA
GWI01 (5)	0.99839	0.00199	FOX 05 (8)	1.00272	0.00174
GWI02 (5)	0.99106	0.00192	FOX 06 (8)	1.00137	0.00293
GWI03 (5)	0.98591	0.00185	FOX 07 (8)	0.99702	0.00290
GWI04 (5)	0.98779	0.00228	FOX 08 (8)	1.00040	0.00168
GWI05 (5)	1.00527	0.00154	FOX 09 (9)	0.99909	0.00336
GWI06 (5)	1.00904	0.00170	FOX 10 (9)	1.00359	0.00328
GWI07 (5)	1.00322	0.00139	FOX 11 (9)	0.97306	0.00300
GWI08 (5)	1.00451	0.00127	FOX 12 (9)	0.95354	0.00283
GWI09 (5)	0.99559	0.00115	ROT 01 (4)	1.00411	0.00354
MAG01 (10)	1.03188	0.00314	ROT 02 (4)	1.01065	0.00341
MAG02 (10)	1.00505	0.00267	ROT 03 (4)	1.01581	0.00318
MAG03 (10)	0.99835	0.00252	ROT 04 (4)	1.00786	0.00360
MAG04 (10)	0.99873	0.00252	ROT 05 (4)	1.00054	0.00370
MAG05 (10)	0.99032	0.00242	ROT 06 (4)	1.00181	0.00340
MAG06 (10)	1.01180	0.00276	ROT 07 (4)	1.00253	0.00355
MAG07 (10)	0.99577	0.00280	ROT 08 (4)	1.00834	0.00319
MAG08 (10)	1.01570	0.00282	ROT 09 (4)	1.00028	0.00325
MAG09 (10)	0.99733	0.00282	ROT 11 (4)	1.01814	0.00375
MAG10 (10)	1.01058	0.00285	ROT 12 (4)	1.00868	0.00329
MAG11 (10)	1.00252	0.00271	ROT 13 (4)	1.01078	0.00353
MAG12 (10)	0.99917	0.00269	ROT 14 (4)	1.00460	0.00371
MAG13 (10)	0.99107	0.00244	ROT 15 (4)	1.01070	0.00337

FILENAME (Reference)	k_{eff}	SIGMA	FILENAME (Reference)	k_{eff}	SIGMA
MAG14 (10)	1.02213	0.00278	ROT 16 (4)	1.00400	0.00358
MAG15 (10)	1.00530	0.00242	ROT 17 (4)	1.00919	0.00366
MAG16 (10)	0.99589	0.00294	ROT 18 (4)	1.00505	0.00349
MAG17 (10)	0.99488	0.00283	ROT 19 (4)	1.00449	0.00339
MAG18 (10)	0.99905	0.00277	ROT 20 (4)	1.00654	0.00312
MAG19 (10)	0.99504	0.00250	ROT 21 (4)	1.00316	0.00369
MAG20 (10)	1.00048	0.00280	ROT 22 (4)	1.01086	0.00371
FOX01 (7)	0.99935	0.00307	ROT 23 (4)	1.01203	0.00331
FOX02 (7)	1.00190	0.00320	ROT 24 (4)	1.00803	0.00326
FOX03 (7)	0.99300	0.00362	ROT 25 (4)	1.01092	0.00350
FOX04 (7)	1.00567	0.00322	ROT 26 (4)	0.99947	0.00366
ROT27 (4)	1.00228	0.00344	ROT 64 (4)	1.00167	0.00348
ROT28 (4)	1.00636	0.00329	ROT 65 (4)	1.01319	0.00313
ROT29 (4)	0.99491	0.00352	ROT 66 (4)	1.01411	0.00342
ROT30 (4)	1.01064	0.00367	ROT 67 (4)	1.00702	0.00293
ROT31 (4)	1.00103	0.00309	ROT 68 (4)	0.99842	0.00293
ROT32 (4)	1.00601	0.00269	ROT 69 (4)	1.00062	0.00282
ROT33 (4)	1.00735	0.00306	ROT 70 (4)	0.99956	0.00277
ROT34 (4)	1.00447	0.00336	ROT 71 (4)	1.00396	0.00266
ROT35 (4)	1.00329	0.00286	ROT 72 (4)	1.00410	0.00276
ROT36 (4)	1.00782	0.00292	ROT 73 (4)	1.01062	0.00291
ROT37 (4)	0.99906	0.00328	ROT 74 (4)	1.00761	0.00358
ROT38 (4)	1.02456	0.00333	ROT 75 (4)	1.00577	0.00334
ROT39 (4)	1.00767	0.00269	ROT 76 (4)	1.00978	0.00314
ROT40 (4)	1.00626	0.00295	ROT 77 (4)	1.00421	0.00280
ROT41 (4)	1.00862	0.00309	ROT 78 (4)	1.00470	0.00343
ROT42 (4)	0.99989	0.00353	ROT 79 (4)	1.00400	0.00299
ROT43 (4)	0.99437	0.00315	ROT 80 (4)	1.00627	0.00314
ROT50 (4)	1.01107	0.00294	THO 01 (6)	0.99748	0.00379
ROT51 (4)	1.01231	0.00321	THO 02 (6)	1.00382	0.00351
ROT52 (4)	1.01374	0.00319	THO 03 (6)	1.02282	0.00354
ROT53 (4)	1.00622	0.00251	THO 04 (6)	1.03022	0.00329
ROT54 (4)	1.00556	0.00249	THO 05 (6)	1.02464	0.00313
ROT55 (4)	1.00396	0.00343	THO 06 (6)	0.99538	0.00345

FILENAME (Reference)	k_{eff}	SIGMA		FILENAME (Reference)	k_{eff}	SIGMA
ROT56 (4)	1.00687	0.00311		THO 07 (6)	0.98434	0.00323
ROT57 (4)	1.01244	0.00327		THO 08 (6)	1.00595	0.00321
ROT58 (4)	1.00848	0.00264		THO 09 (6)	1.02781	0.00301
ROT59 (4)	1.00072	0.00348		THO 10 (6)	1.03251	0.00281
ROT60 (4)	0.99534	0.00350		THO 11 (6)	0.99362	0.00336
ROT61 (4)	1.00497	0.00292		THO 12 (6)	0.97328	0.00370
ROT62 (4)	1.00337	0.00310		THO 13 (6)	0.97435	0.00315
ROT63 (4)	1.00371	0.00369				

6.0 STATISTICAL ANALYSES

A cursory review of the data revealed that it appears to approximate a normal distribution. If the data approximate a normal distribution, then standard tabulated one-sided tolerance factors for normal distributions may be applied to calculate the minimum acceptable k_{eff} for the data, k_{min}.

The first step performed on the data was a calculation of the mean, median, and mode. In a perfectly normal distribution, these three values are equivalent. The mean may be calculated from

$$\overline{x}=\frac{1}{N}\sum_{i=1}^{N} x_i$$

where N ≡ number of data points.

The median is that value where an equivalent number of values fall both above and below it. In the case of ungrouped data, sorted in ascending order, the value of the median may be taken to be the value of the $(N+1)/2th$ item for odd N; for even N, it is customarily taken as the arithmetic average of the $(N/2)th$ item and the $(N/2+1)th$ item.

The mode is defined as that value in a distribution about which the values are most heavily concentrated, and may be calculated by the empirical relation:

$$Mode=\overline{x}-\sigma\left[\frac{\sqrt{\beta_1}(\beta_2+3)}{2(5\beta_2-6\beta_1-9)}\right]$$

where:

σ = standard deviation about the mean

$\sqrt{\beta_1}$ = coefficient of skewness

β_2 = coefficient of kurtosis

The mean was then calculated as

$$\overline{x}=1.00146$$

with

$$\sigma = 0.0107$$

The skewness and kurtosis coefficients were respectively

$$\sqrt{\beta_1} = -0.7915 \qquad \text{and} \qquad \beta_2 = 4.736$$

The mean was 1.004, the median 1.004, and the mode, calculated from the above equation, was 1.004.

The mean, median, and mode are all identical to 4 significant figures, which is a good indication of normally distributed data.

The skewness coefficient, a measure of the degree of symmetry in a distribution, for a perfectly normal distribution (i.e., or one perfectly symmetric about the mean) would be 0.0. The kurtosis coefficient, a measure of the peakedness in a distribution, for a perfectly normal distribution would be 3.0. The values obtained for this analysis (-0.791 and 4.736) for the skewness and kurtosis coefficients, respectively, are sufficiently close to those expected from a perfectly normal distribution; therefore, it can be considered normally distributed data.

The one-sided tolerance limit for a normal distribution was used to determine the k_{min} to be applied to the system. For a one-sided tolerance limit for a normal distribution, criticality safety personnel are only interested in estimating a value above which a proportion will lie to a certain confidence level. The value of k_{min} is then established from

$$k_{min}=\bar{k}-K^{*}\sigma$$

where K^* is the tolerance factor. For 95% confidence that 99.9% of the k_{eff} values calculated in future calculations will fall above k_{min} is $K^* = 3.4836$

$$k_{min} = 1.004 - 3.4836\ (0.0107)$$
$$k_{min} = 0.9667$$

As stated earlier, to maintain consistency with past operations, k_{min} will continue to be assumed to be 0.95, with the difference between 0.95 and the calculated k_{min} being added to the margin of subcriticality.

Bias is defined as the deviation of the calculated values of k_{eff} from unity, or an average bias which is taking the difference between an average of the calculated results and unity. For this validation effort, the bias has been established as

$$k_b=|1-\bar{k}|$$

which gives $k_b = 0.0038$.

The margin of subcriticality (k_m) can then be calculated based on the following relationship.

$$k_{min} \leq 1-k_b-1.645k_\sigma-k_m$$

Which is rearranged to give:

$$k_m \leq 1-k_b-1.645k_\sigma-k_{min}$$

The incorporation of the 1.645 multiplier on k_σ is necessary to place the calculation at the one-sided 95% confidence level. Substituting this gives:

$$k_m \leq 1\text{-}0.004\text{-}1.645(0.0107)\text{-}0.95 = 0.0284$$

The margin of subcriticality for calculations based on the validation is less than or equal to 0.0284.

7.0 RANGE OF APPLICABILITY

It is considered that this validation covers a vast majority of the various fissile systems found at PORTS, and that it is appropriate to use MCNP4a and all cross sections used in the validation cases to analyze them. Section 3 of this report outlines the range of critical experiments covered in this validation. All types of fuels and moderators, reflectors, and arrays that might be used to evaluate systems at PORTS are exercised in this validation data set. Only high enriched (>90% ^{235}U) cases were run in this validation. Therefore, only calculations in which the uranium enrichment is greater than or equal to 90 percent can be considered valid for use in criticality safety analysis. All aspects of MCNP's k_{eff} calculational procedures are exercised by the validation data set as well. It is therefore considered that the MCNP package on the Battelle IBM is applicable to criticality evaluation of highly enriched systems which could be found at PORTS.

8.0 CONCLUSIONS

The results of this validation indicate that the PSRM IBM RS/6000 version of MCNP4a may be used with confidence for criticality calculations of high enriched uranium systems at the Portsmouth Gaseous Diffusion Plant. When the validation results are treated as a single group, there is a 95% confidence that 99.9% of future calculations of similar critical systems will have a calculated $k_{eff} > 0.9667$. Based on this result, the Portsmouth Nuclear Criticality Safety Department has adopted the calculational acceptance criteria that a $k_{eff} + 2\sigma \leq 0.95$ is safely subcritical.

9.0 REFERENCES

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APPENDIX A

MCNP INPUT FILES

```
FOX1
1    1 -1.108   -1 +2 -3 +4 +5 -6                    $CUBOID OF URANYL FLUORIDE
2    0          -1 +2 -3 +4 +6 -7                    $CUBOID VOID
3    2 -2.6989  (+1:-2:+3:-4:-5) -8 +9 -10 +11 -7 +12  $CUBOID OF ALUMINUM
4    0          +8:-9:+10:-11:+7:-12                 $ZERO IMPORTANCE OUTSIDE WORLD

1    px  +7.62
2    px  -7.62
3    py  +60.96
4    py  -60.96
5    pz  0.0
6    pz  +69.215
7    pz  +121.92
8    px  +7.9375
9    px  -7.9375
10   py  +61.2775
11   py  -61.2775
12   pz  -0.3175

mode n
imp:n 1 1 1 0
m1    92234.50c     2.52028-6
      92235.50c     2.24845-4
      92238.50c     1.31278-5
      92236.50c     6.48749-7
       8016.50c     3.34432-2
       9019.50c     4.82283-4
       1001.50c     6.59219-2
mt1   lwtr.01t
m2    13027.50c     1
kcode 1000 1.0 10 100
ksrc  0 0 5
print


FOX2
1    1 -1.108   -1 +2 -3 +4 +5 -6                        $CUBOID OF URANYL FLUORIDE
2    0          -1 +2 -3 +4 +6 -7                        $CUBOID VOID
3    2 -2.6989  (+1:-2:+3:-4:-5) -8 +9 -10 +11 -7 +12    $CUBOID OF ALUMINUM
4    3 -.9982   (+8:-9:+10:-11:-12) -13 +14 -15 +16 -6 +17  $WATER REFLECTOR
5    0          (+8:-9:+10:-11) -13 +14 -15 +16 +6 -7    $VOID
6    0          +13:-14:+15:-16:+7:-17                   $ZERO IMPORTANCE OUTSIDE WORLD

1    px  +7.62
2    px  -7.62
3    py  +60.96
4    py  -60.96
5    pz  0.0
6    pz  +20.5486
7    pz  +121.285
8    px  +7.9375
9    px  -7.9375
10   py  +61.2775
11   py  -61.2775
12   pz  -0.3175
13   px  +37.9375
14   px  -37.9375
15   py  +91.2775
16   py  -91.2775
17   pz  -30.3175

mode n
imp:n 1 4r 0
m1    92234.50c     2.52028-6
      92235.50c     2.24845-4
      92238.50c     1.31278-5
      92236.50c     6.48749-7
       8016.50c     3.34432-2
       9019.50c     4.82283-4
       1001.50c     6.59219-2
mt1   lwtr.01t
m2    13027.50c     1
m3     1001.50c     2
       8016.50c     1
mt3   lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 5
print


FOX3
1    1 -1.108   -1 +2 -3 +4 +5 -6   u=1                          $CUBOID OF URANYL FLUORIDE
2    0          -1 +2 -3 +4 +6 -7   u=1                          $CUBOID VOID
3    2 -2.6989  (+1:-2:+3:-4:-5)    u=1                          $CUBOID OF ALUMINUM
4    0          -13 +14 -15 +16 -17 +18  fill=1 trcl=(-15.5575 0 0)  $CELL FILLED WITH 1-3
5    0          -13 +14 -15 +16 -17 +18  fill=1 trcl=(+15.5575 0 0)  $LIKE 4
6    0          -19 +20 -21 +22 -23 +24 #4 #5                    $VOID
7    0          +19:-20:+21:-22:+23:-24                          $ZERO IMPORTANCE OUTSIDE WORLD
```

```
1    px  +7.62
2    px  -7.62
3    py  +60.96
4    py  -60.96
5    pz  0.0
6    pz  +29.7688
7    pz  +121.9201
8    px  +7.9376
9    px  -7.9376
10   py  +61.2776
11   py  -61.2776
12   pz  -0.3176
13   px  +7.9375
14   px  -7.9375
15   py  +61.2775
16   py  -61.2775
17   pz  +121.92
18   pz  -.3175
19   px  +31.1150
20   px  -31.1150
21   py  +68.8975
22   py  -68.8975
23   pz  +129.54
24   pz  -7.9375

mode n
imp:n 1 5r 0
m1    92234.50c     2.52028-6
      92235.50c     2.24845-4
      92238.50c     1.31278-5
      92236.50c     6.48749-7
       8016.50c     3.34432-2
       9019.50c     4.82283-4
       1001.50c     6.59219-2
mt1   lwtr.01t
m2    13027.50c     1
kcode 1000 1.0 10 100
ksrc  15.5575 0 5 -15.5575 0 5
print


FOX4
1    1 -1.108   -1 +2 -3 +4 +5 -6   u=1                                  $CUBOID OF URANYL FLUORIDE
2    0          -1 +2 -3 +4 +6 -7   u=1                                  $CUBOID VOID
3    2 -2.6989  (+1:-2:+3:-4:-5:+7) -8 +9 -10 +11 -7 +12  u=1           $CUBOID OF ALUMINUM
4    0          -13 +14 -15 +16 -17 +18  fill=1 trcl=(-15.5575 0 0)     $CELL FILL WITH 1-3
5    0          -13 +14 -15 +16 -17 +18  fill=1 trcl=(+15.5575 0 0)     $LIKE 4
6    3 -0.9982  -19 +20 -21 +22 -6 +23 #4 #5                            $WATER REFLECTOR
7    0          -19 +20 -21 +22 +6 -17 #4 #5                            $VOID
8    0          +19:-20:+21:-22:+17:-23                                 $ZERO IMPORTANCE OUTSIDE WORLD

1    px  +7.62
2    px  -7.62
3    py  +60.96
4    py  -60.96
5    pz  0.0
6    pz  +20.066
7    pz  +121.2851
8    px  +7.9376
9    px  -7.9376
10   py  +61.2776
11   py  -61.2776
12   pz  -0.3176
13   px  +7.9375
14   px  -7.9375
15   py  +61.2775
16   py  -61.2775
17   pz  +121.285
18   pz  -0.3175
19   px  +53.4950
20   px  -53.4950
21   py  +91.2775
22   py  -91.2775
23   pz  -30.3175

mode n
imp:n 1 6r 0
m1    92234.50c     2.52028-6
      92235.50c     2.24845-4
      92238.50c     1.31278-5
      92236.50c     6.48749-7
       8016.50c     3.34432-2
       9019.50c     4.82283-4
       1001.50c     6.59219-2
mt1   lwtr.01t
m2    13027.50c     1
m3     1001.50c     2
       8016.50c     1
mt3   lwtr.01t
```

```
kcode 1000 1.0 10 100
ksrc  -15.5575 0 10  15.5575 0 10
print
```

```
kcode 1000 1.0 10 100
ksrc  -15.5575 0 10  15.5575 0 10
print
```

```
FOX5
1    1 -1.02    -1                    $SPHERE OF URANYL FLUORIDE
2    2 -2.6989  +1 -2                 $SPHERE OF ALUMINUM
3    0          +2                    $ZERO IMPORTANCE OUTSIDE WORLD

1    so  34.6
2    so  34.92

mode n
imp:n 1 1 0
m1    92234.50c     5.34992-7
      92235.50c     4.77288-5
      92238.50c     2.78669-6
      92236.50c     1.37713-7
       8016.50c     3.33396-2
       9019.50c     1.02376-4
       1001.50c     6.64745-2
mt1   lwtr.01t
m2    13027.50c     1
kcode 1000 1.0 10 100
ksrc  0 0 0
print


FOX6
1    1 -1.4     -1                    $SPHERE OF URANYL FLUORIDE
2    2 -2.6989  +1 -2                 $SPHERE OF ALUMINUM
3    3 -0.9982  +2 -3                 $WATER REFLECTOR
4    0          +3                    $ZERO IMPORTANCE OUTSIDE WORLD

1    so  11.51765
2    so  11.67765
3    so  41.67765

mode n
imp:n 1 1 1 0
m1    92234.50c     9.32864-6
      92235.50c     8.32245-4
      92238.50c     4.85914-5
      92236.50c     2.40129-6
       8016.50c     3.34713-2
       9019.50c     1.78513-3
       1001.50c     6.33723-2
mt1   lwtr.01t
m2    13027.50c     1
m3     1001.50c     2
       8016.50c     1
mt3   lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 0
print


FOX7
1    1 -1.24    -1                    $SPHERE OF URANYL FLUORIDE
2    2 -2.6989  +1 -2                 $SPHERE OF ALUMINUM
3    3 -0.9982  +2 -3                 $WATER REFLECTOR
4    0          +3                    $ZERO IMPORTANCE OUTSIDE WORLD

1    so  11.84423
2    so  12.00423
3    so  42.00423

mode n
imp:n 1 1 1 0
m1    92234.50c     5.70743-6
      92235.50c     5.09183-4
      92238.50c     2.97291-5
      92236.50c     1.46916-6
       8016.50c     3.32995-2
       9019.50c     1.09218-3
       1001.50c     6.44146-2
mt1   lwtr.01t
m2    13027.50c     1
m3     1001.50c     2
       8016.50c     1
mt3   lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 0
print


FOX8
1    1 -1.03    -1                    $SPHERE OF URANYL FLUORIDE
2    2 -2.6989  +1 -2                 $SPHERE OF ALUMINUM
3    3 -0.9982  +2 -3                 $WATER REFLECTOR
4    0          +3                    $ZERO IMPORTANCE OUTSIDE WORLD

1    so  27.91322
```

```
2    so  28.11322
3    so  58.11322

mode n
imp:n 1 1 1 0
m1    92234.50c      5.89850-7
      92235.50c      5.26229-5
      92238.50c      3.07244-6
      92236.50c      1.51834-7
       8016.50c      3.35955-2
       9019.50c      1.12874-4
       1001.50c      6.69653-2
mt1   lwtr.01t
m2    13027.50c      1
m3     1001.50c      2
       8016.50c      1
mt3   lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 0
print


FOX9
1     1 -2.0065  -1 +4 -5            $CYLINDER OF URANYL FLUORIDE
2     2 -2.6989  +1 -2 -6 +7         $CYLINDER OF ALUMINUM
3     2 -2.6989  -1 +5 -6            $ALUMINUM (TOP)
4     2 -2.6989  -1 -4 +7            $ALUMINUM (BOTTOM)
5     3 -0.9982  +2 -3 -8 +9         $WATER REFLECTOR
6     3 -0.9982  -2 +6 -8            $WATER REFLECTOR (TOP)
7     3 -0.9982  -2 -7 +9            $WATER REFLECTOR (BOTTOM)
8     0          +3:+8:-9            $ZERO IMPORTANCE OUTSIDE WORLD

1     cz  7.62
2     cz  7.7724
3     cz  37.7724
4     pz  0.0
5     pz  +89.3
6     pz  +89.4524
7     pz  -0.1524
8     pz  +119.4524
9     pz  -30.1524

mode n
imp:n 1 6r 0
m1    92234.50c      2.38022-5
      92235.50c      2.12349-3
      92238.50c      1.23982-4
      92236.50c      6.12695-6
       8016.50c      3.30532-2
       9019.50c      4.55480-3
       1001.50c      5.69969-2
mt1   lwtr.01t
m2    13027.50c      1
m3     1001.50c      2
       8016.50c      1
mt3   lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 5
print


FOX10
1     1 -1.6534  -1 +4 -5          $CYLINDER OF URANYL FLUORIDE
2     2 -2.6989  +1 -2 -6 +7       $CYLINDER OF ALUMINUM
3     2 -2.6989  -1 +5 -6          $ALUMINUM (TOP)
4     2 -2.6989  -1 -4 +7          $ALUMINUM (BOTTOM)
5     3 -0.9982  +2 -3 -8 +9       $WATER REFLECTOR
6     3 -0.9982  -2 +6 -8          $WATER REFLECTOR (TOP)
7     3 -0.9982  -2 -7 +9          $WATER REFLECTOR (BOTTOM)
8     0          +3:+8:-9          $ZERO IMPORTANCE OUTSIDE WORLD

1     cz  8.255
2     cz  8.4074
3     cz  38.4074
4     pz  0.0
5     pz  +38.7
6     pz  +38.8524
7     pz  -0.1524
8     pz  +68.8524
9     pz  -30.1524

mode n
imp:n 1 6r 0
m1    92234.50c      1.54393-5
      92235.50c      1.37741-3
      92238.50c      8.04212-5
      92236.50c      3.97426-6
```

```
      8016.50c     3.32048-2
      9019.50c     2.95448-3
      1001.50c     6.05007-2
mt1  lwtr.01t
m2   13027.50c     1
m3    1001.50c     2
      8016.50c     1
mt3  lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 5
print


FOX11
1    1 -2.0065  -1 +4 -5        $CYLINDER OF URANYL FLUORIDE
2    2 -2.6989  +1 -2 -6 +7     $CYLINDER OF ALUMINUM
3    2 -2.6989  -1 +5 -6        $ALUMINUM (TOP)
4    2 -2.6989  -1 -4 +7        $ALUMINUM (BOTTOM)
5    3 -0.9982  +2 -3 -8 +9     $WATER REFLECTOR
6    3 -0.9982  -2 +6 -8        $WATER REFLECTOR (TOP)
7    3 -0.9982  -2 -7 +9        $WATER REFLECTOR (BOTTOM)
8    0          +3:+8:-9        $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  12.7
2    cz  12.8524
3    cz  42.8524
4    pz  0.0
5    pz  +12.4
6    pz  +12.5524
7    pz  -0.1524
8    pz  +42.5524
9    pz  -30.1524

mode n
imp:n 1 6r 0
m1   92234.50c     2.38022-5
     92235.50c     2.12349-3
     92238.50c     1.23982-4
     92236.50c     6.12695-6
      8016.50c     3.30532-2
      9019.50c     4.55480-3
      1001.50c     5.69969-2
mt1  lwtr.01t
m2   13027.50c     1
m3    1001.50c     2
      8016.50c     1
mt3  lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 5
print


FOX12
1    1 -2.0065  -1 +4 -5      $CYLINDER OF URANYL FLUORIDE
2    2 -2.6989  +1 -2 -6 +7   $CYLINDER OF ALUMINUM
3    2 -2.6989  -1 +5 -6      $ALUMINUM (TOP)
4    2 -2.6989  -1 -4 +7      $ALUMINUM (BOTTOM)
5    3 -0.9982  +2 -3 -8 +9   $WATER REFLECTOR
6    3 -0.9982  -2 +6 -8      $WATER REFLECTOR (TOP)
7    3 -0.9982  -2 -7 +9      $WATER REFLECTOR (BOTTOM)
8    0          +3:+8:-9      $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  19.05
2    cz  19.2024
3    cz  49.2024
4    pz  0.0
5    pz  +7.7
6    pz  +7.8524
7    pz  -0.1524
8    pz  +37.8524
9    pz  -30.1524

mode n
imp:n 1 6r 0
m1   92234.50c     2.38022-5
     92235.50c     2.12349-3
     92238.50c     1.23982-4
     92236.50c     6.12695-6
      8016.50c     3.30532-2
      9019.50c     4.55480-3
      1001.50c     5.69969-2
mt1  lwtr.01t
m2   13027.50c     1
m3    1001.50c     2
      8016.50c     1
mt3  lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 5
print
```

```
GWI1
1    1 +.10020245 -1                    $SPHERE OF URANYL NITRATE
2    2 -2.6989    +1 -2                 $SPHERE OF ALUMINUM
3    0            +2                    $ZERO IMPORTANCE OUTSIDE WORLD

1    so  34.5948
2    so  34.9148

mode n
imp:n 1 1 0
m1    92234.50c     0.00538-4
      92235.50c     0.48066-4
      92238.50c     0.02807-4
      92236.50c     0.00138-4
       8016.50c     337.36-4
       7014.50c     1.8690-4
       1001.50c     662.28-4
mt1  lwtr.01t
m2   13027.50c     1
kcode 1000 1.0 10 100
ksrc  0 0 0
print


GWI2
1    1 +.10022139  -1                    $SPHERE OF URANYL NITRATE
2    2 -2.6989     +1 -2                 $SPHERE OF ALUMINUM
3    0             +2                    $ZERO IMPORTANCE OUTSIDE WORLD

1    so  34.5948
2    so  34.9148

mode n
imp:n 1 1 0
m1    92234.50c     .00631-4
      92235.50c     .56206-4
      92238.50c     .03281-4
      92236.50c     .00163-4
       8016.50c     337.95-4
       7014.50c     2.1290-4
       1001.50c     661.48-4
       5010.50c     .01118-4
       5011.50c     .04090-4
mt1  lwtr.01t
m2   13027.50c     1
kcode 1000 1.0 10 100
ksrc  0 0 0
print


GWI3
1    1 +.10024219 -1                    $SPHERE OF URANYL NITRATE
2    2 -2.6989    +1 -2                 $SPHERE OF ALUMINUM
3    0            +2                    $ZERO IMPORTANCE OUTSIDE WORLD

1    so  34.5948
2    so  34.9148

mode n
imp:n 1 1 0
m1    92234.50c     .00716-4
      92235.50c     .63944-4
      92238.50c     .03734-4
      92236.50c     .00184-4
       8016.50c     338.54-4
       7014.50c     2.3920-4
       1001.50c     660.70-4
       5010.50c     .02235-4
       5011.50c     .08180-4
mt1  lwtr.01t
m2   13027.50c     1
kcode 1000 1.0 10 100
ksrc  0 0 0
print


GWI4
1    1 +.1002575 -1                     $SPHERE OF URANYL NITRATE
2    2 -2.6989   +1 -2                  $SPHERE OF ALUMINUM
3    0           +2                     $ZERO IMPORTANCE OUTSIDE WORLD

1    so  34.5948
2    so  34.9148

mode n
imp:n 1 1 0
m1    92234.50c     .00762-4
      92235.50c     .67959-4
```

```
      92238.50c     .03967-4
      92236.50c     .00197-4
       8016.50c     338.89-4
       7014.50c     2.5480-4
       1001.50c     660.28-4
       5010.50c     .02751-4
       5011.50c     .10067-4
mt1  lwtr.01t
m2   13027.50c     1
kcode 1000 1.0 10 100
ksrc  0 0 0
print
```

```
GWI5
1    1 +.10014055  -1 +4 -5      $CYLINDER OF URANYL NITRATE
2    0             -1 +5 -6      $CYLINDER VOID
3    2 -7.8212     +1 -2 +3 -7   $CYLINDER OF CARBON STEEL
4    2 -7.8212     -1 +6 -7      $CARBON STEEL (TOP)
5    2 -7.8212     -1 +3 -4      $CARBON STEEL (BOTTOM)
6    0             +2:-3:+7      $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  77.3684
2    cz  77.4984
3    pz  -0.13
4    pz  0.0
5    pz  +46.5074
6    pz  +264.0
7    pz  +264.13

mode n
imp:n 1 4r 0
m1   92234.50c     .00469-4
     92235.50c     .41364-4
     92238.50c     .02271-4
     92236.50c     .00243-4
      8016.50c     336.24-4
      7014.50c     1.2720-4
      1001.50c     663.45-4
mt1  lwtr.01t
m2    6012.50c     3.92503-3
     26000.50c     8.34982-2
kcode 1000 1.0 10 100
ksrc  0 0 5
print


GWI6
1    1 +.10018251 -1 +4 -5      $CYLINDER OF URANYL NITRATE
2    0            -1 +5 -6      $CYLINDER VOID
3    2 -7.8212    +1 -2 +3 -7   $CYLINDER OF CARBON STEEL
4    2 -7.8212    -1 +6 -7      $CARBON STEEL (TOP)
5    2 -7.8212    -1 +3 -4      $CARBON STEEL (BOTTOM)
6    0            +2:-3:+7      $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  77.3684
2    cz  77.4984
3    pz  -0.13
4    pz  0.0
5    pz  +48.7684
6    pz  +264.0
7    pz  +264.13

mode n
imp:n 1 4r 0
m1   92234.50c     .00451-4
     92235.50c     .40595-4
     92238.50c     .02339-4
     92236.50c     .00222-4
      8016.50c     336.55-4
      7014.50c     1.4090-4
      1001.50c     663.43-4
mt1  lwtr.01t
m2    6012.50c     3.92503-3
     26000.50c     8.34982-2
kcode 1000 1.0 10 100
ksrc  0 0 5
print


GWI7
1    1 +.10014562 -1 +4 -5      $CYLINDER OF URANYL NITRATE
2    0            -1 +5 -6      $CYLINDER VOID
3    2 -7.8212    +1 -2 +3 -7   $CYLINDER OF CARBON STEEL
4    2 -7.8212    -1 +6 -7      $CARBON STEEL (TOP)
5    2 -7.8212    -1 +3 -4      $CARBON STEEL (BOTTOM)
6    0            +2:-3:+7      $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  77.3684
2    cz  77.4984
3    pz  -0.13
4    pz  0.0
5    pz  +74.2442
6    pz  +264.0
7    pz  +264.13

mode n
imp:n 1 4r 0
m1   92234.50c     .00409-4
     92235.50c     .36452-4
     92238.50c     .02048-4
     92236.50c     .00209-4
      8016.50c     336.05-4
```

```
      7014.50c     1.1850-4
      1001.50c     663.83-4
mt1  lwtr.01t
m2    6012.50c     3.92503-3
     26000.50c     8.34982-2
kcode 1000 1.0 10 100
ksrc  0 0 5
print


GWI8
1    1 +.1001562  -1 +4 -5          $CYLINDER OF URANYL NITRATE
2    0            -1 +5 -6          $CYLINDER VOID
3    2 -7.8212    +1 -2 +3 -7       $CYLINDER OF CARBON STEEL
4    2 -7.8212    -1 +6 -7          $CARBON STEEL (TOP)
5    2 -7.8212    -1 +3 -4          $CARBON STEEL (BOTTOM)
6    0            +2:-3:+7          $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  77.3684
2    cz  77.4984
3    pz  -0.13
4    pz  0.0
5    pz  +106.8324
6    pz  +264.0
7    pz  +264.13

mode n
imp:n 1 4r 0
m1    92234.50c     .00397-4
      92235.50c     .34845-4
      92238.50c     .01962-4
      92236.50c     .00194-4
       8016.50c     336.09-4
       7014.50c     1.2080-4
       1001.50c     663.89-4
mt1  lwtr.01t
m2    6012.50c     3.92503-3
     26000.50c     8.34982-2
kcode 1000 1.0 10 100
ksrc  0 0 5
print


GWI9
1    1 +.10016641  -1 +4 -5       $CYLINDER OF URANYL NITRATE
2    0             -1 +5 -6       $CYLINDER VOID
3    2 -7.8212     +1 -2 +3 -7    $CYLINDER OF CARBON STEEL
4    2 -7.8212     -1 +6 -7       $CARBON STEEL (TOP)
5    2 -7.8212     -1 +3 -4       $CARBON STEEL (BOTTOM)
6    0             +2:-3:+7       $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  77.3684
2    cz  77.4984
3    pz  -0.13
4    pz  0.0
5    pz  +204.9272
6    pz  +264.0
7    pz  +264.13

mode n
imp:n 1 4r 0
m1    92234.50c     .00384-4
      92235.50c     .33519-4
      92238.50c     .01924-4
      92236.50c     .00186-4
       8016.50c     336.15-4
       7014.50c     1.2440-4
       1001.50c     663.91-4
mt1  lwtr.01t
m2    6012.50c     3.92503-3
     26000.50c     8.34982-2
kcode 1000 1.0 10 100
ksrc  0 0 5
print


MAG1
1    1 -2.144    -1 -3 +4  u=1                          $CYLINDER OF UO2
2    0           -1 +3 -5  u=1                          $CYLINDER VOID
3    2 -7.9200   +1 -2 -6 +7  u=1                       $CYLINDER OF STAINLESS STEEL
4    2 -7.9200   -1 +5 -6  u=1                          $STAINLESS STEEL (TOP)
5    2 -7.9200   -1 -4 +7  u=1                          $STAINLESS STEEL (BOTTOM)
6    0           (+2:+6) -8 +9 -10 +11 -12 +7  u=1      $VOID
7    3 -1.1800   +8:-9:+10:-11:+12:-7  u=1              $PLEXIGLASS
8    0           -13 +14 -15 +16 -17 +18  u=2 fill=1 lat=1  $CELL FILLED WITH 1-7
9    0           -19 +20 -21 +22 -23 +24 fill=2         $7X7X4 ARRAY
10   4 -0.9200  (+19:-20:+21:-22) -25 +26 -27 +28 -23 +24  $POLYETHYLENE REFLECTOR (SIDES)
11   4 -0.9200  -25 +26 -27 +28 +23 -29                  $POLYETHYLENE REFLECTOR (TOP)
12   4 -0.9200  -25 +26 -27 +28 -24 +30                  $POLYETHYLENE REFLECTOR (BOTTOM)
```

```
13   0          +25:-26:+27:-28:+29:-30                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 3.735
2    cz 3.79
3    pz +4.535
4    pz 0.055
5    pz +11.645
6    pz +11.70
7    pz -0.0001
8    px +4.025
9    px -4.025
10   py +4.025
11   py -4.025
12   pz +11.71
13   px +5.195
14   px -5.195
15   py +5.195
16   py -5.195
17   pz +14.05
18   pz -0.0
19   px +35.194999
20   px -35.194999
21   py +35.194999
22   py -35.194999
23   pz +53.859999
24   pz +0.0001
25   px +50.195
26   px -50.195
27   py +50.195
28   py -50.195
29   pz +68.86
30   pz -15.0

mode n
imp:n 1 11r 0
m1    92234.50c     4.80769-5
      92235.50c     4.50426-3
      92236.50c     1.63709-5
      92238.50c     2.63548-4
       8016.50c     9.66452-3
m2   24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt4  poly.01t
kcode 1000 1.0 10 100
ksrc  -31 -31 2 -21 -31 2 -10 -31 2 0 -31 2 10 -31 2 21 -31 2 31 -31 2
      -31 -21 2 -21 -21 2 -10 -21 2 0 -21 2 10 -21 2 21 -21 2 31 -21 2
      -31 -10 2 -21 -10 2 -10 -10 2 0 -10 2 10 -10 2 21 -10 2 31 -10 2
      -31 0 0 -21 0 0 -10 0 0 0 0 0 0 10 0 0 21 0 0 31 0 2
      -31 10 0 -21 10 0 -10 10 0 0 10 0 10 10 0 21 10 0 31 10 2
      -31 21 0 -21 21 0 -10 21 0 0 21 0 10 21 0 21 21 0 31 21 2
      -31 31 0 -21 31 0 -10 31 0 0 31 0 10 31 0 21 31 0 31 31 2
      -31 -31 16 -21 -31 16 -10 -31 16 0 -31 16 10 -31 16 21 -31 16 31 -31 16
      -31 -21 16 -21 -21 16 -10 -21 16 0 -21 16 10 -21 16 21 -21 16 31 -21 16
      -31 -10 16 -21 -10 16 -10 -10 16 0 -10 16 10 -10 16 21 -10 16 31 -10 16
      -31 0 16 -21 0 16 -10 0 16 0 0 16 10 0 16 21 0 16 31 0 16
      -31 10 16 -21 10 16 -10 10 16 0 10 16 10 10 16 21 10 16 31 10 16
      -31 21 16 -21 21 16 -10 21 16 0 21 16 10 21 16 21 21 16 31 21 16
      -31 31 16 -21 31 16 -10 31 16 0 31 16 10 31 16 21 31 16 31 31 16
      -31 -31 30 -21 -31 30 -10 -31 30 0 -31 30 10 -31 30 21 -31 30 31 -31 30
      -31 -21 30 -21 -21 30 -10 -21 30 0 -21 30 10 -21 30 21 -21 30 31 -21 30
      -31 -10 30 -21 -10 30 -10 -10 30 0 -10 30 10 -10 30 21 -10 30 31 -10 30
      -31 0 30 -21 0 30 -10 0 30 0 0 30 10 0 30 21 0 30 31 0 30
      -31 10 30 -21 10 30 -10 10 30 0 10 30 10 10 30 21 10 30 31 10 30
      -31 21 30 -21 21 30 -10 21 30 0 21 30 10 21 30 21 21 30 31 21 30
      -31 31 30 -21 31 30 -10 31 30 0 31 30 10 31 30 21 31 30 31 31 30
      -31 -31 44 -21 -31 44 -10 -31 44 0 -31 44 10 -31 44 21 -31 44 31 -31 44
      -31 -21 44 -21 -21 44 -10 -21 44 0 -21 44 10 -21 44 21 -21 44 31 -21 44
      -31 -10 44 -21 -10 44 -10 -10 44 0 -10 44 10 -10 44 21 -10 44 31 -10 44
      -31 0 44 -21 0 44 -10 0 44 0 0 44 10 0 44 21 0 44 31 0 44
      -31 10 44 -21 10 44 -10 10 44 0 10 44 10 10 44 21 10 44 31 10 44
      -31 21 44 -21 21 44 -10 21 44 0 21 44 10 21 44 21 21 44 31 21 44
      -31 31 44 -21 31 44 -10 31 44 0 31 44 10 31 44 21 31 44 31 31 44
print


MAG2
1    1 -5.505   -1 -3 +4  u=1                          $CYLINDER OF UO2
2    0          -1 +3 -5  u=1                          $CYLINDER VOID
3    2 -7.9200  +1 -2 -6 +7  u=1                       $STAINLESS STEEL CONTAINER
4    2 -7.9200  -1 -4 +7  u=1                          $STAINLESS STEEL (TOP)
5    2 -7.9200  -1 +5 -6  u=1                          $STAINLESS STEEL (BOTTOM)
6    0          +2:+6:-7 u=1                           $VOID
```

```
7    0          -8 +9 -10 +11   u=2 fill=1 lat=1          $CELL FILLED WITH 1-6
8    0          -12 +13 -14 +15 -16 +17 fill=2            $4X4X1 ARRAY
9    3 -0.9200  #8 -18 +19 -20 +21 -22 +23                $POLYETHYLENE REFLECTOR
10   0          +18:-19:+20:-21:+22:-23                   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 7.65
2    cz 7.68
3    pz +8.88
4    pz -10.88
5    pz +10.88
6    pz +10.91
7    pz -10.91
8    px +7.85
9    px -7.85
10   py +7.85
11   py -7.85
12   px +54.949999
13   px -7.849999
14   py +54.949999
15   py -7.849999
16   pz +11.15
17   pz -11.15
18   px +69.95
19   px -22.85
20   py +69.95
21   py -22.85
22   pz +26.15
23   pz -26.15

mode n
imp:n 1 8r 0
m1    92234.50c     1.23444-4
      92235.50c     1.15653-2
      92236.50c     4.20346-5
      92238.50c     6.76695-4
       8016.50c     2.48150-2
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     1001.50c     7.90600-2
       6012.50c     3.95300-2
mt3  poly.01t
kcode 1000 1.0 10 100
ksrc   0 0 0  15 0 0  31 0 0  46 0 0
       0 15 0  15 15 0  31 15 0  46 15 0
       0 31 0  15 31 0  31 31 0  46 31 0
       0 46 0  15 46 0  31 46 0  46 46 0
print


MAG3
1    1 -5.505   -1 -3 +4  u=1                            $CYLINDER OF UO2
2    0          -1 +3 -5  u=1                            $CYLINDER VOID
3    2 -7.9200  +1 -2 -6 +7  u=1                         $STAINLESS STEEL CONTAINER
4    2 -7.9200  -1 -4 +7  u=1                            $STAINLESS STEEL (TOP)
5    2 -7.9200  -1 +5 -6  u=1                            $STAINLESS STEEL (BOTTOM)
6    0          +2:+6:-7 u=1                             $VOID
7    0          -8 +9 -10 +11 -24 +25   u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0          -12 +13 -14 +15 -16 +17 fill=2           $3X2X2 ARRAY
9    3 -0.9200  #8 -18 +19 -20 +21 -22 +23               $POLYETHYLENE REFLECTOR
10   0          +18:-19:+20:-21:+22:-23                  $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 7.65
2    cz 7.68
3    pz +8.88
4    pz -10.88
5    pz +10.88
6    pz +10.91
7    pz -10.91
8    px +7.85
9    px -7.85
10   py +7.85
11   py -7.85
12   px +22.549999
13   px -22.549999
14   py +22.549999
15   py -7.849999
16   pz +33.449999
17   pz -11.149999
18   px +37.55
19   px -37.55
20   py +37.55
21   py -22.85
22   pz +48.45
23   pz -26.15
24   pz +11.15
25   pz -11.15
```

```
mode n
imp:n 1 8r 0
m1    92234.50c      1.23444-4
      92235.50c      1.15653-2
      92236.50c      4.20346-5
      92238.50c      6.76695-4
       8016.50c      2.48150-2
m2    24000.50c      1.74286-2
      25055.51c      1.73633-3
      26000.50c      5.93579-2
      28000.50c      7.72074-3
m3     1001.50c      7.90600-2
       6012.50c      3.95300-2
mt3  poly.01t
kcode 1000 1.0 10 100
ksrc   -16 0 0  0 0 0  16 0 0
       -16 16 0  0 16 0  16 16 0
       -16 0 22  0 0 22  16 0 22
       -16 16 22  0 16 22  16 16 22
print


MAG4
1    1 -5.505   -1 -3 +4  u=1                          $CYLINDER OF U02
2    0          -1 +3 -5  u=1                          $CYLINDER VOID
3    2 -7.9200  +1 -2 -6 +7  u=1                       $STAINLESS STEEL CONTAINER
4    2 -7.9200  -1 -4 +7  u=1                          $STAINLESS STEEL (TOP)
5    2 -7.9200  -1 +5 -6  u=1                          $STAINLESS STEEL (BOTTOM)
6    0          +2:+6:-7 u=1                           $VOID
7    0          -8 +9 -10 +11 -24 +25   u=2 fill=1 lat=1   $CELL FILLED WITH 1-6
8    0          -12 +13 -14 +15 -16 +17 fill=2         $3X3X2 ARRAY
9    3 -0.9200  #8 -18 +19 -20 +21 -22 +23             $POLYETHYLENE REFLECTOR
10   0          +18:-19:+20:-21:+22:-23                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 7.65
2    cz 7.68
3    pz +8.88
4    pz -10.88
5    pz +10.88
6    pz +10.91
7    pz -10.91
8    px +9.08
9    px -9.08
10   py +9.08
11   py -9.08
12   px +27.239999
13   px -27.239999
14   py +27.239999
15   py -27.239999
16   pz +33.449999
17   pz -11.149999
18   px +42.24
19   px -42.24
20   py +42.24
21   py -42.24
22   pz +48.45
23   pz -26.15
24   pz +11.15
25   pz -11.15

mode n
imp:n 1 8r 0
m1    92234.50c      1.23444-4
      92235.50c      1.15653-2
      92236.50c      4.20346-5
      92238.50c      6.76695-4
       8016.50c      2.48150-2
m2    24000.50c      1.74286-2
      25055.51c      1.73633-3
      26000.50c      5.93579-2
      28000.50c      7.72074-3
m3     1001.50c      7.90600-2
       6012.50c      3.95300-2
mt3  poly.01t
kcode 1000 1.0 10 100
ksrc   -18 -18 0  0 -18 0  18 -18 0
       -18 0 0  0 0 0  18 0 0
       -18 18 0  0 18 0  18 18 0
       -18 -18 22  0 -18 22  18 -18 22
       -18 0 22  0 0 22  18 0 22
       -18 18 22  0 18 22  18 18 22
print


MAG5
1    1 -5.505   -1 -3 +4  u=1                          $CYLINDER OF U02
2    0          -1 +3 -5  u=1                          $CYLINDER VOID
3    2 -7.9200  +1 -2 -6 +7  u=1                       $CYLINDER OF STAINLESS STEEL
4    2 -7.9200  -1 +5 -6  u=1                          $STAINLESS STEEL (TOP)
```

```
mode n
imp:n 1 8r 0
m1    92234.50c     1.23444-4
      92235.50c     1.15653-2
      92236.50c     4.20346-5
      92238.50c     6.76695-4
       8016.50c     2.48150-2
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     1001.50c     7.90600-2
       6012.50c     3.95300-2
mt3  poly.01t
kcode 1000 1.0 10 100
ksrc   -16 0 0   0 0 0   16 0 0
       -16 16 0   0 16 0   16 16 0
       -16 0 22   0 0 22   16 0 22
       -16 16 22   0 16 22   16 16 22
print


MAG4
1    1 -5.505    -1 -3 +4  u=1                              $CYLINDER OF UO2
2    0           -1 +3 -5  u=1                              $CYLINDER VOID
3    2 -7.9200   +1 -2 -6 +7  u=1                          $STAINLESS STEEL CONTAINER
4    2 -7.9200   -1 -4 +7  u=1                              $STAINLESS STEEL (TOP)
5    2 -7.9200   -1 +5 -6  u=1                              $STAINLESS STEEL (BOTTOM)
6    0           +2:+6:-7 u=1                               $VOID
7    0           -8 +9 -10 +11 -24 +25   u=2 fill=1 lat=1   $CELL FILLED WITH 1-6
8    0           -12 +13 -14 +15 -16 +17 fill=2             $3X3X2 ARRAY
9    3 -0.9200  #8 -18 +19 -20 +21 -22 +23                  $POLYETHYLENE REFLECTOR
10   0           +18:-19:+20:-21:+22:-23                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 7.65
2    cz 7.68
3    pz +8.88
4    pz -10.88
5    pz +10.88
6    pz +10.91
7    pz -10.91
8    px +9.08
9    px -9.08
10   py +9.08
11   py -9.08
12   px +27.239999
13   px -27.239999
14   py +27.239999
15   py -27.239999
16   pz +33.449999
17   pz -11.149999
18   px +42.24
19   px -42.24
20   py +42.24
21   py -42.24
22   pz +48.45
23   pz -26.15
24   pz +11.15
25   pz -11.15

mode n
imp:n 1 8r 0
m1    92234.50c     1.23444-4
      92235.50c     1.15653-2
      92236.50c     4.20346-5
      92238.50c     6.76695-4
       8016.50c     2.48150-2
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     1001.50c     7.90600-2
       6012.50c     3.95300-2
mt3  poly.01t
kcode 1000 1.0 10 100
ksrc   -18 -18 0   0 -18 0   18 -18 0
       -18 0 0   0 0 0   18 0 0
       -18 18 0   0 18 0   18 18 0
       -18 -18 22   0 -18 22   18 -18 22
       -18 0 22   0 0 22   18 0 22
       -18 18 22   0 18 22   18 18 22
print


MAG5
1    1 -5.505    -1 -3 +4  u=1                              $CYLINDER OF UO2
2    0           -1 +3 -5  u=1                              $CYLINDER VOID
3    2 -7.9200   +1 -2 -6 +7  u=1                          $CYLINDER OF STAINLESS STEEL
4    2 -7.9200   -1 +5 -6  u=1                              $STAINLESS STEEL (TOP)
```

```
5    2 -7.9200  -1 -4 +7  u=1                                  $STAINLESS STEEL (BOTTOM)
6    0          (+2:+6:-7)  u=1                               $VOID
7    0          -8 +9 -10 +11  u=2 fill=1 lat=1               $CELL FILLED WITH 1-6
8    0          -12 +13 -14 +15 -16 +17 fill=2                $3X3X1 ARRAY
9    0          -12 +13 -14 +15 -16 +17 fill=2 trcl=(0 0 24.66)  $3X3X1 ARRAY TRCL=(0 0 24.66)
10   3 -1.1800  #8 #9 -12 +13 -14 +15 +17 -18                  $PLEXIGLASS BETWEEN ARRAYS
11   4 -0.9200  (+12:-13:+14:-15) -19 +20 -21 +22 +17 -18      $POLYETHYLENE REFLECTOR (SIDES)
12   4 -0.9200  -19 +20 -21 +22 +18 -23                        $POLYETHYLENE REFLECTOR (TOP)
13   4 -0.9200  -19 +20 -21 +22 -17 +24                        $POLYETHYLENE REFLECTOR (BOTTOM)
14   0          +19:-20:+21:-22:+23:-24                       $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 7.65
2    cz 7.68
3    pz +8.88
4    pz -10.88
5    pz +10.88
6    pz +10.91
7    pz -10.91
8    px +10.22
9    px -10.22
10   py +10.22
11   py -10.22
12   px +30.659999
13   px -30.659999
14   py +30.659999
15   py -30.659999
16   pz +11.15
17   pz -11.15
18   pz +35.81
19   px +45.66
20   px -45.66
21   py +45.66
22   py -45.66
23   pz +50.81
24   pz -26.15

mode n
imp:n 1 12r 0
m1   92234.50c     1.23444-4
     92235.50c     1.15653-2
     92236.50c     4.20346-5
     92238.50c     6.76695-4
      8016.50c     2.48150-2
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt4  poly.01t
kcode 1000 1.0 10 100
ksrc  -20 -20 0  0 -20 0  20 -20 0
      -20 0 0  0 0 0  20 0 0
      -20 20 0  0 20 0  20 20 0
      -20 -20 25  0 -20 25  20 -20 25
      -20 0 25  0 0 25  20 0 25
      -20 20 25  0 20 25  20 20 25
print


MAG6
1    1 -5.505   -1 -3 +4  u=1                                 $CYLINDER OF UO2
2    0          -1 +3 -5  u=1                                 $CYLINDER VOID
3    2 -7.9200  +1 -2 -6 +7  u=1                              $CYLINDER OF STAINLESS STEEL
4    2 -7.9200  -1 +5 -6  u=1                                 $STAINLESS STEEL (TOP)
5    2 -7.9200  -1 -4 +7  u=1                                 $STAINLESS STEEL (BOTTOM)
6    0          (+2:+6:-7)  u=1                               $VOID
7    0          -8 +9 -10 +11  u=2 fill=1 lat=1               $CELL FILLED WITH 1-6
8    0          -12 +13 -14 +15 -16 +17 fill=2                $3X3X1 ARRAY
9    0          -12 +13 -14 +15 -16 +17 fill=2 trcl=(0 0 25.92)  $3X3X1 ARRAY TRCL=(0 0 25.92)
10   3 -1.1800  #8 #9 -12 +13 -14 +15 +17 -18                  $PLEXIGLASS BETWEEN ARRAYS
11   4 -0.9200  (+12:-13:+14:-15) -19 +20 -21 +22 +17 -18      $POLYETHYLENE REFLECTOR (SIDES)
12   4 -0.9200  -19 +20 -21 +22 +18 -23                        $POLYETHYLENE REFLECTOR (TOP)
13   4 -0.9200  -19 +20 -21 +22 -17 +24                        $POLYETHYLENE REFLECTOR (BOTTOM)
14   0          +19:-20:+21:-22:+23:-24                       $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 7.65
2    cz 7.68
3    pz +8.88
4    pz -10.88
5    pz +10.88
6    pz +10.91
7    pz -10.91
8    px +10.22
9    px -10.22
10   py +10.22
```

```
11   py -10.22
12   px +30.659999
13   px -30.659999
14   py +30.659999
15   py -30.659999
16   pz +11.15
17   pz -11.15
18   pz +37.07
19   px +45.66
20   px -45.66
21   py +45.66
22   py -45.66
23   pz +52.07
24   pz -26.15

mode n
imp:n 1 12r 0
m1   92234.50c     1.23444-4
     92235.50c     1.15653-2
     92236.50c     4.20346-5
     92238.50c     6.76695-4
      8016.50c     2.48150-2
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt4  poly.01t
kcode 1000 1.0 10 100
ksrc  -20 -20 0  0 -20 0  20 -20 0
      -20 0 0  0 0 0  20 0 0
      -20 20 0  0 20 0  20 20 0
      -20 -20 26  0 -20 26  20 -20 26
      -20 0 26  0 0 26  20 0 26
      -20 20 26  0 20 26  20 20 26
print


MAG7
1    1 -5.505   -1 -3 +4  u=1                                  $CYLINDER OF UO2
2    0          -1 +3 -5  u=1                                  $CYLINDER VOID
3    2 -7.9200  +1 -2 -6 +7  u=1                               $CYLINDER OF STAINLESS STEEL
4    2 -7.9200  -1 +5 -6  u=1                                  $STAINLESS STEEL (TOP)
5    2 -7.9200  -1 -4 +7  u=1                                  $STAINLESS STEEL (BOTTOM)
6    0          (+2:+6:-7)  u=1                                $VOID
7    0          -8 +9 -10 +11  u=2 fill=1 lat=1                $CELL FILLED WITH 1-6
8    0          -8 +9 -10 +11  u=3 lat=1 fill=-1:1 -1:1 0:0
                3 1 1  1 1 1  1 1 1                            $LIKE 7 (CORNER UNIT REMOVED FROM ARRAY)
9    0          -12 +13 -14 +15 -16 +17 fill=2                 $3X3X1 ARRAY
10   0          -12 +13 -14 +15 -16 +17 fill=3 trcl=(0 0 25.92) $3X3X1 ARRAY TRCL=(0 0 25.92) UNIT REMOVED
11   3 -1.1800  #9 #10 -12 +13 -14 +15 +17 -18                  $PLEXIGLASS BETWEEN ARRAYS
12   4 -0.9200  (+12:-13:+14:-15) -19 +20 -21 +22 +17 -18       $POLYETHYLENE REFLECTOR (SIDES)
13   4 -0.9200  -19 +20 -21 +22 +18 -23                         $POLYETHYLENE REFLECTOR (TOP)
14   4 -0.9200  -19 +20 -21 +22 -17 +24                         $POLYETHYLENE REFLECTOR (BOTTOM)
15   0          +19:-20:+21:-22:+23:-24                        $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 7.65
2    cz 7.68
3    pz +8.88
4    pz -10.88
5    pz +10.88
6    pz +10.91
7    pz -10.91
8    px +10.22
9    px -10.22
10   py +10.22
11   py -10.22
12   px +30.659999
13   px -30.659999
14   py +30.659999
15   py -30.659999
16   pz +11.15
17   pz -11.15
18   pz +37.07
19   px +45.66
20   px -45.66
21   py +45.66
22   py -45.66
23   pz +52.07
24   pz -26.15

mode n
imp:n 1 13r 0
m1   92234.50c     1.23444-4
     92235.50c     1.15653-2
     92236.50c     4.20346-5
     92238.50c     6.76695-4
```

```
      8016.50c     2.48150-2
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt4  poly.01t
kcode 1000 1.0 10 100
ksrc  -20 -20 0  0 -20 0  20 -20 0
      -20 0 0  0 0 0  20 0 0
      -20 20 0  0 20 0  20 20 0
      0 -20 26  20 -20 26
      -20 0 26  0 0 26  20 0 26
      -20 20 26 0 20 26 20 20 26
print

MAG8
1    1 -5.505   -1 -3 +4  u=1                                  $CYLINDER OF UO2
2    0          -1 +3 -5  u=1                                  $CYLINDER VOID
3    2 -7.9200  +1 -2 -6 +7  u=1                              $CYLINDER OF STAINLESS STEEL
4    2 -7.9200  -1 +5 -6  u=1                                  $STAINLESS STEEL (TOP)
5    2 -7.9200  -1 -4 +7  u=1                                  $STAINLESS STEEL (BOTTOM)
6    0          (+2:+6:-7)  u=1                                $VOID
7    0          -8 +9 -10 +11  u=2 fill=1 lat=1                $CELL FILLED WITH 1-6
8    0          -12 +13 -14 +15 -16 +17 fill=2                 $3X3X1 ARRAY
9    0          -12 +13 -14 +15 -16 +17 fill=2 trcl=(0 0 27.12) $3X3X1 ARRAY TRCL=(0 0 27.12)
10   3 -1.1800  #8 #9 -12 +13 -14 +15 +17 -18                   $PLEXIGLASS BETWEEN ARRAYS
11   4 -0.9200  (+12:-13:+14:-15) -19 +20 -21 +22 +17 -18       $POLYETHYLENE REFLECTOR (SIDES)
12   4 -0.9200  -19 +20 -21 +22 +18 -23                         $POLYETHYLENE REFLECTOR (TOP)
13   4 -0.9200  -19 +20 -21 +22 -17 +24                         $POLYETHYLENE REFLECTOR (BOTTOM)
14   0          +19:-20:+21:-22:+23:-24                        $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 7.65
2    cz 7.68
3    pz +8.88
4    pz -10.88
5    pz +10.88
6    pz +10.91
7    pz -10.91
8    px +10.22
9    px -10.22
10   py +10.22
11   py -10.22
12   px +30.659999
13   px -30.659999
14   py +30.659999
15   py -30.659999
16   pz +11.15
17   pz -11.15
18   pz +38.27
19   px +45.66
20   px -45.66
21   py +45.66
22   py -45.66
23   pz +53.27
24   pz -26.15

mode n
imp:n 1 12r 0
m1   92234.50c     1.23444-4
     92235.50c     1.15653-2
     92236.50c     4.20346-5
     92238.50c     6.76695-4
      8016.50c     2.48150-2
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt4  poly.01t
kcode 1000 1.0 10 100
ksrc  -20 -20 0  0 -20 0  20 -20 0
      -20 0 0  0 0 0  20 0 0
      -20 20 0  0 20 0  20 20 0
      -20 -20 27  0 -20 27  20 -20 27
      -20 0 27  0 0 27  20 0 27
      -20 20 27  0 20 27  20 20 27
print

MAG9
```

```
1    1 -5.505   -1 -3 +4  u=1                                  $CYLINDER OF UO2
2    0          -1 +3 -5  u=1                                  $CYLINDER VOID
3    2 -7.9200  +1 -2 -6 +7  u=1                               $CYLINDER OF STAINLESS STEEL
4    2 -7.9200  -1 +5 -6  u=1                                  $STAINLESS STEEL (TOP)
5    2 -7.9200  -1 -4 +7  u=1                                  $STAINLESS STEEL (BOTTOM)
6    0          (+2:+6:-7)  u=1                                $VOID
7    0          -8 +9 -10 +11  u=2 fill=1 lat=1                $CELL FILLED WITH 1-6
8    0          -8 +9 -10 +11  u=3 lat=1 fill=-1:1 -1:1 0:0
                3 1 1  1 1 1  1 1 1                           $LIKE 7 (CORNER UNIT REMOVED FROM ARRAY)
9    0          -12 +13 -14 +15 -16 +17 fill=2                 $3X3X1 ARRAY
10   0          -12 +13 -14 +15 -16 +17 fill=3 trcl=(0 0 27.12) $3X3X1 ARRAY TRCL=(0 0 27.12) UNIT REMOVED
11   3 -1.1800  #9 #10 -12 +13 -14 +15 +17 -18                 $PLEXIGLASS BETWEEN ARRAYS
12   4 -0.9200  (+12:-13:+14:-15) -19 +20 -21 +22 +17 -18      $POLYETHYLENE REFLECTOR (SIDES)
13   4 -0.9200  -19 +20 -21 +22 +18 -23                        $POLYETHYLENE REFLECTOR (TOP)
14   4 -0.9200  -19 +20 -21 +22 -17 +24                        $POLYETHYLENE REFLECTOR (BOTTOM)
15   0          +19:-20:+21:-22:+23:-24                        $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 7.65
2    cz 7.68
3    pz +8.88
4    pz -10.88
5    pz +10.88
6    pz +10.91
7    pz -10.91
8    px +10.22
9    px -10.22
10   py +10.22
11   py -10.22
12   px +30.659999
13   px -30.659999
14   py +30.659999
15   py -30.659999
16   pz +11.15
17   pz -11.15
18   pz +38.27
19   px +45.66
20   px -45.66
21   py +45.66
22   py -45.66
23   pz +53.27
24   pz -26.15

mode n
imp:n 1 13r 0
m1    92234.50c     1.23444-4
      92235.50c     1.15653-2
      92236.50c     4.20346-5
      92238.50c     6.76695-4
       8016.50c     2.48150-2
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     1001.50c     7.90600-2
       6012.50c     3.95300-2
mt4  poly.01t
kcode 1000 1.0 10 100
ksrc  -20 -20 0  0 -20 0  20 -20 0
      -20 0 0  0 0 0  20 0 0
      -20 20 0  0 20 0  20 20 0
      0 -20 27  20 -20 27
      -20 0 27  0 0 27  20 0 27
      -20 20 27 0 20 27 20 20 27
print


MAG10
1    1 -5.505   -1 -3 +4  u=1                                  $CYLINDER OF URANIUM DIOXIDE
2    0          -1 +3 -5  u=1                                  $CYLINDER VOID
3    2 -7.9200  +1 -2 -6 +7  u=1                               $CYLINDER OF STAINLESS STEEL
4    2 -7.9200  -1 +5 -6  u=1                                  $STAINLESS STEEL (TOP)
5    2 -7.9200  -1 -4 +7  u=1                                  $STAINLESS STEEL (BOTTOM)
6    0          (+2:+6:-7)  u=1                                $VOID
7    0          -8 +9 -10 +11  u=2 fill=1 lat=1                $CELL FILLED WITH 1-6
8    0          -12 +13 -14 +15 -16 +17 fill=2                 $3X3X1 ARRAY
9    0          -12 +13 -14 +15 -16 +17 fill=2 trcl=(0 0 28.38) $3X3X1 ARRAY TRCL=(0 0 28.38)
10   3 -1.1800  #8 #9 -12 +13 -14 +15 +17 -18                   $PLEXIGLASS BETWEEN ARRAYS
11   4 -0.9200  (+12:-13:+14:-15) -19 +20 -21 +22 +17 -18      $POLYETHYLENE REFLECTOR (SIDES)
12   4 -0.9200  -19 +20 -21 +22 +18 -23                        $POLYETHYLENE REFLECTOR (TOP)
13   4 -0.9200  -19 +20 -21 +22 -17 +24                        $POLYETHYLENE REFLECTOR (BOTTOM)
14   0          +19:-20:+21:-22:+23:-24                        $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 7.65
2    cz 7.68
3    pz +8.88
4    pz -10.88
5    pz +10.88
6    pz +10.91
7    pz -10.91
```

```
8    px +10.22
9    px -10.22
10   py +10.22
11   py -10.22
12   px +30.659999
13   px -30.659999
14   py +30.659999
15   py -30.659999
16   pz +11.15
17   pz -11.15
18   pz +39.53
19   px +45.66
20   px -45.66
21   py +45.66
22   py -45.66
23   pz +54.53
24   pz -26.15

mode n
imp:n 1 12r 0
m1   92234.50c     1.23444-4
     92235.50c     1.15653-2
     92236.50c     4.20346-5
     92238.50c     6.76695-4
      8016.50c     2.48150-2
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt4  poly.01t
kcode 1000 1.0 10 100
ksrc  -20 -20 0  0 -20 0  20 -20 0
      -20 0 0  0 0 0  20 0 0
      -20 20 0  0 20 0  20 20 0
      -20 -20 28  0 -20 28  20 -20 28
      -20 0 28  0 0 28  20 0 28
      -20 20 28  0 20 28  20 20 28
print


MAG11
1    1 -6.9037  -1 -3 +4  u=1                          $CYLINDER OF URANIUM DIOXIDE WITH ALCOHOL
2    4 -0.8019  -1 +3 -5  u=1                          $ALCOHOL LAYER ABOVE OXIDE
3    0          -1 +5 -6  u=1                          $VOID
4    2 -7.9200  +1 -2 -7 +8  u=1                       $STAINLESS STEEL CONTAINER
5    2 -7.9200  -1 +6 -7  u=1                          $STAINLESS STEEL (TOP)
6    2 -7.9200  -1 -4 +8  u=1                          $STAINLESS STEEL (BOTTOM)
7    0          +2:+7:-8  u=1                          $VOID
8    0          -9 +10 -11 +12  u=2 fill=1 lat=1       $CELL FILLED WITH 1-7
9    0          -13 +14 -15 +16 -17 +18  fill=2        $2X2X1 ARRAY
10   3 -0.9200  #9 -19 +20 -21 +22 -23 +24              $POLYETHYLENE REFLECTOR
11   0          +19:-20:+21:-22:+23:-24                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 6.76
2    cz 6.79
3    pz +5.27
4    pz -12.60
5    pz +8.41
6    pz +12.58
7    pz +12.63
8    pz -12.63
9    px +6.985
10   px -6.985
11   py +6.985
12   py -6.985
13   px +20.954999
14   px -6.984999
15   py +20.954999
16   py -6.984999
17   pz +12.78
18   pz -12.78
19   px +35.955
20   px -21.985
21   py +35.955
22   py -21.985
23   pz +27.78
24   pz -27.78

mode n
imp:n 1 9r 0
m1   92234.50c     1.48591-4
     92235.50c     1.39213-2
     92236.50c     3.86922-5
     92238.50c     8.26350-4
```

```
      8016.50c     3.37790-2
      6012.50c     6.89125-3
      1001.50c     2.16009-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt3  poly.01t
m4    8016.50c     1.13047-2
      6012.50c     1.99282-2
      1001.50c     6.24659-2
mt4  lwtr.01t
kcode 1000 1.0 10 100
ksrc   0 0 0  14 0 0
       0 14 0  14 14 0
print


MAG12
1    1 -6.9037  -1 -3 +4  u=1                    $CYLINDER OF URANIUM DIOXIDE WITH ALCOHOL
2    4 -0.8019  -1 +3 -5  u=1                    $ALCOHOL LAYER ABOVE OXIDE
3    0          -1 +5 -6  u=1                    $VOID
4    2 -7.9200  +1 -2 -7 +8  u=1                 $STAINLESS STEEL CONTAINER
5    2 -7.9200  -1 +6 -7  u=1                    $STAINLESS STEEL (TOP)
6    2 -7.9200  -1 -4 +8  u=1                    $STAINLESS STEEL (BOTTOM)
7    0          +2:+7:-8  u=1                    $VOID
8    0          -9 +10 -11 +12  u=2 fill=1 lat=1 $CELL FILLED WITH 1-7
9    0          -13 +14 -15 +16 -17 +18  fill=2  $2X2X1 ARRAY
10   3 -0.9200  #9 -19 +20 -21 +22 -23 +24       $POLYETHYLENE REFLECTOR
11   0          +19:-20:+21:-22:+23:-24          $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 6.76
2    cz 6.79
3    pz +5.27
4    pz -12.60
5    pz +8.41
6    pz +12.58
7    pz +12.63
8    pz -12.63
9    px +7.025
10   px -7.025
11   py +7.025
12   py -7.025
13   px +21.074999
14   px -7.024999
15   py +21.074999
16   py -7.024999
17   pz +12.78
18   pz -12.78
19   px +36.075
20   px -22.025
21   py +36.075
22   py -22.025
23   pz +27.78
24   pz -27.78

mode n
imp:n 1 9r 0
m1   92234.50c     1.48591-4
     92235.50c     1.39213-2
     92236.50c     3.86922-5
     92238.50c     8.26350-4
      8016.50c     3.37790-2
      6012.50c     6.89125-3
      1001.50c     2.16009-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt3  poly.01t
m4    8016.50c     1.13047-2
      6012.50c     1.99282-2
      1001.50c     6.24659-2
mt4  lwtr.01t
kcode 1000 1.0 10 100
ksrc   0 0 0  14 0 0
       0 14 0  14 14 0
print


MAG13
1    1 -6.9037  -1 -3 +4  u=1                    $CYLINDER OF URANIUM DIOXIDE WITH ALCOHOL
2    4 -0.8019  -1 +3 -5  u=1                    $ALCOHOL LAYER ABOVE OXIDE
```

```
3    0          -1 +5 -6  u=1                          $VOID
4    2 -7.9200  +1 -2 -7 +8  u=1                       $STAINLESS STEEL CONTAINER
5    2 -7.9200  -1 +6 -7  u=1                          $STAINLESS STEEL (TOP)
6    2 -7.9200  -1 -4 +8  u=1                          $STAINLESS STEEL (BOTTOM)
7    0          +2:+7:-8  u=1                          $VOID
8    0          -9 +10 -11 +12  u=2 fill=1 lat=1       $CELL FILLED WITH 1-7
9    0          -13 +14 -15 +16 -17 +18  fill=2        $2X2X1 ARRAY
10   3 -0.9200  #9 -19 +20 -21 +22 -23 +24              $POLYETHYLENE REFLECTOR
11   0          +19:-20:+21:-22:+23:-24                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 6.76
2    cz 6.79
3    pz +5.27
4    pz -12.60
5    pz +8.41
6    pz +12.58
7    pz +12.63
8    pz -12.63
9    px +7.064
10   px -7.064
11   py +7.064
12   py -7.064
13   px +21.191999
14   px -7.063999
15   py +21.191999
16   py -7.063999
17   pz +12.78
18   pz -12.78
19   px +36.192
20   px -22.064
21   py +36.192
22   py -22.064
23   pz +27.78
24   pz -27.78

mode n
imp:n 1 9r 0
m1    92234.50c     1.48591-4
      92235.50c     1.39213-2
      92236.50c     3.86922-5
      92238.50c     8.26350-4
       8016.50c     3.37790-2
       6012.50c     6.89125-3
       1001.50c     2.16009-2
mt1   lwtr.01t
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     1001.50c     7.90600-2
       6012.50c     3.95300-2
mt3   poly.01t
m4     8016.50c     1.13047-2
       6012.50c     1.99282-2
       1001.50c     6.24659-2
mt4   lwtr.01t
kcode 1000 1.0 10 100
ksrc   0 0 0  14 0 0
       0 14 0  14 14 0
print


MAG14
1    1 -6.9037  -1 -3 +4  u=1                          $CYLINDER OF URANIUM DIOXIDE WITH ALCOHOL
2    4 -0.8019  -1 +3 -5  u=1                          $ALCOHOL LAYER ABOVE OXIDE
3    0          -1 +5 -6  u=1                          $VOID
4    2 -7.9200  +1 -2 -7 +8  u=1                       $STAINLESS STEEL CONTAINER
5    2 -7.9200  -1 +6 -7  u=1                          $STAINLESS STEEL (TOP)
6    2 -7.9200  -1 -4 +8  u=1                          $STAINLESS STEEL (BOTTOM)
7    0          +2:+7:-8  u=1                          $VOID
8    0          -9 +10 -11 +12  u=2 fill=1 lat=1       $CELL FILLED WITH 1-7
9    0          -13 +14 -15 +16 -17 +18  fill=2        $2X3X1 ARRAY
10   3 -0.9200  #9 -19 +20 -21 +22 -23 +24              $POLYETHYLENE REFLECTOR
11   0          +19:-20:+21:-22:+23:-24                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 6.76
2    cz 6.79
3    pz +5.27
4    pz -12.60
5    pz +8.41
6    pz +12.58
7    pz +12.63
8    pz -12.63
9    px +7.620
10   px -7.620
11   py +7.620
12   py -7.620
13   px +22.859999
14   px -7.619999
```

```
15   py +22.859999
16   py -22.859999
17   pz +12.78
18   pz -12.78
19   px +37.860
20   px -22.620
21   py +37.860
22   py -37.860
23   pz +27.78
24   pz -27.78

mode n
imp:n 1 9r 0
m1   92234.50c     1.48591-4
     92235.50c     1.39213-2
     92236.50c     3.86922-5
     92238.50c     8.26350-4
      8016.50c     3.37790-2
      6012.50c     6.89125-3
      1001.50c     2.16009-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt3  poly.01t
m4    8016.50c     1.13047-2
      6012.50c     1.99282-2
      1001.50c     6.24659-2
mt4  lwtr.01t
kcode 1000 1.0 10 100
ksrc   0 -15 0 15 -15 0
       0 0 0  15 0 0
       0 15 0  15 15 0
print


MAG15
1    1 -6.9037  -1 -3 +4  u=1                    $CYLINDER OF URANIUM DIOXIDE WITH ALCOHOL
2    4 -0.8019  -1 +3 -5  u=1                    $ALCOHOL LAYER ABOVE OXIDE
3    0          -1 +5 -6  u=1                    $VOID
4    2 -7.9200  +1 -2 -7 +8  u=1                 $STAINLESS STEEL CONTAINER
5    2 -7.9200  -1 +6 -7  u=1                    $STAINLESS STEEL (TOP)
6    2 -7.9200  -1 -4 +8  u=1                    $STAINLESS STEEL (BOTTOM)
7    0          +2:+7:-8  u=1                    $VOID
8    0          -9 +10 -11 +12  u=2 fill=1 lat=1 $CELL FILLED WITH 1-7
9    0          -13 +14 -15 +16 -17 +18  fill=2  $2X3X1 ARRAY
10   3 -0.9200  #9 -19 +20 -21 +22 -23 +24       $POLYETHYLENE REFLECTOR
11   0          +19:-20:+21:-22:+23:-24          $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 6.76
2    cz 6.79
3    pz +5.27
4    pz -12.60
5    pz +8.41
6    pz +12.58
7    pz +12.63
8    pz -12.63
9    px +7.938
10   px -7.938
11   py +7.938
12   py -7.938
13   px +23.813999
14   px -7.937999
15   py +23.813999
16   py -23.813999
17   pz +12.78
18   pz -12.78
19   px +38.814
20   px -22.938
21   py +38.814
22   py -38.814
23   pz +27.78
24   pz -27.78

mode n
imp:n 1 9r 0
m1   92234.50c     1.48591-4
     92235.50c     1.39213-2
     92236.50c     3.86922-5
     92238.50c     8.26350-4
      8016.50c     3.37790-2
      6012.50c     6.89125-3
      1001.50c     2.16009-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
```

```
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt3  poly.01t
m4    8016.50c     1.13047-2
      6012.50c     1.99282-2
      1001.50c     6.24659-2
mt4  lwtr.01t
kcode 1000 1.0 10 100
ksrc   0 -16 0 16 -16 0
       0 0 0  16 0 0
       0 16 0  16 16 0
print


MAG16
1    1 -6.9037  -1 -3 +4  u=1                    $CYLINDER OF URANIUM DIOXIDE WITH ALCOHOL
2    4 -0.8019  -1 +3 -5  u=1                    $ALCOHOL LAYER ABOVE OXIDE
3    0          -1 +5 -6  u=1                    $VOID
4    2 -7.9200  +1 -2 -7 +8  u=1                 $STAINLESS STEEL CONTAINER
5    2 -7.9200  -1 +6 -7  u=1                    $STAINLESS STEEL (TOP)
6    2 -7.9200  -1 -4 +8  u=1                    $STAINLESS STEEL (BOTTOM)
7    0          +2:+7:-8  u=1                    $VOID
8    0          -9 +10 -11 +12  u=2 fill=1 lat=1 $CELL FILLED WITH 1-7
9    0          -13 +14 -15 +16 -17 +18  fill=2  $2X3X1 ARRAY
10   3 -0.9200  #9 -19 +20 -21 +22 -23 +24       $POLYETHYLENE REFLECTOR
11   0          +19:-20:+21:-22:+23:-24          $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 6.76
2    cz 6.79
3    pz +5.27
4    pz -12.60
5    pz +8.41
6    pz +12.58
7    pz +12.63
8    pz -12.63
9    px +8.017
10   px -8.017
11   py +8.017
12   py -8.017
13   px +24.050999
14   px -8.016999
15   py +24.050999
16   py -24.050999
17   pz +12.78
18   pz -12.78
19   px +39.051
20   px -23.017
21   py +39.051
22   py -39.051
23   pz +27.78
24   pz -27.78

mode n
imp:n 1 9r 0
m1   92234.50c     1.48591-4
     92235.50c     1.39213-2
     92236.50c     3.86922-5
     92238.50c     8.26350-4
      8016.50c     3.37790-2
      6012.50c     6.89125-3
      1001.50c     2.16009-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt3  poly.01t
m4    8016.50c     1.13047-2
      6012.50c     1.99282-2
      1001.50c     6.24659-2
mt4  lwtr.01t
kcode 1000 1.0 10 100
ksrc   0 -16 0 16 -16 0
       0 0 0  16 0 0
       0 16 0  16 16 0
print


MAG17
1    1 -6.9037  -1 -3 +4  u=1                    $CYLINDER OF URANIUM DIOXIDE WITH ALCOHOL
2    4 -0.8019  -1 +3 -5  u=1                    $ALCOHOL LAYER ABOVE OXIDE
3    0          -1 +5 -6  u=1                    $VOID
4    2 -7.9200  +1 -2 -7 +8  u=1                 $STAINLESS STEEL CONTAINER
5    2 -7.9200  -1 +6 -7  u=1                    $STAINLESS STEEL (TOP)
6    2 -7.9200  -1 -4 +8  u=1                    $STAINLESS STEEL (BOTTOM)
```

```
7    0          +2:+7:-8  u=1                          $VOID
8    0          -9 +10 -11 +12  u=2 fill=1 lat=1       $CELL FILLED WITH 1-7
9    0          -13 +14 -15 +16 -17 +18  fill=2        $2X4X1 ARRAY
10   3 -0.9200  #9 -19 +20 -21 +22 -23 +24              $POLYETHYLENE REFLECTOR
11   0          +19:-20:+21:-22:+23:-24                 $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 6.76
2    cz 6.79
3    pz +5.27
4    pz -12.60
5    pz +8.41
6    pz +12.58
7    pz +12.63
8    pz -12.63
9    px +8.493
10   px -8.493
11   py +8.493
12   py -8.493
13   px +25.478999
14   px -8.492999
15   py +59.450999
16   py -8.492999
17   pz +12.78
18   pz -12.78
19   px +40.479
20   px -23.493
21   py +74.451
22   py -23.493
23   pz +27.78
24   pz -27.78

mode n
imp:n 1 9r 0
m1    92234.50c     1.48591-4
      92235.50c     1.39213-2
      92236.50c     3.86922-5
      92238.50c     8.26350-4
       8016.50c     3.37790-2
       6012.50c     6.89125-3
       1001.50c     2.16009-2
mt1   lwtr.01t
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     1001.50c     7.90600-2
       6012.50c     3.95300-2
mt3   poly.01t
m4     8016.50c     1.13047-2
       6012.50c     1.99282-2
       1001.50c     6.24659-2
mt4   lwtr.01t
kcode 1000 1.0 10 100
ksrc   0 0 0  17 0 0
       0 17 0  17 17 0
       0 34 0  17 34 0
       0 51 0  17 51 0
print


MAG18
1    1 -6.9037  -1 -3 +4  u=1                          $CYLINDER OF URANIUM DIOXIDE WITH ALCOHOL
2    4 -0.8019  -1 +3 -5  u=1                          $ALCOHOL LAYER ABOVE OXIDE
3    0          -1 +5 -6  u=1                          $VOID
4    2 -7.9200  +1 -2 -7 +8  u=1                       $STAINLESS STEEL CONTAINER
5    2 -7.9200  -1 +6 -7  u=1                          $STAINLESS STEEL (TOP)
6    2 -7.9200  -1 -4 +8  u=1                          $STAINLESS STEEL (BOTTOM)
7    0          +2:+7:-8  u=1                          $VOID
8    0          -9 +10 -11 +12  u=2 fill=1 lat=1       $CELL FILLED WITH 1-7
9    0          -13 +14 -15 +16 -17 +18  fill=2        $3X3X1 ARRAY
10   3 -0.9200  #9 -19 +20 -21 +22 -23 +24              $POLYETHYLENE REFLECTOR
11   0          +19:-20:+21:-22:+23:-24                 $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 6.76
2    cz 6.79
3    pz +5.27
4    pz -12.60
5    pz +8.41
6    pz +12.58
7    pz +12.63
8    pz -12.63
9    px +9.049
10   px -9.049
11   py +9.049
12   py -9.049
13   px +27.146999
14   px -27.146999
15   py +27.146999
16   py -27.146999
```

```
17   pz +12.78
18   pz -12.78
19   px +42.147
20   px -42.147
21   py +42.147
22   py -42.147
23   pz +27.78
24   pz -27.78

mode n
imp:n 1 9r 0
m1   92234.50c     1.48591-4
     92235.50c     1.39213-2
     92236.50c     3.86922-5
     92238.50c     8.26350-4
      8016.50c     3.37790-2
      6012.50c     6.89125-3
      1001.50c     2.16009-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt3  poly.01t
m4    8016.50c     1.13047-2
      6012.50c     1.99282-2
      1001.50c     6.24659-2
mt4  lwtr.01t
kcode 1000 1.0 10 100
ksrc   -18 -18 0  0 -18 0  18 -18 0
       -18 0 0  0 0 0  18 0 0
       -18 18 0  0 18 0  18 18 0
print


MAG19
1    1 -6.9037  -1 -3 +4  u=1                          $CYLINDER OF URANIUM DIOXIDE WITH ALCOHOL
2    4 -0.8019  -1 +3 -5  u=1                          $ALCOHOL LAYER ABOVE OXIDE
3    0          -1 +5 -6  u=1                          $VOID
4    2 -7.9200  +1 -2 -7 +8  u=1                       $STAINLESS STEEL CONTAINER
5    2 -7.9200  -1 +6 -7  u=1                          $STAINLESS STEEL (TOP)
6    2 -7.9200  -1 -4 +8  u=1                          $STAINLESS STEEL (BOTTOM)
7    0          +2:+7:-8  u=1                          $VOID
8    0          -9 +10 -11 +12  u=2 fill=1 lat=1       $CELL FILLED WITH 1-7
9    0          -13 +14 -15 +16 -17 +18  fill=2        $3X3X1 ARRAY
10   3 -0.9200  #9 -19 +20 -21 +22 -23 +24              $POLYETHYLENE REFLECTOR
11   0          +19:-20:+21:-22:+23:-24                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 6.76
2    cz 6.79
3    pz +5.27
4    pz -12.60
5    pz +5.80
6    pz +12.58
7    pz +12.63
8    pz -12.63
9    px +8.573
10   px -8.573
11   py +8.573
12   py -8.573
13   px +26.258999
14   px -26.258999
15   py +26.258999
16   py -26.258999
17   pz +12.78
18   pz -12.78
19   px +41.259
20   px -41.259
21   py +41.259
22   py -41.259
23   pz +27.78
24   pz -27.78

mode n
imp:n 1 9r 0
m1   92234.50c     1.48591-4
     92235.50c     1.39213-2
     92236.50c     3.86922-5
     92238.50c     8.26350-4
      8016.50c     3.37790-2
      6012.50c     6.89125-3
      1001.50c     2.16009-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
```

```
m3    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt3  poly.01t
m4    8016.50c     1.13047-2
      6012.50c     1.99282-2
      1001.50c     6.24659-2
mt4  lwtr.01t
kcode 1000 1.0 10 100
ksrc   -17 -17 0  0 -17 0  17 -17 0
       -17 0 0  0 0 0  17 0 0
       -17 17 0  0 17 0  17 17 0
print


MAG20
1    1 -6.9037  -1 -3 +4  u=1                    $CYLINDER OF URANIUM DIOXIDE WITH ALCOHOL
2    4 -0.8019  -1 +3 -5  u=1                    $ALCOHOL LAYER ABOVE OXIDE
3    0          -1 +5 -6  u=1                    $VOID
4    2 -7.9200  +1 -2 -7 +8  u=1                 $STAINLESS STEEL CONTAINER
5    2 -7.9200  -1 +6 -7  u=1                    $STAINLESS STEEL (TOP)
6    2 -7.9200  -1 -4 +8  u=1                    $STAINLESS STEEL (BOTTOM)
7    0          +2:+7:-8  u=1                    $VOID
8    0          -9 +10 -11 +12  u=2 fill=1 lat=1 $CELL FILLED WITH 1-7
9    0          -13 +14 -15 +16 -17 +18  fill=2  $3X3X1 ARRAY
10   3 -0.9200  #9 -19 +20 -21 +22 -23 +24       $POLYETHYLENE REFLECTOR
11   0          +19:-20:+21:-22:+23:-24          $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 6.76
2    cz 6.79
3    pz +5.27
4    pz -12.60
5    pz +5.80
6    pz +12.58
7    pz +12.63
8    pz -12.63
9    px +8.652
10   px -8.652
11   py +8.652
12   py -8.652
13   px +25.955999
14   px -25.955999
15   py +25.955999
16   py -25.955999
17   pz +12.78
18   pz -12.78
19   px +40.956
20   px -40.956
21   py +40.956
22   py -40.956
23   pz +27.78
24   pz -27.78

mode n
imp:n 1 9r 0
m1    92234.50c     1.48591-4
      92235.50c     1.39213-2
      92236.50c     3.86922-5
      92238.50c     8.26350-4
       8016.50c     3.37790-2
       6012.50c     6.89125-3
       1001.50c     2.16009-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    1001.50c     7.90600-2
      6012.50c     3.95300-2
mt3  poly.01t
m4    8016.50c     1.13047-2
      6012.50c     1.99282-2
      1001.50c     6.24659-2
mt4  lwtr.01t
kcode 1000 1.0 10 100
ksrc   -17 -17 0  0 -17 0  17 -17 0
       -17 0 0  0 0 0  17 0 0
       -17 17 0  0 17 0  17 17 0
print


ROT1
1    1 -1.2038  -1 +3 -4                 $CYLINDER OF URANYL NITRATE
2    0          -1 +4 -5                 $CYLINDER VOID (ABOVE SOLUTION)
3    2 -7.9200  +1 -2 -5 +6 : -1 -3 +6   $CYLINDER OF STAINLESS STEEL
4    0             +2:+5:-6              $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
```

```
4    pz +31.20
5    pz +41.60
6    pz -0.64

mode n
imp:n 1 1 1 0
m1   92234.50c     3.83099-6
     92235.50c     3.47765-4
     92236.50c     1.61304-6
     92238.50c     1.97978-5
      7014.50c     9.23065-4
      8016.50c     3.50450-2
      1001.50c     6.32366-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT2
1    1 -1.2023  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF STAINLESS STEEL
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    0          -2 -3 +12                 $VOID
7    3 -2.3210  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12  $CONCRETE REFLECTOR (SIDES)
8    0          -13 +14 -15 +16 +11 -17   $VOID
9    0          -13 +14 -15 +16 -12 +18   $VOID
10   3 -2.3210  -13 +14 -15 +16 +17 -19   $CONCRETE REFLECTOR (TOP)
11   3 -2.3210  -13 +14 -15 +16 -18 +20   $CONCRETE REFLECTOR (BOTTOM)
12   0          +13:-14:+15:-16:+19:-20   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +30.43
6    pz +42.24
7    px +64.6
8    px -57.2
9    py +57.4
10   py -64.8
11   pz +81.1
12   pz -40.8
13   px +90.3
14   px -82.9
15   py +83.1
16   py -90.5
17   pz +82.0
18   pz -41.7
19   pz +107.7
20   pz -67.4

mode n
imp:n 1 10r 0
m1   92234.50c     3.79680-6
     92235.50c     3.44662-4
     92236.50c     1.59864-6
     92238.50c     1.96211-5
      7014.50c     9.03160-4
      8016.50c     3.50471-2
      1001.50c     6.33603-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print
```

```
ROT3
1    1 -1.2023  -1 +4 -6                  $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7                  $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -7 : -1 +3 -4    $CYLINDER OF STAINLESS STEEL
4    0          +2 -8 +9 -10 +11 +5 -12   $CUBOID VOID
5    0          -2 +7 -12                 $VOID
6    3 -2.3210  (+8:-9:+10:-11) -13 +14 -15 +16 +5 -12 $CONCRETE REFLECTOR (SIDES)
7    0          +2 -13 +14 -15 +16 +3 -5  $VOID
8    0          -13 +14 -15 +16 +12 -17   $VOID
9    3 -2.3210  -13 +14 -15 +16 +17 -18   $CONCRETE REFLECTOR (TOP)
10   3 -2.3210  -13 +14 -15 +16 -3 +19    $CONCRETE REFLECTOR (BOTTOM)
11   0          +13:-14:+15:-16:+18:-19   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +0.90
6    pz +24.83
7    pz +42.24
8    px +104.1
9    px -17.31
10   py +16.76
11   py -105.6
12   pz +122.8
13   px +129.8
14   px -43.01
15   py +42.46
16   py -131.3
17   pz +123.7
18   pz +149.4
19   pz -25.7

mode n
imp:n 1 9r 0
m1    92234.50c     3.79680-6
      92235.50c     3.44662-4
      92236.50c     1.59864-6
      92238.50c     1.96211-5
       7014.50c     9.03160-4
       8016.50c     3.50471-2
       1001.50c     6.33603-2
mt1   lwtr.01t
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT4  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.2069  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF STAINLESS STEEL
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    0          -2 -3 +12                 $VOID
7    3 -1.1800  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -13 +14 -15 +16 +11 -17   $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -13 +14 -15 +16 -12 +18   $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +13:-14:+15:-16:+17:-18   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +30.35
6    pz +42.24
7    px +61.2
8    px -61.7
9    py +60.4
10   py -62.5
11   pz +81.4
```

```
ROT3
1    1 -1.2023  -1 +4 -6                  $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7                  $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -7 : -1 +3 -4    $CYLINDER OF STAINLESS STEEL
4    0          +2 -8 +9 -10 +11 +5 -12   $CUBOID VOID
5    0          -2 +7 -12                 $VOID
6    3 -2.3210  (+8:-9:+10:-11) -13 +14 -15 +16 +5 -12 $CONCRETE REFLECTOR (SIDES)
7    0          +2 -13 +14 -15 +16 +3 -5  $VOID
8    0          -13 +14 -15 +16 +12 -17   $VOID
9    3 -2.3210  -13 +14 -15 +16 +17 -18   $CONCRETE REFLECTOR (TOP)
10   3 -2.3210  -13 +14 -15 +16 -3 +19    $CONCRETE REFLECTOR (BOTTOM)
11   0          +13:-14:+15:-16:+18:-19   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +0.90
6    pz +24.83
7    pz +42.24
8    px +104.1
9    px -17.31
10   py +16.76
11   py -105.6
12   pz +122.8
13   px +129.8
14   px -43.01
15   py +42.46
16   py -131.3
17   pz +123.7
18   pz +149.4
19   pz -25.7

mode n
imp:n 1 9r 0
m1    92234.50c     3.79680-6
      92235.50c     3.44662-4
      92236.50c     1.59864-6
      92238.50c     1.96211-5
       7014.50c     9.03160-4
       8016.50c     3.50471-2
       1001.50c     6.33603-2
mt1   lwtr.01t
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT4  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.2069  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF STAINLESS STEEL
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    0          -2 -3 +12                 $VOID
7    3 -1.1800  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -13 +14 -15 +16 +11 -17   $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -13 +14 -15 +16 -12 +18   $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +13:-14:+15:-16:+17:-18   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +30.35
6    pz +42.24
7    px +61.2
8    px -61.7
9    py +60.4
10   py -62.5
11   pz +81.4
```

```
12   pz -41.5
13   px +82.0
14   px -82.5
15   py +81.2
16   py -83.3
17   pz +101.6
18   pz -62.3

mode n
imp:n 1 8r 0
m1    92234.50c     3.88306-6
      92235.50c     3.52492-4
      92236.50c     1.63496-6
      92238.50c     2.00669-5
       7014.50c     9.19354-4
       8016.50c     3.50860-2
       1001.50c     6.33067-2
mt1   lwtr.01t
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT5  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.2069  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF STAINLESS STEEL
4    0          +2 -7 +8 -9 +10 +3 -11    $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16   $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17    $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +25.67
6    pz +42.24
7    px +105.0
8    px -17.91
9    py +17.06
10   py -105.6
11   pz +122.9
12   px +125.8
13   px -38.71
14   py +37.86
15   py -126.4
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1    92234.50c     3.88306-6
      92235.50c     3.52492-4
      92236.50c     1.63496-6
      92238.50c     2.00669-5
       7014.50c     9.19354-4
       8016.50c     3.50860-2
       1001.50c     6.33067-2
mt1   lwtr.01t
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
```

```
ksrc  0 0 5
print


ROT6
1    1 -1.48    -1 +3 -4                 $CYLINDER OF URANYL NITRATE
2    0          -1 +4 -5                 $CYLINDER VOID (ABOVE SOLUTION)
3    2 -7.9200  +1 -2 -5 +6 : -1 -3 +6   $CYLINDER OF STAINLESS STEEL
4    0             +2:+5:-6              $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +28.93
5    pz +41.60
6    pz -0.64

mode n
imp:n 1 1 1 0
m1    92234.50c     9.11806-6
      92235.50c     8.27710-4
      92236.50c     3.83915-6
      92238.50c     4.71203-5
       7014.50c     2.10197-3
       8016.50c     3.71438-2
       1001.50c     5.84509-2
mt1   lwtr.01t
m2    24000.50c 1.74286-2  25055.51c 1.73633-3  26000.50c 5.93579-2
      28000.50c 7.72074-3
kcode 1000 1.0 10 100
ksrc  0 0 5
print

ROT7
1    1 -1.4636  -1 +4 -5                 $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                 $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -6 : -1 +3 -4   $CYLINDER OF STAINLESS STEEL
4    0          +2 -7 +8 -9 +10 -11 +12  $CUBOID VOID
5    0          -2 +6 -11 : -2 -3 +12    $VOID
6    3 -2.3210  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $CONCRETE REFLECTOR (SIDES)
7    0          -13 +14 -15 +16 +11 -17  $VOID
8    0          -13 +14 -15 +16 -12 +18  $VOID
9    3 -2.3210  -13 +14 -15 +16 +17 -19  $CONCRETE REFLECTOR (TOP)
10   3 -2.3210  -13 +14 -15 +16 -18 +20  $CONCRETE REFLECTOR (BOTTOM)
11   0          +13:-14:+15:-16:+19:-20  $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +27.87
6    pz +42.24
7    px +64.6
8    px -57.2
9    py +57.4
10   py -64.8
11   pz +81.1
12   pz -40.8
13   px +90.3
14   px -82.9
15   py +83.1
16   py -90.5
17   pz +82.0
18   pz -41.7
19   pz +107.7
20   pz -67.4

mode n
imp:n 1 9r 0
m1    92234.50c     8.80354-6
      92235.50c     7.99159-4
      92236.50c     3.70673-6
      92238.50c     4.54949-5
       7014.50c     2.02808-3
       8016.50c     3.70218-2
       1001.50c     5.87602-2
mt1   lwtr.01t
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
```

```
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print
```

```
ROT8
1    1 -1.4636  -1 +4 -6                  $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7                  $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -7 : -1 +3 -4    $CYLINDER OF STAINLESS STEEL
4    0          +2 -8 +9 -10 +11 +5 -12   $CUBOID VOID
5    0          -2 +7 -12                 $VOID
6    3 -2.3210  (+8:-9:+10:-11) -13 +14 -15 +16 +5 -12 $CONCRETE REFLECTOR (SIDES)
7    0          +2 -13 +14 -15 +16 +3 -5  $VOID
8    0          -13 +14 -15 +16 +12 -17   $VOID
9    3 -2.3210  -13 +14 -15 +16 +17 -18   $CONCRETE REFLECTOR (TOP)
10   3 -2.3210  -13 +14 -15 +16 -3 +19    $CONCRETE REFLECTOR (BOTTOM)
11   0          +13:-14:+15:-16:+18:-19   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +0.90
6    pz +22.43
7    pz +42.24
8    px +104.1
9    px -17.31
10   py +16.76
11   py -105.6
12   pz +122.8
13   px +129.8
14   px -43.01
15   py +42.46
16   py -131.3
17   pz +123.7
18   pz +149.4
19   pz -25.7

mode n
imp:n 1 9r 0
m1   92234.50c     8.80354-6
     92235.50c     7.99159-4
     92236.50c     3.70673-6
     92238.50c     4.54949-5
      7014.50c     2.02808-3
      8016.50c     3.70218-2
      1001.50c     5.87602-2
mt1  lwtr.01t
m2   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m3    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT9  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.4779  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF STAINLESS STEEL
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11 : -2 -3 +12     $VOID
6    3 -1.1800  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -13 +14 -15 +16 +11 -17   $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -13 +14 -15 +16 -12 +18   $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +13:-14:+15:-16:+17:-18   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +28.24
6    pz +42.24
7    px +61.2
8    px -61.7
9    py +60.4
10   py -62.5
11   pz +81.4
12   pz -41.5
```

```
13   px +82.0
14   px -82.5
15   py +81.2
16   py -83.3
17   pz +101.6
18   pz -62.3

mode n
imp:n 1 7r 0
m1    92234.50c     9.08124-6
      92235.50c     8.24367-4
      92236.50c     3.82365-6
      92238.50c     4.69300-5
       7014.50c     2.08999-3
       8016.50c     3.71251-2
       1001.50c     5.84951-2
mt1   lwtr.01t
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT11
1    1 -1.2007  -1 +3 -4                 $CYLINDER OF URANYL NITRATE
2    0          -1 +4 -5                 $CYLINDER VOID
3    2 -2.737   +1 -2 -5 +6 : -1 -3 +6   $CYLINDER OF ALUMINUM
4    0             +2:+5:-6              $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +33.55
5    pz +41.9
6    pz -0.64

mode n
imp:n 1 1 1 0
m1    92234.50c     3.75841-6
      92235.50c     3.41177-4
      92236.50c     1.58248-6
      92238.50c     1.94227-6
       7014.50c     9.02307-4
       8016.50c     3.50416-2
       1001.50c     6.33760-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT12
1    1 -1.2023  -1 +4 -5                 $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                 $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4   $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12  $CUBOID VOID
5    0          -2 +6 -11                $VOID
6    0          -2 -3 +12                $VOID
7    3 -2.3210  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $CONCRETE REFLECTOR (SIDES)
8    0          -13 +14 -15 +16 +11 -17  $VOID
9    0          -13 +14 -15 +16 -12 +18  $VOID
10   3 -2.3210  -13 +14 -15 +16 +17 -19  $CONCRETE REFLECTOR (TOP)
11   3 -2.3210  -13 +14 -15 +16 -18 +20  $CONCRETE REFLECTOR (BOTTOM)
12   0          +13:-14:+15:-16:+19:-20  $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
```

```
4    pz +0.64
5    pz +32.01
6    pz +42.54
7    px +64.6
8    px -57.2
9    py +57.4
10   py -64.8
11   pz +81.1
12   pz -40.8
13   px +90.3
14   px -82.9
15   py +83.1
16   py -90.5
17   pz +82.0
18   pz -41.7
19   pz +107.7
20   pz -67.4

mode n
imp:n 1 10r 0
m1   92234.50c     3.79680-6
     92235.50c     3.44662-4
     92236.50c     1.59864-6
     92238.50c     1.96211-5
      7014.50c     9.03160-4
      8016.50c     3.50471-2
      1001.50c     6.33603-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print

ROT13
1    1 -1.2023  -1 +4 -6                  $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -7 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -8 +9 -10 +11 +5 -12   $CUBOID VOID
5    0          -2 +7 -12                 $VOID
6    3 -2.3210  (+8:-9:+10:-11)  -13 +14 -15 +16 +5 -12 $CONCRETE REFLECTOR (SIDES)
7    0          +2 -13 +14 -15 +16 +3 -5  $VOID
8    0          -13 +14 -15 +16 +12 -17   $VOID
9    3 -2.3210  -13 +14 -15 +16 +17 -18   $CONCRETE REFLECTOR (TOP)
10   3 -2.3210  -13 +14 -15 +16 -3 +19    $CONCRETE REFLECTOR (BOTTOM)
11   0          +13:-14:+15:-16:+18:-19   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +0.64
5    pz +0.90
6    pz +25.34
7    pz +42.54
8    px +104.1
9    px -17.8
10   py +16.5
11   py -105.6
12   pz +122.8
13   px +129.8
14   px -43.5
15   py +42.2
16   py -131.3
17   pz +123.7
18   pz +149.4
19   pz -25.7

mode n
imp:n 1 9r 0
m1   92234.50c     3.79680-6
     92235.50c     3.44662-4
     92236.50c     1.59864-6
```

```
      92238.50c     1.96211-5
       7014.50c     9.03160-4
       8016.50c     3.50471-2
       1001.50c     6.33603-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print

ROT14  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.2069  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    0          -2 -3 +12                 $VOID
7    3 -1.1800  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -13 +14 -15 +16 +11 -17   $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -13 +14 -15 +16 -12 +18   $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +13:-14:+15:-16:+17:-18   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +0.64
5    pz +31.90
6    pz +42.54
7    px +61.2
8    px -61.7
9    py +60.4
10   py -62.5
11   pz +81.4
12   pz -41.5
13   px +82.0
14   px -82.5
15   py +81.2
16   py -83.3
17   pz +101.6
18   pz -62.3

mode n
imp:n 1 8r 0
m1    92234.50c     3.88306-6
      92235.50c     3.52492-4
      92236.50c     1.63496-6
      92238.50c     2.00669-5
       7014.50c     9.19354-4
       8016.50c     3.50860-2
       1001.50c     6.33067-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
```

```
     92238.50c     1.96211-5
      7014.50c     9.03160-4
      8016.50c     3.50471-2
      1001.50c     6.33603-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print

ROT14  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.2069  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    0          -2 -3 +12                 $VOID
7    3 -1.1800  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -13 +14 -15 +16 +11 -17    $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -13 +14 -15 +16 -12 +18    $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +13:-14:+15:-16:+17:-18   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +0.64
5    pz +31.90
6    pz +42.54
7    px +61.2
8    px -61.7
9    py +60.4
10   py -62.5
11   pz +81.4
12   pz -41.5
13   px +82.0
14   px -82.5
15   py +81.2
16   py -83.3
17   pz +101.6
18   pz -62.3

mode n
imp:n 1 8r 0
m1   92234.50c     3.88306-6
     92235.50c     3.52492-4
     92236.50c     1.63496-6
     92238.50c     2.00669-5
      7014.50c     9.19354-4
      8016.50c     3.50860-2
      1001.50c     6.33067-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
```

```
ksrc  0 0 5
print


ROT15  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.2069  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 +3 -11    $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16   $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17    $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +0.64
5    pz +25.90
6    pz +42.54
7    px +105.0
8    px -17.95
9    py +17.52
10   py -105.6
11   pz +122.9
12   px +125.8
13   px -38.75
14   py +38.32
15   py -126.4
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1   92234.50c     3.88306-6
     92235.50c     3.52492-4
     92236.50c     1.63496-6
     92238.50c     2.00669-5
      7014.50c     9.19354-4
      8016.50c     3.50860-2
      1001.50c     6.33067-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print

ROT16
1    1 -1.4951  -1 +3 -4                  $CYLINDER OF URANYL NITRATE
2    0          -1 +4 -5                  $CYLINDER VOID
3    2 -2.7370  +1 -2 -5 +6 : -1 -3 +6    $CYLINDER OF ALUMINUM
4    0             +2:+5:-6               $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +30.91
5    pz +41.9
6    pz -0.64

mode n
imp:n 1 1 1 0
m1   92234.50c     9.40680-6
     92235.50c     8.53921-4
     92236.50c     3.96073-6
     92238.50c     4.86125-5
      7014.50c     2.16242-3
      8016.50c     3.72609-2
      1001.50c     5.82143-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
```

```
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT17
1    1 -1.4636  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    0          -2 -3 +12                 $VOID
7    3 -2.3210  (+7:-8:+9:-10)  -13 +14 -15 +16 -11 +12 $CONCRETE REFLECTOR (SIDES)
8    0          -13 +14 -15 +16 +11 -17   $VOID
9    0          -13 +14 -15 +16 -12 +18   $VOID
10   3 -2.3210  -13 +14 -15 +16 +17 -19   $CONCRETE REFLECTOR (TOP)
11   3 -2.3210  -13 +14 -15 +16 -18 +20   $CONCRETE REFLECTOR (BOTTOM)
12   0          +13:-14:+15:-16:+19:-20   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +0.64
5    pz +29.24
6    pz +42.54
7    px +64.6
8    px -57.2
9    py +57.4
10   py -64.8
11   pz +81.1
12   pz -40.8
13   px +90.3
14   px -82.9
15   py +83.1
16   py -90.5
17   pz +82.0
18   pz -41.7
19   pz +107.7
20   pz -67.4

mode n
imp:n 1 10r 0
m1    92234.50c     8.80354-6
      92235.50c     7.99159-4
      92236.50c     3.70673-6
      92238.50c     4.54949-5
       7014.50c     2.02808-3
       8016.50c     3.70218-2
       1001.50c     5.87602-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print

ROT18
1    1 -1.4636  -1 +4 -6                  $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -7 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -8 +9 -10 +11 +5 -12   $CUBOID VOID
5    0          -2 +7 -12                 $VOID
6    3 -2.3210  (+8:-9:+10:-11)  -13 +14 -15 +16 +5 -12 $CONCRETE REFLECTOR (SIDES)
7    0          +2 -13 +14 -15 +16 +3 -5  $VOID
8    0          -13 +14 -15 +16 +12 -17   $VOID
```

```
9    3 -2.3210  -13 +14 -15 +16 +17 -18   $CONCRETE REFLECTOR (TOP)
10   3 -2.3210  -13 +14 -15 +16 -3 +19    $CONCRETE REFLECTOR (BOTTOM)
11   0          +13:-14:+15:-16:+18:-19   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +0.64
5    pz +0.90
6    pz +22.97
7    pz +42.54
8    px +104.1
9    px -18.05
10   py +16.65
11   py -105.6
12   pz +122.8
13   px +129.8
14   px -43.75
15   py +42.35
16   py -131.3
17   pz +123.7
18   pz +149.4
19   pz -25.7

mode n
imp:n 1 9r 0
m1    92234.50c     8.80354-6
      92235.50c     7.99159-4
      92236.50c     3.70673-6
      92238.50c     4.54949-5
       7014.50c     2.02808-3
       8016.50c     3.70218-2
       1001.50c     5.87602-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT19  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.4779  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    0          -2 -3 +12                 $VOID
7    3 -1.1800  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -13 +14 -15 +16 +11 -17    $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -13 +14 -15 +16 -12 +18    $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +13:-14:+15:-16:+17:-18   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +0.64
5    pz +29.48
6    pz +42.54
7    px +61.2
8    px -61.7
9    py +60.4
10   py -62.5
11   pz +81.4
12   pz -41.5
13   px +82.0
14   px -82.5
15   py +81.2
16   py -83.3
17   pz +101.6
```

```
18   pz -62.3

mode n
imp:n 1 8r 0
m1    92234.50c     9.08124-6
      92235.50c     8.24367-4
      92236.50c     3.82365-6
      92238.50c     4.69300-5
       7014.50c     2.08999-3
       8016.50c     3.71251-2
       1001.50c     5.84951-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT20  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.4779  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 +3 -11    $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16   $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17    $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +0.64
5    pz +23.51
6    pz +42.54
7    px +105.0
8    px -17.8
9    py +17.5
10   py -105.6
11   pz +122.9
12   px +125.8
13   px -38.6
14   py +38.3
15   py -126.4
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1    92234.50c     9.08124-6
      92235.50c     8.24367-4
      92236.50c     3.82365-6
      92238.50c     4.69300-5
       7014.50c     2.08999-3
       8016.50c     3.71251-2
       1001.50c     5.84951-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
```

```
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT21
1    1 -1.2038  -1 +3 -4                 $CYLINDER OF URANYL NITRATE
2    0          -1 +4 -5                 $CYLINDER VOID
3    2 -2.737   +1 -2 -5 +6 : -1 -3 +6   $CYLINDER OF ALUMINUM
4    0             +2:+5:-6              $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +23.67
5    pz +49.5
6    pz -0.64

mode n
imp:n 1 1 1 0
m1   92234.50c     3.83099-6
     92235.50c     3.47765-4
     92236.50c     1.61304-6
     92238.50c     1.97978-5
      7014.50c     9.23065-4
      8016.50c     3.50450-2
      1001.50c     6.32366-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT22
1    1 -1.2023  -1 +4 -5                 $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                 $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4   $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12  $CUBOID VOID
5    0          -2 +6 -11                $VOID
6    0          -2 -3 +12                $VOID
7    3 -2.3210  (+7:-8:+9:-10)  -13 +14 -15 +16 -11 +12 $CONCRETE REFLECTOR (SIDES)
8    0          -13 +14 -15 +16 +11.-17  $VOID
9    0          -13 +14 -15 +16 -12 +18  $VOID
10   3 -2.3210  -13 +14 -15 +16 +17 -19  $CONCRETE REFLECTOR (TOP)
11   3 -2.3210  -13 +14 -15 +16 -18 +20  $CONCRETE REFLECTOR (BOTTOM)
12   0          +13:-14:+15:-16:+19:-20  $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +23.49
6    pz +50.14
7    px +64.6
8    px -57.2
9    py +57.4
10   py -64.8
11   pz +81.1
12   pz -40.8
13   px +90.3
14   px -82.9
15   py +83.1
16   py -90.5
17   pz +82.0
18   pz -41.7
19   pz +107.7
20   pz -67.4

mode n
imp:n 1 10r 0
m1   92234.50c     3.79680-6
     92235.50c     3.44662-4
     92236.50c     1.59864-6
     92238.50c     1.96211-5
      7014.50c     9.03160-4
      8016.50c     3.50471-2
      1001.50c     6.33603-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
```

```
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT23
1    1 -1.2023  -1 +4 -6                 $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7                 $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -7 : -1 +3 -4   $CYLINDER OF ALUMINUM
4    0          +2 -8 +9 -10 +11 +5 -12  $CUBOID VOID
5    0          -2 +7 -12                $VOID
6    3 -2.3210  (+8:-9:+10:-11)  -13 +14 -15 +16 +5 -12 $CONCRETE REFLECTOR (SIDES)
7    0          +2 -13 +14 -15 +16 +3 -5  $VOID
8    0          -13 +14 -15 +16 +12 -17   $VOID
9    3 -2.3210  -13 +14 -15 +16 +17 -18   $CONCRETE REFLECTOR (TOP)
10   3 -2.3210  -13 +14 -15 +16 -3 +19    $CONCRETE REFLECTOR (BOTTOM)
11   0          +13:-14:+15:-16:+18:-19   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +0.90
6    pz +18.88
7    pz +50.14
8    px +104.1
9    px -17.92
10   py +16.825
11   py -105.6
12   pz +122.8
13   px +129.8
14   px -43.62
15   py +42.525
16   py -131.3
17   pz +123.7
18   pz +149.4
19   pz -25.7

mode n
imp:n 1 9r 0
m1   92234.50c     3.79680-6
     92235.50c     3.44662-4
     92236.50c     1.59864-6
     92238.50c     1.96211-5
      7014.50c     9.03160-4
      8016.50c     3.50471-2
      1001.50c     6.33603-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print
```

```
ROT24  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.2069  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    0          -2 -3 +12                 $VOID
7    3 -1.1800  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -13 +14 -15 +16 +11 -17    $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -13 +14 -15 +16 -12 +18    $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +13:-14:+15:-16:+17:-18   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +23.42
6    pz +50.14
7    px +61.2
8    px -61.7
9    py +60.4
10   py -62.5
11   pz +81.4
12   pz -41.5
13   px +82.0
14   px -82.5
15   py +81.2
16   py -83.3
17   pz +101.6
18   pz -62.3

mode n
imp:n 1 8r 0
m1    92234.50c     3.88306-6
      92235.50c     3.52492-4
      92236.50c     1.63496-6
      92238.50c     2.00669-5
       7014.50c     9.19354-4
       8016.50c     3.50860-2
       1001.50c     6.33067-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT25  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.2069  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 +3 -11    $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16   $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17    $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +19.13
6    pz +50.14
7    px +105.0
8    px -17.72
9    py +17.10
10   py -105.6
11   pz +122.9
12   px +125.8
13   px -38.52
14   py +37.9
15   py -126.4
```

```
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1   92234.50c     3.88306-6
     92235.50c     3.52492-4
     92236.50c     1.63496-6
     92238.50c     2.00669-5
      7014.50c     9.19354-4
      8016.50c     3.50860-2
      1001.50c     6.33067-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT26
1    1 -1.4951  -1 +3 -4                 $CYLINDER OF URANYL NITRATE
2    0          -1 +4 -5                 $CYLINDER VOID
3    2 -2.7370  +1 -2 -5 +6 : -1 -3 +6   $CYLINDER OF ALUMINUM
4    0             +2:+5:-6              $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +22.53
5    pz +49.5
6    pz -0.64

mode n
imp:n 1 1 1 0
m1   92234.50c     9.40680-6
     92235.50c     8.53921-4
     92236.50c     3.96073-6
     92238.50c     4.86125-5
      7014.50c     2.16242-3
      8016.50c     3.72609-2
      1001.50c     5.82143-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT27
1    1 -1.4636  -1 +4 -5                 $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                 $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4   $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12  $CUBOID VOID
5    0          -2 +6 -11                $VOID
6    0          -2 -3 +12                $VOID
7    3 -2.3210  (+7:-8:+9:-10)  -13 +14 -15 +16 -11 +12 $CONCRETE REFLECTOR (SIDES)
8    0          -13 +14 -15 +16 +11 -17  $VOID
9    0          -13 +14 -15 +16 -12 +18  $VOID
10   3 -2.3210  -13 +14 -15 +16 +17 -19  $CONCRETE REFLECTOR (TOP)
11   3 -2.3210  -13 +14 -15 +16 -18 +20  $CONCRETE REFLECTOR (BOTTOM)
12   0          +13:-14:+15:-16:+19:-20  $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
```

```
5    pz +22.14
6    pz +50.14
7    px +64.6
8    px -57.2
9    py +57.4
10   py -64.8
11   pz +81.1
12   pz -40.8
13   px +90.3
14   px -82.9
15   py +83.1
16   py -90.5
17   pz +82.0
18   pz -41.7
19   pz +107.7
20   pz -67.4

mode n
imp:n 1 10r 0
m1    92234.50c     8.80354-6
      92235.50c     7.99159-4
      92236.50c     3.70673-6
      92238.50c     4.54949-5
       7014.50c     2.02808-3
       8016.50c     3.70218-2
       1001.50c     5.87602-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print
```

```
ROT28
1    1 -1.4636  -1 +4 -6                  $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -7 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -8 +9 -10 +11 +5 -12   $CUBOID VOID
5    0          -2 +7 -12                 $VOID
6    3 -2.3210  (+8:-9:+10:-11)  -13 +14 -15 +16 +5 -12 $CONCRETE REFLECTOR (SIDES)
7    0          +2 -13 +14 -15 +16 +3 -5  $VOID
8    0          -13 +14 -15 +16 +12 -17   $VOID
9    3 -2.3210  -13 +14 -15 +16 +17 -18   $CONCRETE REFLECTOR (TOP)
10   3 -2.3210  -13 +14 -15 +16 -3 +19    $CONCRETE REFLECTOR (BOTTOM)
11   0          +13:-14:+15:-16:+18:-19   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +0.90
6    pz +17.42
7    pz +50.14
8    px +104.1
9    px -17.25
10   py +16.825
11   py -105.6
12   pz +122.8
13   px +129.8
14   px -42.95
15   py +42.525
16   py -131.3
17   pz +123.7
18   pz +149.4
19   pz -25.7

mode n
imp:n 1 9r 0
m1    92234.50c     8.80354-6
      92235.50c     7.99159-4
      92236.50c     3.70673-6
      92238.50c     4.54949-5
       7014.50c     2.02808-3
       8016.50c     3.70218-2
       1001.50c     5.87602-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT29  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.4779  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    0          -2 -3 +12                 $VOID
7    3 -1.1800  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -13 +14 -15 +16 +11 -17   $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -13 +14 -15 +16 -12 +18   $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +13:-14:+15:-16:+17:-18   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +22.31
6    pz +50.14
7    px +61.2
8    px -61.7
```

```
9    py +60.4
10   py -62.5
11   pz +81.4
12   pz -41.5
13   px +82.0
14   px -82.5
15   py +81.2
16   py -83.3
17   pz +101.6
18   pz -62.3

mode n
imp:n 1 8r 0
m1   92234.50c     9.08124-6
     92235.50c     8.24367-4
     92236.50c     3.82365-6
     92238.50c     4.69300-5
      7014.50c     2.08999-3
      8016.50c     3.71251-2
      1001.50c     5.84951-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT30  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.4779  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 +3 -11    $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16   $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17    $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +17.84
6    pz +50.14
7    px +105.0
8    px -17.7
9    py +17.3
10   py -105.6
11   pz +122.9
12   px +125.8
13   px -38.5
14   py +38.1
15   py -126.4
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1   92234.50c     9.08124-6
     92235.50c     8.24367-4
     92236.50c     3.82365-6
     92238.50c     4.69300-5
      7014.50c     2.08999-3
      8016.50c     3.71251-2
      1001.50c     5.84951-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
```

```
     26000.50c    1.38721-4
     29000.50c    6.42881-5
m3    8016.50c    1.42047-2
      1001.50c    5.68187-2
      6012.50c    3.55117-2
m4    7014.50c    5.5290-5
      8016.50c    1.4231-2
      1001.50c    5.5166-2
      6012.50c    3.3966-2
     15031.51c    3.8504-4
     17000.50c    3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT31  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.0837  -1 +4 -5                 $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                 $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -6 : -1 +3 -4   $CYLINDER OF STAINLESS STEEL
4    0          +2 -7 +8 -9 +10 +3 -11   $CUBOID VOID
5    0          -2 +6 -11                $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16  $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17   $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17  $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +51.16
6    pz +92.14
7    px +105.0
8    px -18.26
9    py +17.71
10   py -105.6
11   pz +122.9
12   px +125.8
13   px -39.06
14   py +38.51
15   py -126.4
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1   92234.50c    1.58625-6
     92235.50c    1.43995-4
     92236.50c    6.67891-7
     92238.50c    8.19743-6
      7014.50c    3.76944-4
      8016.50c    3.40819-2
      1001.50c    6.53523-2
mt1  lwtr.01t
m2   24000.50c    1.74286-2
     25055.51c    1.73633-3
     26000.50c    5.93579-2
     28000.50c    7.72074-3
m3    8016.50c    1.42047-2
      1001.50c    5.68187-2
      6012.50c    3.55117-2
m4    7014.50c    5.5290-5
      8016.50c    1.4231-2
      1001.50c    5.5166-2
      6012.50c    3.3966-2
     15031.51c    3.8504-4
     17000.50c    3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT32  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.0837  -1 +4 -5                 $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                 $CYLINDER VOID
3    2 -7.9200  +1 -2 +3 -6 : -1 +3 -4   $CYLINDER OF STAINLESS STEEL
4    0          +2 -7 +8 -9 +10 +3 -11   $CUBOID VOID
5    0          -2 +6 -11                $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16  $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17   $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17  $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 13.96
2    cz 14.28
3    pz 0.0
4    pz +0.64
5    pz +68.12
```

```
6    pz +92.14
7    px +61.3
8    px -61.6
9    py +61.6
10   py -61.8
11   pz +122.9
12   px +82.1
13   px -82.46
14   py +81.9
15   py -82.6
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1    92234.50c     1.58625-6
      92235.50c     1.43995-4
      92236.50c     6.67891-7
      92238.50c     8.19743-6
       7014.50c     3.76944-4
       8016.50c     3.40819-2
       1001.50c     6.53523-2
mt1   lwtr.01t
m2    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT33  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.0837  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 +3 -11    $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16   $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17    $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 14.005
2    cz 14.325
3    pz 0.0
4    pz +0.64
5    pz +52.31
6    pz +77.54
7    px +105.0
8    px -17.75
9    py +17.51
10   py -105.6
11   pz +122.9
12   px +125.8
13   px -38.55
14   py +38.31
15   py -126.4
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1    92234.50c     1.58625-6
      92235.50c     1.43995-4
      92236.50c     6.67891-7
      92238.50c     8.19743-6
       7014.50c     3.76944-4
       8016.50c     3.40819-2
       1001.50c     6.53523-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
```

```
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print
```

```
ROT34  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.0837  -1 +4 -5                $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4   $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12  $CUBOID VOID
5    0          -2 +6 -11               $VOID
6    0          -2 -3 +12               $VOID
7    3 -1.1800  (+7:-8:+9:-10) -13 +14 -15 +16 -11 +12 $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -13 +14 -15 +16 +11 -17   $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -13 +14 -15 +16 -12 +18   $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +13:-14:+15:-16:+17:-18   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +34.97
6    pz +50.14
7    px +61.2
8    px -61.7
9    py +60.4
10   py -62.5
11   pz +81.4
12   pz -41.5
13   px +82.0
14   px -82.5
15   py +81.2
16   py -83.3
17   pz +101.6
18   pz -62.3

mode n
imp:n 1 8r 0
m1    92234.50c     1.58625-6
      92235.50c     1.43995-4
      92236.50c     6.67891-7
      92238.50c     8.19743-6
       7014.50c     3.76944-4
       8016.50c     3.40819-2
       1001.50c     6.53523-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT35  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.0837  -1 +4 -5                $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4   $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 +3 -11   $CUBOID VOID
5    0          -2 +6 -11               $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16   $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17    $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +28.34
6    pz +50.14
7    px +105.0
8    px -17.72
9    py +17.10
10   py -105.6
11   pz +122.9
12   px +125.8
13   px -38.52
14   py +37.90
```

```
15   py -126.4
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1    92234.50c     1.58625-6
      92235.50c     1.43995-4
      92236.50c     6.67891-7
      92238.50c     8.19743-6
       7014.50c     3.76944-4
       8016.50c     3.40819-2
       1001.50c     6.53523-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT36  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.0837  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 +3 -11    $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16   $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17    $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +32.39
6    pz +50.14
7    px +61.3
8    px -61.6
9    py +61.1
10   py -61.8
11   pz +122.9
12   px +82.1
13   px -82.4
14   py +81.9
15   py -82.6
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1    92234.50c     1.58625-6
      92235.50c     1.43995-4
      92236.50c     6.67891-7
      92238.50c     8.19743-6
       7014.50c     3.76944-4
       8016.50c     3.40819-2
       1001.50c     6.53523-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
```

```
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print
```

```
ROT37  BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.0920  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 +3 -11    $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    3 -1.1800  (+7:-8:+9:-10) -12 +13 -14 +15 +3 -11 $PLEXIGLASS REFLECTOR (SIDES)
7    4 -1.286   -12 +13 -14 +15 +11 -16   $PLEXIGLASS REFLECTOR (TOP)
8    4 -1.286   -12 +13 -14 +15 -3 +17    $PLEXIGLASS REFLECTOR (BOTTOM)
9    0          +12:-13:+14:-15:+16:-17   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +25.74
6    pz +50.14
7    px +105.0
8    px -17.72
9    py +17.10
10   py -105.6
11   pz +122.9
12   px +125.8
13   px -38.52
14   py +37.90
15   py -126.4
16   pz +143.1
17   pz -20.8

mode n
imp:n 1 7r 0
m1    92234.50c     1.74430-6
      92235.50c     1.58342-4
      92236.50c     7.34436-7
      92238.50c     9.01419-6
       7014.50c     4.11936-4
       8016.50c     3.41462-2
       1001.50c     6.52137-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT38
1    1 -1.0825  -1 +4 -5                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6                  $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -6 : -1 +3 -4    $CYLINDER OF ALUMINUM
4    0          +2 -7 +8 -9 +10 -11 +12   $CUBOID VOID
5    0          -2 +6 -11                 $VOID
6    0          -2 -3 +12                 $VOID
7    3 -2.3210  (+7:-8:+9:-10)  -13 +14 -15 +16 -11 +12 $CONCRETE REFLECTOR (SIDES)
8    0          -13 +14 -15 +16 +11 -17   $VOID
9    0          -13 +14 -15 +16 -12 +18   $VOID
10   3 -2.3210  -13 +14 -15 +16 +17 -19   $CONCRETE REFLECTOR (TOP)
11   3 -2.3210  -13 +14 -15 +16 -18 +20   $CONCRETE REFLECTOR (BOTTOM)
12   0          +13:-14:+15:-16:+19:-20   $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +37.74
6    pz +50.14
7    px +64.6
8    px -57.2
9    py +57.4
10   py -64.8
11   pz +81.1
12   pz -40.8
13   px +90.3
14   px -82.9
15   py +83.1
```

```
16   py -90.5
17   pz +82.0
18   pz -41.7
19   pz +107.7
20   pz -67.4

mode n
imp:n 1 10r 0
m1    92234.50c     1.56863-6
      92235.50c     1.42396-4
      92236.50c     6.60472-7
      92238.50c     8.10638-6
       7014.50c     3.74115-4
       8016.50c     3.40650-2
       1001.50c     6.53430-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT39
1    1 -1.0825  -1 +4 -6                 $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7                 $CYLINDER VOID
3    2 -2.737   +1 -2 +3 -7 : -1 +3 -4   $CYLINDER OF ALUMINUM
4    0          +2 -8 +9 -10 +11 +5 -12  $CUBOID VOID
5    0          -2 +7 -12                $VOID
6    3 -2.3210  (+8:-9:+10:-11)  -13 +14 -15 +16 +5 -12 $CONCRETE REFLECTOR (SIDES)
7    0          +2 -13 +14 -15 +16 +3 -5 $VOID
8    0          -13 +14 -15 +16 +12 -17  $VOID
9    3 -2.3210  -13 +14 -15 +16 +17 -18  $CONCRETE REFLECTOR (TOP)
10   3 -2.3210  -13 +14 -15 +16 -3 +19    $CONCRETE REFLECTOR (BOTTOM)
11   0          +13:-14:+15:-16:+18:-19  $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +0.64
5    pz +0.90
6    pz +27.91
7    pz +50.14
8    px +104.1
9    px -17.92
10   py +16.825
11   py -105.6
12   pz +122.8
13   px +129.8
14   px -43.62
15   py +42.525
16   py -131.3
17   pz +123.7
18   pz +149.4
19   pz -25.7

mode n
imp:n 1 9r 0
m1    92234.50c     1.56863-6
      92235.50c     1.42396-4
      92236.50c     6.60472-7
      92238.50c     8.10638-6
       7014.50c     3.74115-4
       8016.50c     3.40650-2
       1001.50c     6.53430-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
```

```
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT40
1    1 -1.0825  -1 +3 -4                $CYLINDER OF URANYL NITRATE
2    0          -1 +4 -5                $CYLINDER VOID
3    2 -2.7370  +1 -2 -5 +6 : -1 -3 +6   $CYLINDER OF ALUMINUM
4    0             +2:+5:-6             $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +36.67
5    pz +49.50
6    pz -0.64

mode n
imp:n 1 1 1 0
m1   92234.50c     1.56863-6
     92235.50c     1.42396-4
     92236.50c     6.60472-7
     92238.50c     8.10638-6
      7014.50c     3.74115-4
      8016.50c     3.40650-2
      1001.50c     6.53430-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT41
1    1 -1.0758  -1 +3 -4                $CYLINDER OF URANYL NITRATE
2    0          -1 +4 -5                $CYLINDER VOID
3    2 -2.7370  +1 -2 -5 +6 : -1 -3 +6   $CYLINDER OF ALUMINUM
4    0             +2:+5:-6             $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +39.48
5    pz +49.50
6    pz -0.64

mode n
imp:n 1 1 1 0
m1   92234.50c     1.44346-6
     92235.50c     1.31033-4
     92236.50c     6.07767-7
     92238.50c     7.45950-6
      7014.50c     3.44319-4
      8016.50c     3.40108-2
      1001.50c     6.54568-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
kcode 1000 1.0 10 100
```

```
ksrc  0 0 5
print


ROT42
1    1 -1.1923  -1 +3 -4                 $CYLINDER OF URANYL NITRATE
2    0          -1 +4 -5                 $CYLINDER VOID
3    2 -2.7370  +1 -2 -5 +6 : -1 -3 +6   $CYLINDER OF ALUMINUM
4    0             +2:+5:-6              $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 16.505
2    cz 16.825
3    pz 0.0
4    pz +23.96
5    pz +49.50
6    pz -0.64

mode n
imp:n 1 1 1 0
m1   92234.50c     3.61325-6
     92235.50c     3.27999-4
     92236.50c     1.52136-6
     92238.50c     1.86725-5
      7014.50c     8.76449-4
      8016.50c     3.49534-2
      1001.50c     6.34137-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT43
1    1 -1.0883  -1 +3 -4                 $CYLINDER OF URANYL NITRATE
2    0          -1 +4 -5                 $CYLINDER VOID
3    2 -2.7370  +1 -2 -5 +6 : -1 -3 +6   $CYLINDER OF ALUMINUM
4    0             +2:+5:-6              $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 25.345
2    cz 25.665
3    pz 0.0
4    pz +20.48
5    pz +30.9
6    pz -0.64

mode n
imp:n 1 1 1 0
m1   92234.50c     1.68171-6
     92235.50c     1.52661-4
     92236.50c     7.08084-7
     92238.50c     8.69075-6
      7014.50c     3.94328-4
      8016.50c     3.41088-2
      1001.50c     6.52634-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
kcode 1000 1.0 10 100
ksrc  0 0 5
print


ROT50
1    1 -1.0934  -1 +5 -6  u=1                  $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                  $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1    $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                  $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1               $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                   $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1  $CELL FILLED WITH 1-6
8    0          -14 +15 -16 +17 -18 +19 fill=2   $4X4X1 ARRAY
9    4 -2.3210  #8 -20 +21 -22 +23 +4 -13       $CONCRETE REFLECTOR (SIDES)
```

```
10   0          #8 -20 +21 -22 +23 +13 -18       $VOID
11   0          #8 -20 +21 -22 +23 -4 +19        $VOID
12   4 -2.3210  -20 +21 -22 +23 +18 -24          $CONCRETE REFLECTOR (TOP)
13   4 -2.3210  -20 +21 -22 +23 -19 +25          $CONCRETE REFLECTOR (BOTTOM)
14   0          +20:-21:+22:-23:+24:-25          $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    cz 11.28
4    pz -0.32
5    pz 0.0
6    pz +28.63
7    pz +119.1
8    pz +121.68
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   pz +122.28
14   px +106.7499
15   px -15.2499
16   py +106.7499
17   py -15.2499
18   pz +123.18
19   pz -1.22
20   px +132.45
21   px -40.95
22   py +132.45
23   py -40.95
24   pz +148.88
25   pz -26.92

mode n
imp:n 1 12r 0
m1    92234.50c     1.76928-6
      92235.50c     1.60610-4
      92236.50c     7.44955-7
      92238.50c     9.14329-6
       7014.50c     4.21618-4
       8016.50c     3.41572-2
       1001.50c     6.51727-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.51c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m4     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.51c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT51
1    1 -1.1057  -1 +5 -6  u=1                          $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                          $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1            $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                          $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                       $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                           $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1        $CELL FILLED WITH 1-6
8    0          -14 +15 -16 +17 -18 +19 fill=2         $2X2X1 ARRAY
9    0          (+14:-15:+16:-17) -26 +27 -28 +29 -18 +19  $CUBOID VOID
10   4 -2.3210  (+26:-27:+28:-29) -20 +21 -22 +23 +4 -13  $CONCRETE REFLECTOR (SIDES)
11   0          (+26:-27:+28:-29) -20 +21 -22 +23 +13 -18  $VOID
12   0          (+26:-27:+28:-29) -20 +21 -22 +23 -4 +19   $VOID
13   4 -2.3210  -20 +21 -22 +23 +18 -24                $CONCRETE REFLECTOR (TOP)
```

```
14   4 -2.3210  -20 +21 -22 +23 -19 +25                $CONCRETE REFLECTOR (BOTTOM)
15   0          +20:-21:+22:-23:+24:-25                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    cz 11.28
4    pz -0.32
5    pz 0.0
6    pz +60.7
7    pz +119.1
8    pz +121.68
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   pz +122.28
14   px +45.7499
15   px -15.2499
16   py +45.7499
17   py -15.2499
18   pz +123.18
19   pz -1.22
20   px +101.95
21   px -71.45
22   py +101.95
23   py -71.45
24   pz +148.88
25   pz -26.92
26   px +76.25
27   px -45.75
28   py +76.25
29   py -45.75

mode n
imp:n 1 13r 0
m1    92234.50c     2.00096-6
      92235.50c     1.81641-4
      92236.50c     8.42503-7
      92238.50c     1.03406-5
       7014.50c     4.72154-4
       8016.50c     3.42563-2
       1001.50c     6.49829-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m4     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print


ROT52
1    1 -1.1164  -1 +5 -6  u=1                    $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                    $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1      $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                    $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                 $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                     $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1  $CELL FILLED WITH 1-6
8    0          -14 +15 -16 +17 -18 +19 fill=2   $4X4X1 ARRAY
9    4 -2.3210  #8 -20 +21 -22 +23 +4 -13         $CONCRETE REFLECTOR (SIDES)
10   0          #8 -20 +21 -22 +23 +13 -18        $VOID
11   0          #8 -20 +21 -22 +23 -4 +19         $VOID
12   4 -2.3210  -20 +21 -22 +23 +18 -24           $CONCRETE REFLECTOR (TOP)
13   4 -2.3210  -20 +21 -22 +23 -19 +25           $CONCRETE REFLECTOR (BOTTOM)
14   0          +20:-21:+22:-23:+24:-25           $ZERO IMPORTANCE OUTSIDE WORLD
```

```
1    cz 8.06
2    cz 8.38
3    cz 8.69
4    pz -0.32
5    pz 0.0
6    pz +57.34
7    pz +119.1
8    pz +121.68
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   pz +122.28
14   px +106.7499
15   px -15.2499
16   py +106.7499
17   py -15.2499
18   pz +123.18
19   pz -1.22
20   px +132.45
21   px -40.95
22   py +132.45
23   py -40.95
24   pz +148.88
25   pz -26.92

mode n
imp:n 1 12r 0
m1    92234.50c     2.19556-6
      92235.50c     1.99306-4
      92236.50c     9.24440-7
      92238.50c     1.13462-5
       7014.50c     5.18479-4
       8016.50c     3.43500-2
       1001.50c     6.48249-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m4     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT53
1    1 -1.0934  -1 +3 -5  u=1                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                  $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1    $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                   $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1  $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -16 +17 fill=2 $4X4X1 ARRAY
7    3 -2.3210  #6 -18 +19 -20 +21 +4 -11       $CONCRETE REFLECTOR (SIDES)
8    0          #6 -18 +19 -20 +21 +11 -16      $VOID
9    0          #6 -18 +19 -20 +21 -4 +17       $VOID
10   3 -2.3210  -18 +19 -20 +21 +16 -22          $CONCRETE REFLECTOR (TOP)
11   3 -2.3210  -18 +19 -20 +21 -17 +23          $CONCRETE REFLECTOR (BOTTOM)
12   0          +18:-19:+20:-21:+22:-23         $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    pz 0.0
4    pz -0.32
5    pz +27.15
6    pz +119.1
```

```
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +122.28
12   px +106.7499
13   px -15.2499
14   py +106.7499
15   py -15.2499
16   pz +123.18
17   pz -1.22
18   px +132.45
19   px -40.95
20   py +132.45
21   py -40.95
22   pz +148.88
23   pz -26.92

mode n
imp:n 1 10r 0
m1    92234.50c     1.76928-6
      92235.50c     1.60610-4
      92236.50c     7.44955-7
      92238.50c     9.14329-6
       7014.50c     4.21618-4
       8016.50c     3.41572-2
       1001.50c     6.51727-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT54
1    1 -1.1057  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1            $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                           $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1          $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -16 +17 fill=2         $2X2X1 ARRAY
7    0          (+12:-13:+14:-15) -24 +25 -26 +27 -16 +17  $CUBOID VOID
8    3 -2.3210  (+24:-25:+26:-27) -18 +19 -20 +21 +4 -11   $CONCRETE REFLECTOR (SIDES)
9    0          (+24:-25:+26:-27) -18 +19 -20 +21 +11 -16  $VOID
10   0          (+24:-25:+26:-27) -18 +19 -20 +21 -4 +17   $VOID
11   3 -2.3210  -18 +19 -20 +21 +16 -22                $CONCRETE REFLECTOR (TOP)
12   3 -2.3210  -18 +19 -20 +21 -17 +23                $CONCRETE REFLECTOR (BOTTOM)
13   0          +18:-19:+20:-21:+22:-23                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    pz 0.0
4    pz -0.32
5    pz +62.34
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +122.28
12   px +45.7499
13   px -15.2499
14   py +45.7499
15   py -15.2499
16   pz +123.18
17   pz -1.22
```

```
18   px +101.95
19   px -71.45
20   py +101.95
21   py -71.45
22   pz +148.88
23   pz -26.92
24   px +76.25
25   px -45.75
26   py +76.25
27   py -45.75

mode n
imp:n 1 11r 0
m1    92234.50c     2.00096-6
      92235.50c     1.81641-4
      92236.50c     8.42503-7
      92238.50c     1.03406-5
       7014.50c     4.72154-4
       8016.50c     3.42563-2
       1001.50c     6.49829-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print


ROT55
1    1 -1.1122  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1            $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                           $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1          $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -16 +17 fill=2         $2X2X1 ARRAY
7    0          (+12:-13:+14:-15) -24 +25 -26 +27 -16 +17  $CUBOID VOID
8    3 -2.3210  (+24:-25:+26:-27) -18 +19 -20 +21 +4 -11   $CONCRETE REFLECTOR (SIDES)
9    0          (+24:-25:+26:-27) -18 +19 -20 +21 +11 -16  $VOID
10   0          (+24:-25:+26:-27) -18 +19 -20 +21 -4 +17   $VOID
11   3 -2.3210  -18 +19 -20 +21 +16 -22                 $CONCRETE REFLECTOR (TOP)
12   3 -2.3210  -18 +19 -20 +21 -17 +23                 $CONCRETE REFLECTOR (BOTTOM)
13   0          +18:-19:+20:-21:+22:-23                 $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    pz 0.0
4    pz -0.32
5    pz +57.88
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +122.28
12   px +45.7499
13   px -15.2499
14   py +45.7499
15   py -15.2499
16   pz +123.18
17   pz -1.22
18   px +101.95
19   px -71.45
20   py +101.95
21   py -71.45
22   pz +148.88
23   pz -26.92
24   px +76.25
25   px -45.75
26   py +76.25
27   py -45.75
```

```
mode n
imp:n 1 11r 0
m1    92234.50c     2.12272-6
      92235.50c     1.92694-4
      92236.50c     8.93769-7
      92238.50c     1.09698-5
       7014.50c     4.99477-4
       8016.50c     3.43092-2
       1001.50c     6.48810-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print

ROT56
1    1 -1.1164  -1 +3 -5  u=1                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                  $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1    $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                   $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1  $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -16 +17 fill=2  $4X4X1 ARRAY
7    3 -2.3210  #6 -18 +19 -20 +21 +4 -11       $CONCRETE REFLECTOR (SIDES)
8    0          #6 -18 +19 -20 +21 +11 -16      $VOID
9    0          #6 -18 +19 -20 +21 -4 +17       $VOID
10   3 -2.3210  -18 +19 -20 +21 +16 -22          $CONCRETE REFLECTOR (TOP)
11   3 -2.3210  -18 +19 -20 +21 -17 +23          $CONCRETE REFLECTOR (BOTTOM)
12   0          +18:-19:+20:-21:+22:-23         $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    pz 0.0
4    pz -0.32
5    pz +51.21
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +122.28
12   px +106.7499
13   px -15.2499
14   py +106.7499
15   py -15.2499
16   pz +123.18
17   pz -1.22
18   px +132.45
19   px -40.95
20   py +132.45
21   py -40.95
22   pz +148.88
23   pz -26.92

mode n
imp:n 1 10r 0
m1    92234.50c     2.19556-6
      92235.50c     1.99306-4
      92236.50c     9.24440-7
      92238.50c     1.13462-5
       7014.50c     5.18479-4
       8016.50c     3.43500-2
       1001.50c     6.48249-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
```

```
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT57
1    1 -1.5120  -1 +5 -6  u=1                  $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                  $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1    $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                  $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1               $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                   $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1  $CELL FILLED WITH 1-6
8    0          -14 +15 -16 +17 -18 +19 fill=2   $4X4X1 ARRAY
9    4 -2.3210  #8 -20 +21 -22 +23 +4 -13       $CONCRETE REFLECTOR (SIDES)
10   0          #8 -20 +21 -22 +23 +13 -18      $VOID
11   0          #8 -20 +21 -22 +23 -4 +19       $VOID
12   4 -2.3210  -20 +21 -22 +23 +18 -24         $CONCRETE REFLECTOR (TOP)
13   4 -2.3210  -20 +21 -22 +23 -19 +25         $CONCRETE REFLECTOR (BOTTOM)
14   0          +20:-21:+22:-23:+24:-25         $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    cz 11.28
4    pz -0.32
5    pz 0.0
6    pz +17.24
7    pz +119.1
8    pz +121.68
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   pz +122.28
14   px +106.7499
15   px -15.2499
16   py +106.7499
17   py -15.2499
18   pz +123.18
19   pz -1.22
20   px +132.45
21   px -40.95
22   py +132.45
23   py -40.95
24   pz +148.88
25   pz -26.92

mode n
imp:n 1 12r 0
m1   92234.50c     9.72894-6
     92235.50c     8.83164-4
     92236.50c     4.09637-6
     92238.50c     5.02772-5
      7014.50c     2.25466-3
      8016.50c     3.73810-2
      1001.50c     5.78051-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.51c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m4    7014.50c     1.99630-5
      8016.50c     4.23724-2
```

```
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.51c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT58
1    1 -1.5054  -1 +3 -5  u=1                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                  $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1    $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                   $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1  $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -16 +17 fill=2 $4X4X1 ARRAY
7    3 -2.3210  #6 -18 +19 -20 +21 +4 -11       $CONCRETE REFLECTOR (SIDES)
8    0    .     #6 -18 +19 -20 +21 +11 -16     $VOID
9    0          #6 -18 +19 -20 +21 -4 +17      $VOID
10   3 -2.3210  -18 +19 -20 +21 +16 -22         $CONCRETE REFLECTOR (TOP)
11   3 -2.3210  -18 +19 -20 +21 -17 +23         $CONCRETE REFLECTOR (BOTTOM)
12   0          +18:-19:+20:-21:+22:-23         $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    pz 0.0
4    pz -0.32
5    pz +17.13
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +122.28
12   px +106.7499
13   px -15.2499
14   py +106.7499
15   py -15.2499
16   pz +123.18
17   pz -1.22
18   px +132.45
19   px -40.95
20   py +132.45
21   py -40.95
22   pz +148.88
23   pz -26.92

mode n
imp:n 1 10r 0
m1    92234.50c     9.57510-6
      92235.50c     8.69199-4
      92236.50c     4.03159-6
      92238.50c     4.94822-5
       7014.50c     2.21627-3
       8016.50c     3.73700-2
       1001.50c     5.80649-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
```

```
      61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
      91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print



ROT59
1    1 -1.4995  -1 +5 -6  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1                $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                              $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                           $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                               $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1            $CELL FILLED WITH 1-6
8    0          -14 +15 -16 +17 -18 +19 fill=2             $2X2X1 ARRAY
9    0          (+14:-15:+16:-17) -26 +27 -28 +29 -18 +19  $CUBOID VOID
10   4 -2.3210  (+26:-27:+28:-29) -20 +21 -22 +23 +4 -13   $CONCRETE REFLECTOR (SIDES)
11   0          (+26:-27:+28:-29) -20 +21 -22 +23 +13 -18  $VOID
12   0          (+26:-27:+28:-29) -20 +21 -22 +23 -4 +19   $VOID
13   4 -2.3210  -20 +21 -22 +23 +18 -24                    $CONCRETE REFLECTOR (TOP)
14   4 -2.3210  -20 +21 -22 +23 -19 +25                    $CONCRETE REFLECTOR (BOTTOM)
15   0          +20:-21:+22:-23:+24:-25                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    cz 11.28
4    pz -0.32
5    pz 0.0
6    pz +29.49
7    pz +119.1
8    pz +121.68
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   pz +122.28
14   px +45.7499
15   px -15.2499
16   py +45.7499
17   py -15.2499
18   pz +123.18
19   pz -1.22
20   px +101.95
21   px -71.45
22   py +101.95
23   py -71.45
24   pz +148.88
25   pz -26.92
26   px +76.25
27   px -45.75
28   py +76.25
29   py -45.75

mode n
imp:n 1 13r 0
m1    92234.50c     9.47675-6
      92235.50c     8.60271-4
      92236.50c     3.99018-6
      92238.50c     4.89740-5
       7014.50c     2.19772-3
       8016.50c     3.73038-2
       1001.50c     5.80827-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m4     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
```

```
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print


ROT60
1    1 -1.5054  -1 +3 -5  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1                $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                               $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1              $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -16 +17 fill=2             $2X2X1 ARRAY
7    0          (+12:-13:+14:-15) -24 +25 -26 +27 -16 +17  $CUBOID VOID
8    3 -2.3210  (+24:-25:+26:-27) -18 +19 -20 +21 +4 -11   $CONCRETE REFLECTOR (SIDES)
9    0          (+24:-25:+26:-27) -18 +19 -20 +21 +11 -16  $VOID
10   0          (+24:-25:+26:-27) -18 +19 -20 +21 -4 +17   $VOID
11   3 -2.3210  -18 +19 -20 +21 +16 -22                     $CONCRETE REFLECTOR (TOP)
12   3 -2.3210  -18 +19 -20 +21 -17 +23                     $CONCRETE REFLECTOR (BOTTOM)
13   0          +18:-19:+20:-21:+22:-23                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    pz 0.0
4    pz -0.32
5    pz +31.11
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +122.28
12   px +45.7499
13   px -15.2499
14   py +45.7499
15   py -15.2499
16   pz +123.18
17   pz -1.22
18   px +101.95
19   px -71.45
20   py +101.95
21   py -71.45
22   pz +148.88
23   pz -26.92
24   px +76.25
25   px -45.75
26   py +76.25
27   py -45.75

mode n
imp:n 1 11r 0
m1    92234.50c     9.57510-6
      92235.50c     8.69199-4
      92236.50c     4.03159-6
      92238.50c     4.94822-5
       7014.50c     2.21627-3
       8016.50c     3.73700-2
       1001.50c     5.80649-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print


ROT61
1    1 -1.4995  -1 +5 -6  u=1                 $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                 $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1    $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                 $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1              $STAINLESS STEEL SLEEVE
```

```
6    0          +3:-4:+8 u=1                    $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1  $CELL FILLED WITH 1-6
8    0          -14 +15 -16 +17 -18 +19 fill=2  $4X4X1 ARRAY
9    4 -2.3210  #8 -20 +21 -22 +23 +4 -13       $CONCRETE REFLECTOR (SIDES)
10   0          #8 -20 +21 -22 +23 +13 -18      $VOID
11   0          #8 -20 +21 -22 +23 -4 +19       $VOID
12   4 -2.3210  -20 +21 -22 +23 +18 -24         $CONCRETE REFLECTOR (TOP)
13   4 -2.3210  -20 +21 -22 +23 -19 +25         $CONCRETE REFLECTOR (BOTTOM)
14   0          +20:-21:+22:-23:+24:-25         $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    cz 8.69
4    pz -0.32
5    pz 0.0
6    pz +32.32
7    pz +119.1
8    pz +121.68
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   pz +122.28
14   px +106.7499
15   px -15.2499
16   py +106.7499
17   py -15.2499
18   pz +123.18
19   pz -1.22
20   px +132.45
21   px -40.95
22   py +132.45
23   py -40.95
24   pz +148.88
25   pz -26.92

mode n
imp:n 1 12r 0
m1   92234.50c     9.47675-6
     92235.50c     8.60271-4
     92236.50c     3.99018-6
     92238.50c     4.89740-5
      7014.50c     2.19772-3
      8016.50c     3.73038-2
      1001.50c     5.80827-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m4    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT62
1    1 -1.4984  -1 +3 -5  u=1                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                  $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1    $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                   $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1  $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -16 +17 fill=2  $4X4X1 ARRAY
7    3 -2.3210  #6 -18 +19 -20 +21 +4 -11       $CONCRETE REFLECTOR (SIDES)
8    0          #6 -18 +19 -20 +21 +11 -16      $VOID
9    0          #6 -18 +19 -20 +21 -4 +17       $VOID
10   3 -2.3210  -18 +19 -20 +21 +16 -22          $CONCRETE REFLECTOR (TOP)
```

```
11   3 -2.3210  -18 +19 -20 +21 -17 +23          $CONCRETE REFLECTOR (BOTTOM)
12   0          +18:-19:+20:-21:+22:-23          $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    pz 0.0
4    pz -0.32
5    pz +31.82
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +122.28
12   px +106.7499
13   px -15.2499
14   py +106.7499
15   py -15.2499
16   pz +123.18
17   pz -1.22
18   px +132.45
19   px -40.95
20   py +132.45
21   py -40.95
22   pz +148.88
23   pz -26.92

mode n
imp:n 1 10r 0
m1    92234.50c     9.45519-6
      92235.50c     8.58313-4
      92236.50c     3.98110-6
      92238.50c     4.88625-5
       7014.50c     2.18930-3
       8016.50c     3.72979-2
       1001.50c     5.81256-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT63
1    1 -1.4984  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1            $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                           $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1          $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -16 +17 fill=2         $2X4X1 ARRAY
7    0          (+12:-13:+14:-15) -24 +8 -25 +10 -16 +17  $CUBOID VOID
8    3 -2.3210  (+24:-8:+25:-10) -18 +19 -20 +21 +4 -11   $CONCRETE REFLECTOR (SIDES)
9    0          (+24:-8:+25:-10) -18 +19 -20 +21 +11 -16  $VOID
10   0          (+24:-8:+25:-10) -18 +19 -20 +21 -4 +17   $VOID
11   3 -2.3210  -18 +19 -20 +21 +16 -22                 $CONCRETE REFLECTOR (TOP)
12   3 -2.3210  -18 +19 -20 +21 -17 +23                 $CONCRETE REFLECTOR (BOTTOM)
13   0          +18:-19:+20:-21:+22:-23                 $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    pz 0.0
4    pz -0.32
5    pz +51.45
6    pz +119.1
7    px +15.25
8    px -15.25
```

```
9    py +15.25
10   py -15.25
11   pz +122.28
12   px +45.7499
13   px -15.2499
14   py +106.7499
15   py -15.2499
16   pz +123.18
17   pz -1.22
18   px +132.45
19   px -40.95
20   py +132.45
21   py -40.95
22   pz +148.88
23   pz -26.92
24   px +106.75
25   py +106.75

mode n
imp:n 1 11r 0
m1    92234.50c     9.45519-6
      92235.50c     8.58313-4
      92236.50c     3.98110-6
      92238.50c     4.88625-5
       7014.50c     2.18930-3
       8016.50c     3.72979-2
       1001.50c     5.81256-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5  0 61.0 5 30.5 61.0 5
       0 91.5 5  30.5 91.5 5
print


ROT64
1    1 -1.4984  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1            $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                           $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1          $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -16 +17 fill=2         $2X3X1 ARRAY
7    0          (+12:-13:+14:-15) -24 +8 -25 +26 -16 +17   $CUBOID VOID
8    3 -2.3210  (+24:-8:+25:-26) -18 +19 -20 +21 +4 -11    $CONCRETE REFLECTOR (SIDES)
9    0          (+24:-8:+25:-26) -18 +19 -20 +21 +11 -16   $VOID
10   0          (+24:-8:+25:-26) -18 +19 -20 +21 -4 +17    $VOID
11   3 -2.3210  -18 +19 -20 +21 +16 -22                    $CONCRETE REFLECTOR (TOP)
12   3 -2.3210  -18 +19 -20 +21 -17 +23                    $CONCRETE REFLECTOR (BOTTOM)
13   0          +18:-19:+20:-21:+22:-23                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    pz 0.0
4    pz -0.32
5    pz +65.49
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +122.28
12   px +45.7499
13   px -15.2499
14   py +76.2499
15   py -15.2499
16   pz +123.18
17   pz -1.22
18   px +132.45
```

```
19   px -40.95
20   py +101.95
21   py -71.45
22   pz +148.88
23   pz -26.92
24   px +106.75
25   py +76.25
26   py -45.75

mode n
imp:n 1 11r 0
m1    92234.50c     9.45519-6
      92235.50c     8.58313-4
      92236.50c     3.98110-6
      92238.50c     4.88625-5
       7014.50c     2.18930-3
       8016.50c     3.72979-2
       1001.50c     5.81256-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
       0 61.0 5  30.5 61.0 5
print


ROT65
1    1 -1.4984  -1 +5 -6  u=1                          $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                          $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1            $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                          $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                       $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                           $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1        $CELL FILLED WITH 1-6
8    0          -14 +15 -16 +17 -18 +19 fill=2         $2X2X1 ARRAY
9    0          (+14:-15:+16:-17) -26 +10 -27 +28 -18 +19  $CUBOID VOID
10   4 -2.3210  (+26:-10:+27:-28) -20 +21 -22 +23 +4 -13  $CONCRETE REFLECTOR (SIDES)
11   0          (+26:-10:+27:-28) -20 +21 -22 +23 +13 -18  $VOID
12   0          (+26:-10:+27:-28) -20 +21 -22 +23 -4 +19   $VOID
13   4 -2.3210  -20 +21 -22 +23 +18 -24                 $CONCRETE REFLECTOR (TOP)
14   4 -2.3210  -20 +21 -22 +23 -19 +25                 $CONCRETE REFLECTOR (BOTTOM)
15   0          +20:-21:+22:-23:+24:-25                 $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    cz 8.69
4    pz -0.32
5    pz 0.0
6    pz +101.45
7    pz +119.1
8    pz +121.68
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   pz +122.28
14   px +45.7499
15   px -15.2499
16   py +45.7499
17   py -15.2499
18   pz +123.18
19   pz -1.22
20   px +132.45
21   px -40.95
22   py +71.45
23   py -101.95
24   pz +148.88
25   pz -26.92
```

```
26   px +106.75
27   py +45.75
28   py -76.25

mode n
imp:n 1 13r 0
m1    92234.50c     9.45519-6
      92235.50c     8.58313-4
      92236.50c     3.98110-6
      92238.50c     4.88625-5
       7014.50c     2.18930-3
       8016.50c     3.72979-2
       1001.50c     5.81256-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m4     7014.50c     1.99630-5
       8016.50c     4.23724-2
       1001.50c     1.04019-2
       6012.50c     6.42959-3
      11023.50c     3.83034-4
      12000.51c     7.18850-4
      13027.50c     1.12412-3
      14000.50c     7.71398-3
      16032.51c     8.28261-5
      19000.51c     4.89721-4
      20000.51c     8.02089-3
      22000.51c     2.91932-5
      26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print


ROT66
1    1 -1.4984  -1 +3 -5  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1                $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                               $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1              $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -16 +17 fill=2             $2X2X1 ARRAY
7    0          (+12:-13:+14:-15) -24 +8 -25 +26 -16 +17   $CUBOID VOID
8    3 -2.3210  (+24:-8:+25:-26) -18 +19 -20 +21 +4 -11    $CONCRETE REFLECTOR (SIDES)
9    0          (+24:-8:+25:-26) -18 +19 -20 +21 +11 -16   $VOID
10   0          (+24:-8:+25:-26) -18 +19 -20 +21 -4 +17    $VOID
11   3 -2.3210  -18 +19 -20 +21 +16 -22                     $CONCRETE REFLECTOR (TOP)
12   3 -2.3210  -18 +19 -20 +21 -17 +23                     $CONCRETE REFLECTOR (BOTTOM)
13   0          +18:-19:+20:-21:+22:-23                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    pz 0.0
4    pz -0.32
5    pz +104.04
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +122.28
12   px +45.7499
13   px -15.2499
14   py +45.7499
15   py -15.2499
16   pz +123.18
17   pz -1.22
18   px +132.45
19   px -40.95
20   py +71.45
21   py -101.95
22   pz +148.88
23   pz -26.92
24   px +106.75
25   py +45.75
26   py -76.25

mode n
imp:n 1 11r 0
```

```
m1   92234.50c     9.45519-6
     92235.50c     8.58313-4
     92236.50c     3.98110-6
     92238.50c     4.88625-5
      7014.50c     2.18930-3
      8016.50c     3.72979-2
      1001.50c     5.81256-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    7014.50c     1.99630-5
      8016.50c     4.23724-2
      1001.50c     1.04019-2
      6012.50c     6.42959-3
     11023.50c     3.83034-4
     12000.51c     7.18850-4
     13027.50c     1.12412-3
     14000.50c     7.71398-3
     16032.51c     8.28261-5
     19000.51c     4.89721-4
     20000.51c     8.02089-3
     22000.51c     2.91932-5
     26000.50c     2.52793-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print


ROT67    BROMINE LEFT OUT OF PLEXIGLASS (M5)
1    1 -1.0837  -1 +5 -6  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1                $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                              $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                           $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                               $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1            $CELL FILLED WITH 1-6
8    0          -13 +14 -15 +16 -17 +18 fill=2             $4X4X1 ARRAY
9    4 -1.1800  (+13:-14:+15:-16) -19 +20 -21 +22 -17 +18  $PLEXIGLASS REFLECTOR (SIDES)
10   5 -1.286   -19 +20 -21 +22 +17 -23                     $PLEXIGLASS REFLECTOR (TOP)
11   5 -1.286   -19 +20 -21 +22 -18 +24                     $PLEXIGLASS REFLECTOR (BOTTOM)
12   0          +19:-20:+21:-22:+23:-24                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    cz 11.28
4    pz -0.3201
5    pz 0.0
6    pz +34.82
7    pz +119.1
8    pz +121.6801
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   px +106.7499
14   px -15.2499
15   py +106.7499
16   py -15.2499
17   pz +121.68
18   pz -.32
19   px +127.55
20   px -36.05
21   py +127.55
22   py -36.05
23   pz +141.88
24   pz -21.12

mode n
imp:n 1 10r 0
m1   92234.50c     1.58625-6
     92235.50c     1.43995-4
     92236.50c     6.67891-7
     92238.50c     8.19743-6
      7014.50c     3.76944-4
      8016.50c     3.40819-2
      1001.50c     6.53523-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
```

```
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m4    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m5    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT68   BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.0837  -1 +3 -5  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1                $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                               $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1              $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -11 +16 fill=2             $4X4X1 ARRAY
7    3 -1.1800  (+12:-13:+14:-15) -17 +18 -19 +20 -11 +16  $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -17 +18 -19 +20 +11 -21                    $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -17 +18 -19 +20 -16 +22                    $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +17:-18:+19:-20:+21:-22                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    pz 0.0
4    pz -0.3201
5    pz +31.76
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +121.68
12   px +106.7499
13   px -15.2499
14   py +106.7499
15   py -15.2499
16   pz -.32
17   px +127.55
18   px -36.05
19   py +127.55
20   py -36.05
21   pz +141.88
22   pz -21.12

mode n
imp:n 1 8r 0
m1   92234.50c     1.58625-6
     92235.50c     1.43995-4
     92236.50c     6.67891-7
     92238.50c     8.19743-6
      7014.50c     3.76944-4
      8016.50c     3.40819-2
      1001.50c     6.53523-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
```

```
      91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print

ROT69   BROMINE LEFT OF OUT PLEXIGLASS (M5)
1    1 -1.0837  -1 +5 -6  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1                $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                              $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                           $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                               $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1            $CELL FILLED WITH 1-6
8    0          -13 +14 -15 +16 -17 +18 fill=2             $2X2X1 ARRAY
9    0          (+13:-14:+15:-16) -19 +20 -21 +22 -17 +18  $CUBOID VOID
10   4 -1.1800  (+19:-20:+21:-22) -23 +24 -25 +26 -17 +18  $PLEXIGLASS REFLECTOR (SIDES)
11   5 -1.286   -23 +24 -25 +26 +17 -27                     $PLEXIGLASS REFLECTOR (TOP)
12   5 -1.286   -23 +24 -25 +26 -18 +28                     $PLEXIGLASS REFLECTOR (BOTTOM)
13   0          +23:-24:+25:-26:+27:-28                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    cz 11.28
4    pz -0.3201
5    pz 0.0
6    pz +110.2
7    pz +119.1
8    pz +121.6801
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   px +45.7499
14   px -15.2499
15   py +45.7499
16   py -15.2499
17   pz +121.68
18   pz -.32
19   px +76.25
20   px -45.75
21   py +76.25
22   py -45.75
23   px +97.05
24   px -66.55
25   py +97.05
26   py -66.55
27   pz +141.88
28   pz -21.12

mode n
imp:n 1 11r 0
m1    92234.50c     1.58625-6
      92235.50c     1.43995-4
      92236.50c     6.67891-7
      92238.50c     8.19743-6
       7014.50c     3.76944-4
       8016.50c     3.40819-2
       1001.50c     6.53523-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m4     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m5     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print

ROT70   BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.0837  -1 +3 -5  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1                $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                               $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1              $CELL FILLED WITH 1-6
```

```
6    0          -12 +13 -14 +15 -11 +16 fill=2              $2X2X1 ARRAY
7    0          (+12:-13:+14:-15) -17 +18 -19 +20 -11 +16   $CUBOID VOID
8    3 -1.1800  (+17:-18:+19:-20) -21 +22 -23 +24 -11 +16   $PLEXIGLASS REFLECTOR (SIDES)
9    4 -1.286   -21 +22 -23 +24 +11 -25                      $PLEXIGLASS REFLECTOR (TOP)
10   4 -1.286   -21 +22 -23 +24 -16 +26                      $PLEXIGLASS REFLECTOR (BOTTOM)
11   0          +21:-22:+23:-24:+25:-26                     $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    pz 0.0
4    pz -0.3201
5    pz +102.29
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +121.68
12   px +45.7499
13   px -15.2499
14   py +45.7499
15   py -15.2499
16   pz -.32
17   px +76.25
18   px -45.75
19   py +76.25
20   py -45.75
21   px +97.05
22   px -66.55
23   py +97.05
24   py -66.55
25   pz +141.88
26   pz -21.12

mode n
imp:n 1 9r 0
m1    92234.50c     1.58625-6
      92235.50c     1.43995-4
      92236.50c     6.67891-7
      92238.50c     8.19743-6
       7014.50c     3.76944-4
       8016.50c     3.40819-2
       1001.50c     6.53523-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print


ROT71    BROMINE LEFT OUT OF PLEXIGLASS (M5)
1    1 -1.0837  -1 +5 -6  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1                $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                              $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                           $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                               $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1            $CELL FILLED WITH 1-6
8    0          -13 +14 -15 +16 -17 +18 fill=2             $4X4X1 ARRAY
9    4 -1.1800  (+13:-14:+15:-16) -19 +20 -21 +22 -17 +18  $PLEXIGLASS REFLECTOR (SIDES)
10   5 -1.286   -19 +20 -21 +22 +17 -23                     $PLEXIGLASS REFLECTOR (TOP)
11   5 -1.286   -19 +20 -21 +22 -18 +24                     $PLEXIGLASS REFLECTOR (BOTTOM)
12   0          +19:-20:+21:-22:+23:-24                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    cz 8.69
4    pz -0.3201
5    pz 0.0
6    pz +105.85
7    pz +119.1
8    pz +121.6801
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
```

```
13   px +106.7499
14   px -15.2499
15   py +106.7499
16   py -15.2499
17   pz +121.68
18   pz -.32
19   px +127.55
20   px -36.05
21   py +127.55
22   py -36.05
23   pz +141.88
24   pz -21.12

mode n
imp:n 1 10r 0
m1   92234.50c     1.58625-6
     92235.50c     1.43995-4
     92236.50c     6.67891-7
     92238.50c     8.19743-6
      7014.50c     3.76944-4
      8016.50c     3.40819-2
      1001.50c     6.53523-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m4    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m5    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT72   BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.0837  -1 +3 -5  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1                $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                               $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1              $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -11 +16 fill=2             $4X4X1 ARRAY
7    3 -1.1800  (+12:-13:+14:-15) -17 +18 -19 +20 -11 +16  $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -17 +18 -19 +20 +11 -21                    $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -17 +18 -19 +20 -16 +22                    $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +17:-18:+19:-20:+21:-22                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    pz 0.0
4    pz -0.3201
5    pz +78.40
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +121.68
12   px +106.7499
13   px -15.2499
14   py +106.7499
15   py -15.2499
16   pz -.32
17   px +127.55
18   px -36.05
19   py +127.55
20   py -36.05
21   pz +141.88
22   pz -21.12

mode n
imp:n 1 8r 0
m1   92234.50c     1.58625-6
```

```
     92235.50c     1.43995-4
     92236.50c     6.67891-7
     92238.50c     8.19743-6
      7014.50c     3.76944-4
      8016.50c     3.40819-2
      1001.50c     6.53523-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT73    BROMINE LEFT OUT OF PLEXIGLASS (M5)
1    1 -1.4925  -1 +5 -6  u=1                                  $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                                  $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1                    $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                                  $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                               $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                                   $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1                $CELL FILLED WITH 1-6
8    0          -13 +14 -15 +16 -17 +18 fill=2                 $4X4X1 ARRAY
9    4 -1.1800  (+13:-14:+15:-16) -19 +20 -21 +22 -17 +18      $PLEXIGLASS REFLECTOR (SIDES)
10   5 -1.286   -19 +20 -21 +22 +17 -23                        $PLEXIGLASS REFLECTOR (TOP)
11   5 -1.286   -19 +20 -21 +22 -18 +24                        $PLEXIGLASS REFLECTOR (BOTTOM)
12   0          +19:-20:+21:-22:+23:-24                        $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    cz 11.28
4    pz -0.3201
5    pz 0.0
6    pz +19.27
7    pz +119.1
8    pz +121.6801
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   px +106.7499
14   px -15.2499
15   py +106.7499
16   py -15.2499
17   pz +121.68
18   pz -.32
19   px +127.55
20   px -36.05
21   py +127.55
22   py -36.05
23   pz +141.88
24   pz -21.12

mode n
imp:n 1 10r 0
m1   92234.50c     9.36025-6
     92235.50c     8.49695-4
     92236.50c     3.94113-6
     92238.50c     4.83719-5
      7014.50c     2.12023-3
      8016.50c     3.72526-2
      1001.50c     5.84358-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3   24000.50c     1.74286-2
```

```
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m4    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m5    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT74   BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.4925  -1 +3 -5  u=1                                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                                  $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1                    $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                                   $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1                 $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -11 +16 fill=2                 $4X4X1 ARRAY
7    3 -1.1800  (+12:-13:+14:-15) -17 +18 -19 +20 -11 +16      $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -17 +18 -19 +20 +11 -21                        $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -17 +18 -19 +20 -16 +22                        $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +17:-18:+19:-20:+21:-22                        $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    pz 0.0
4    pz -0.3201
5    pz +18.82
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +121.68
12   px +106.7499
13   px -15.2499
14   py +106.7499
15   py -15.2499
16   pz -.32
17   px +127.55
18   px -36.05
19   py +127.55
20   py -36.05
21   pz +141.88
22   pz -21.12

mode n
imp:n 1 8r 0
m1   92234.50c     9.36025-6
     92235.50c     8.49695-4
     92236.50c     3.94113-6
     92238.50c     4.83719-5
      7014.50c     2.12023-3
      8016.50c     3.72526-2
      1001.50c     5.84358-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT75   BROMINE LEFT OUT OF PLEXIGLASS (M5)
```

```
1    1 -1.4925  -1 +5 -6  u=1                          $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                          $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1            $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                          $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                       $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                           $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1        $CELL FILLED WITH 1-6
8    0          -13 +14 -15 +16 -17 +18 fill=2         $2X2X1 ARRAY
9    0          (+13:-14:+15:-16) -19 +20 -21 +22 -17 +18  $CUBOID VOID
10   4 -1.1800  (+19:-20:+21:-22) -23 +24 -25 +26 -17 +18  $PLEXIGLASS REFLECTOR (SIDES)
11   5 -1.286   -23 +24 -25 +26 +17 -27                 $PLEXIGLASS REFLECTOR (TOP)
12   5 -1.286   -23 +24 -25 +26 -18 +28                 $PLEXIGLASS REFLECTOR (BOTTOM)
13   0          +23:-24:+25:-26:+27:-28                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    cz 11.28
4    pz -0.3201
5    pz 0.0
6    pz +31.93
7    pz +119.1
8    pz +121.6801
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   px +45.7499
14   px -15.2499
15   py +45.7499
16   py -15.2499
17   pz +121.68
18   pz -.32
19   px +76.25
20   px -45.75
21   py +76.25
22   py -45.75
23   px +97.05
24   px -66.55
25   py +97.05
26   py -66.55
27   pz +141.88
28   pz -21.12

mode n
imp:n 1 11r 0
m1    92234.50c     9.36025-6
      92235.50c     8.49695-4
      92236.50c     3.94113-6
      92238.50c     4.83719-5
       7014.50c     2.12023-3
       8016.50c     3.72526-2
       1001.50c     5.84358-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m4     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m5     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print



ROT76   BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.4925  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1            $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                           $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1          $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -11 +16 fill=2         $2X2X1 ARRAY
7    0          (+12:-13:+14:-15) -17 +18 -19 +20 -11 +16  $CUBOID VOID
```

```
8    3 -1.1800  (+17:-18:+19:-20) -21 +22 -23 +24 -11 +16   $PLEXIGLASS REFLECTOR (SIDES)
9    4 -1.286   -21 +22 -23 +24 +11 -25                     $PLEXIGLASS REFLECTOR (TOP)
10   4 -1.286   -21 +22 -23 +24 -16 +26                     $PLEXIGLASS REFLECTOR (BOTTOM)
11   0          +21:-22:+23:-24:+25:-26                     $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 10.56
2    cz 10.96
3    pz 0.0
4    pz -0.3201
5    pz +33.20
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +121.68
12   px +45.7499
13   px -15.2499
14   py +45.7499
15   py -15.2499
16   pz -.32
17   px +76.25
18   px -45.75
19   py +76.25
20   py -45.75
21   px +97.05
22   px -66.55
23   py +97.05
24   py -66.55
25   pz +141.88
26   pz -21.12

mode n
imp:n 1 9r 0
m1    92234.50c     9.36025-6
      92235.50c     8.49695-4
      92236.50c     3.94113-6
      92238.50c     4.83719-5
       7014.50c     2.12023-3
       8016.50c     3.72526-2
       1001.50c     5.84358-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m4     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  0 30.5 5  30.5 30.5 5
print


ROT77    BROMINE LEFT OUT OF PLEXIGLASS (M5)
1    1 -1.4925  -1 +5 -6  u=1                               $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                               $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1                 $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                               $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                            $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                                $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1             $CELL FILLED WITH 1-6
8    0          -13 +14 -15 +16 -17 +18 fill=2              $4X4X1 ARRAY
9    4 -1.1800  (+13:-14:+15:-16) -19 +20 -21 +22 -17 +18   $PLEXIGLASS REFLECTOR (SIDES)
10   5 -1.286   -19 +20 -21 +22 +17 -23                      $PLEXIGLASS REFLECTOR (TOP)
11   5 -1.286   -19 +20 -21 +22 -18 +24                      $PLEXIGLASS REFLECTOR (BOTTOM)
12   0          +19:-20:+21:-22:+23:-24                     $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    cz 8.69
4    pz -0.3201
5    pz 0.0
6    pz +38.10
7    pz +119.1
8    pz +121.6801
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   px +106.7499
```

```
14   px -15.2499
15   py +106.7499
16   py -15.2499
17   pz +121.68
18   pz -.32
19   px +127.55
20   px -36.05
21   py +127.55
22   py -36.05
23   pz +141.88
24   pz -21.12

mode n
imp:n 1 10r 0
m1    92234.50c     9.36025-6
      92235.50c     8.49695-4
      92236.50c     3.94113-6
      92238.50c     4.83719-5
       7014.50c     2.12023-3
       8016.50c     3.72526-2
       1001.50c     5.84358-2
mt1   lwtr.01t
m2    12000.51c     6.78153-4
      13027.50c     5.95056-2
      14000.50c     3.52126-4
      22000.51c     1.03277-5
      24000.50c     5.38898-5
      25055.51c     2.10015-5
      26000.50c     1.38721-4
      29000.50c     6.42881-5
m3    24000.50c     1.74286-2
      25055.51c     1.73633-3
      26000.50c     5.93579-2
      28000.50c     7.72074-3
m4     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m5     7014.50c     5.5290-5
       8016.50c     1.4231-2
       1001.50c     5.5166-2
       6012.50c     3.3966-2
      15031.51c     3.8504-4
      17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT78   BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.4925  -1 +3 -5  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1                $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                               $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1              $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -11 +16 fill=2             $4X4X1 ARRAY
7    3 -1.1800  (+12:-13:+14:-15) -17 +18 -19 +20 -11 +16  $PLEXIGLASS REFLECTOR (SIDES)
8    4 -1.286   -17 +18 -19 +20 +11 -21                    $PLEXIGLASS REFLECTOR (TOP)
9    4 -1.286   -17 +18 -19 +20 -16 +22                    $PLEXIGLASS REFLECTOR (BOTTOM)
10   0          +17:-18:+19:-20:+21:-22                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    pz 0.0
4    pz -0.3201
5    pz +35.56
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +121.68
12   px +106.7499
13   px -15.2499
14   py +106.7499
15   py -15.2499
16   pz -.32
17   px +127.55
18   px -36.05
19   py +127.55
20   py -36.05
21   pz +141.88
22   pz -21.12

mode n
imp:n 1 8r 0
m1    92234.50c     9.36025-6
```

```
     92235.50c     8.49695-4
     92236.50c     3.94113-6
     92238.50c     4.83719-5
      7014.50c     2.12023-3
      8016.50c     3.72526-2
      1001.50c     5.84358-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  91.5 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5  91.5 30.5 5  0 61.0 5  30.5 61.0 5  61.0 61.0 5
       91.5 61.0 5  0 91.5 5  30.5 91.5 5  61.0 91.5 5 91.5 91.5 0
print


ROT79   BROMINE LEFT OUT OF PLEXIGLASS (M5)
1    1 -1.4925  -1 +5 -6  u=1                              $CYLINDER OF URANYL NITRATE
2    0          -1 +6 -7  u=1                              $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -7 : -1 +4 -5  u=1                $CYLINDER OF ALUMINUM
4    0          -2 +7 -8  u=1                              $VOID
5    3 -7.9200  +2 -3 +4 -8  u=1                           $STAINLESS STEEL SLEEVE
6    0          +3:-4:+8 u=1                               $VOID
7    0          -9 +10 -11 +12 u=2 fill=1 lat=1            $CELL FILLED WITH 1-6
8    0          -13 +14 -15 +16 -17 +18 fill=2             $3X2X1 ARRAY
9    0          (+13:-14:+15:-16) -19 +10 -20 +21 -17 +18  $CUBOID VOID
10   4 -1.1800  (+19:-10:20:-21) -22 +23 -24 +25 -17 +18    $PLEXIGLASS REFLECTOR (SIDES)
11   5 -1.286   -22 +23 -24 +25 +17 -26                     $PLEXIGLASS REFLECTOR (TOP)
12   5 -1.286   -22 +23 -24 +25 -18 +27                     $PLEXIGLASS REFLECTOR (BOTTOM)
13   0          +22:-23:+24:-25:+26:-27                    $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    cz 8.69
4    pz -0.3201
5    pz 0.0
6    pz +95.2
7    pz +119.1
8    pz +121.6801
9    px +15.25
10   px -15.25
11   py +15.25
12   py -15.25
13   px +76.2499
14   px -15.2499
15   py +45.7499
16   py -15.2499
17   pz +121.68
18   pz -.32
19   px +106.75
20   py +76.25
21   py -45.75
22   px +127.55
23   px -36.05
24   py +97.05
25   py -66.55
26   pz +141.88
27   pz -21.12

mode n
imp:n 1 11r 0
m1   92234.50c     9.36025-6
     92235.50c     8.49695-4
     92236.50c     3.94113-6
     92238.50c     4.83719-5
      7014.50c     2.12023-3
      8016.50c     3.72526-2
      1001.50c     5.84358-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
```

```
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3   24000.50c     1.74286-2
     25055.51c     1.73633-3
     26000.50c     5.93579-2
     28000.50c     7.72074-3
m4    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m5    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5
print


ROT80   BROMINE LEFT OUT OF PLEXIGLASS (M4)
1    1 -1.4925  -1 +3 -5  u=1                                  $CYLINDER OF URANYL NITRATE
2    0          -1 +5 -6  u=1                                  $CYLINDER VOID
3    2 -2.737   +1 -2 +4 -6 : -1 -3 +4  u=1                    $CYLINDER OF ALUMINUM
4    0          +2:-4:+6 u=1                                   $VOID
5    0          -7 +8 -9 +10 u=2 fill=1 lat=1                  $CELL FILLED WITH 1-6
6    0          -12 +13 -14 +15 -11 +16 fill=2                 $3X2X1 ARRAY
7    0          (+12:-13:+14:-15) -17 +8 -18 +19 -11 +16       $CUBOID VOID
8    3 -1.1800  (+17:-8:+18:-19) -20 +21 -22 +23 -11 +16       $PLEXIGLASS REFLECTOR (SIDES)
9    4 -1.286   -20 +21 -22 +23 +11 -24                        $PLEXIGLASS REFLECTOR (TOP)
10   4 -1.286   -20 +21 -22 +23 -16 +25                        $PLEXIGLASS REFLECTOR (BOTTOM)
11   0          +20:-21:+22:-23:+24:-25                        $ZERO IMPORTANCE OUTSIDE WORLD

1    cz 8.06
2    cz 8.38
3    pz 0.0
4    pz -0.3201
5    pz +89.78
6    pz +119.1
7    px +15.25
8    px -15.25
9    py +15.25
10   py -15.25
11   pz +121.68
12   px +76.2499
13   px -15.2499
14   py +45.7499
15   py -15.2499
16   pz -.32
17   px +106.75
18   py +76.25
19   py -45.75
20   px +127.55
21   px -36.05
22   py +97.05
23   py -66.55
24   pz +141.88
25   pz -21.12

mode n
imp:n 1 9r 0
m1   92234.50c     9.36025-6
     92235.50c     8.49695-4
     92236.50c     3.94113-6
     92238.50c     4.83719-5
      7014.50c     2.12023-3
      8016.50c     3.72526-2
      1001.50c     5.84358-2
mt1  lwtr.01t
m2   12000.51c     6.78153-4
     13027.50c     5.95056-2
     14000.50c     3.52126-4
     22000.51c     1.03277-5
     24000.50c     5.38898-5
     25055.51c     2.10015-5
     26000.50c     1.38721-4
     29000.50c     6.42881-5
m3    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m4    7014.50c     5.5290-5
      8016.50c     1.4231-2
      1001.50c     5.5166-2
      6012.50c     3.3966-2
     15031.51c     3.8504-4
     17000.50c     3.5605-4
kcode 1000 1.0 10 100
ksrc   0 0 5  30.5 0 5  61.0 0 5  0 30.5 5  30.5 30.5 5
       61.0 30.5 5
```

```
print

TH01
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $2X2X2 ARRAY
9    0         +14:-15:+16:-17:+18:-19                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +10.875
9    px  -10.875
10   py  +10.875
11   py  -10.875
12   pz  +19.125
13   pz  -1.355
14   px  +32.62499
15   px  -10.87499
16   py  +32.62499
17   py  -10.87499
18   pz  +39.60499
19   pz  -1.35499

mode n
imp:n 1 7r 0
m1   92235.50c     9.84601-4
     92238.50c     7.76892-5
      8016.50c     3.74161-2
      7014.50c     2.12458-3
      1001.50c     5.78356-2
mt1  lwtr.01t
m2    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
kcode 1000 1.0 10 100
ksrc  0 0 5  21.75 0 5  0 21.75 5  21.75 21.75 5
      0 0 25.48  21.75 0 25.48  0 21.75 25.48  21.75 21.75 25.48
print


TH02
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $2X2X2 ARRAY
9    3 -0.9300 -20 +21 -22 +23 -24 +25 #8             $PARAFFIN REFLECTOR
10   0         +20:-21:+22:-23:+24:-25                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +11.80
9    px  -11.80
10   py  +11.80
11   py  -11.80
12   pz  +20.05
13   pz  -2.28
14   px  +35.39999
15   px  -11.79999
16   py  +35.39999
17   py  -11.79999
18   pz  +42.37999
19   pz  -2.27999
20   px  +36.67
21   px  -13.07
22   py  +36.67
23   py  -13.07
24   pz  +43.65
25   pz  -3.55
```

```
mode n
imp:n 1 8r 0
m1    92235.50c     9.84601-4
      92238.50c     7.76892-5
       8016.50c     3.74161-2
       7014.50c     2.12458-3
       1001.50c     5.78356-2
mt1   lwtr.01t
m2     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m3     1001.50c     8.26407-2
       6012.50c     3.97311-2
mt3   lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 5  22 0 5  0 22 5  22 22 5
      0 0 27  22 0 27  0 22 27  22 22 27
print


TH03
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $2X2X2 ARRAY
9    3 -0.9300 -20 +21 -22 +23 -24 +25 #8             $PARAFFIN REFLECTOR
10   0         +20:-21:+22:-23:+24:-25                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +13.615
9    px  -13.615
10   py  +13.615
11   py  -13.615
12   pz  +21.865
13   pz  -4.095
14   px  +40.84499
15   px  -13.61499
16   py  +40.84499
17   py  -13.61499
18   pz  +47.82499
19   pz  -4.09499
20   px  +44.655
21   px  -17.425
22   py  +44.655
23   py  -17.425
24   pz  +51.635
25   pz  -7.905

mode n
imp:n 1 8r 0
m1    92235.50c     9.84601-4
      92238.50c     7.76892-5
       8016.50c     3.74161-2
       7014.50c     2.12458-3
       1001.50c     5.78356-2
mt1   lwtr.01t
m2     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m3     1001.50c     8.26407-2
       6012.50c     3.97311-2
mt3   lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 5  27 0 5  0 27 5  27 27 5
      0 0 31  27 0 31  0 27 31  27 27 31
print


TH04
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $2X2X2 ARRAY
9    3 -0.9300 -20 +21 -22 +23 -24 +25 #8             $PARAFFIN REFLECTOR
10   0         +20:-21:+22:-23:+24:-25                $ZERO IMPORTANCE OUTSIDE WORLD
```

```
1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +14.40
9    px  -14.40
10   py  +14.40
11   py  -14.40
12   pz  +22.65
13   pz  -4.88
14   px  +43.19999
15   px  -14.39999
16   py  +43.19999
17   py  -14.39999
18   pz  +50.17999
19   pz  -4.87999
20   px  +50.82
21   px  -22.02
22   py  +50.82
23   py  -22.02
24   pz  +57.8
25   pz  -12.5

mode n
imp:n 1 8r 0
m1    92235.50c     9.84601-4
      92238.50c     7.76892-5
       8016.50c     3.74161-2
       7014.50c     2.12458-3
       1001.50c     5.78356-2
mt1   lwtr.01t
m2     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m3     1001.50c     8.26407-2
       6012.50c     3.97311-2
mt3   lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 8  29 0 8  0 29 8  29 29 8
      0 0 36  29 0 36  0 29 36  29 29 36
print


TH05
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $2X2X2 ARRAY
9    3 -0.9300 -20 +21 -22 +23 -24 +25 #8             $PARAFFIN REFLECTOR
10   0         +20:-21:+22:-23:+24:-25                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +14.655
9    px  -14.655
10   py  +14.655
11   py  -14.655
12   pz  +22.905
13   pz  -5.135
14   px  +43.96499
15   px  -14.65499
16   py  +43.96499
17   py  -14.65499
18   pz  +50.94499
19   pz  -5.13499
20   px  +59.205
21   px  -29.895
22   py  +59.205
23   py  -29.895
24   pz  +66.185
25   pz  -20.375

mode n
imp:n 1 8r 0
m1    92235.50c     9.84601-4
      92238.50c     7.76892-5
       8016.50c     3.74161-2
```

```
      7014.50c     2.12458-3
      1001.50c     5.78356-2
mt1  lwtr.01t
m2    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m3    1001.50c     8.26407-2
      6012.50c     3.97311-2
mt3  lwtr.01t
kcode 1000 1.0 10 100
ksrc  0 0 8  29 0 8  0 29 8  29 29 8
      0 0 36  29 0 36  0 29 36  29 29 36
print


TH06
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $2X2X2 ARRAY
9    2 -1.1800 -20 +21 -22 +23 -24 +25 #8             $PLEXIGLASS REFLECTOR
10   0         +20:-21:+22:-23:+24:-25                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +11.66
9    px  -11.66
10   py  +11.66
11   py  -11.66
12   pz  +19.91
13   pz  -2.14
14   px  +34.97999
15   px  -11.65999
16   py  +34.97999
17   py  -11.65999
18   pz  +41.95999
19   pz  -2.13999
20   px  +36.35
21   px  -12.93
22   py  +36.35
23   py  -12.93
24   pz  +43.23
25   pz  -3.41

mode n
imp:n 1 8r 0
m1    92235.50c     9.84601-4
      92238.50c     7.76892-5
       8016.50c     3.74161-2
       7014.50c     2.12458-3
       1001.50c     5.78356-2
mt1  lwtr.01t
m2    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
kcode 1000 1.0 10 100
ksrc  0 0 5  23 0 5  0 23 5  23 23 5
      0 0 27  23 0 27  0 23 27  23 23 27
print


TH07
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $3X3X3 ARRAY
9    0         +14:-15:+16:-17:+18:-19                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +13.40
```

```
9    px  -13.40
10   py  +13.40
11   py  -13.40
12   pz  +21.65
13   pz  -3.88
14   px  +40.19999
15   px  -40.19999
16   py  +40.19999
17   py  -40.19999
18   pz  +47.17999
19   pz  -29.40999

mode n
imp:n 1 7r 0
m1    92235.50c     9.84601-4
      92238.50c     7.76892-5
       8016.50c     3.74161-2
       7014.50c     2.12458-3
       1001.50c     5.78356-2
mt1   lwtr.01t
m2     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
kcode 1000 1.0 10 100
ksrc  -27 -27 -20  0 -27 -20  27 -27 -20  -27 0 -20  0 0 -20  27 0 -20
      -27 27 -20  0 27 -20  27 27 -20
      -27 -27 5  0 -27 5  27 -27 5  -27 0 5  0 0 5  27 0 5
      -27 27 5  0 27 5  27 27 5
      -27 -27 30  0 -27 30  27 -27 30  -27 0 30  0 0 30  27 0 30
      -27 27 30  0 27 30  27 27 30
print


TH08
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $3X3X3 ARRAY
9    3 -0.9300 -20 +21 -22 +23 -24 +25 #8             $PARAFFIN REFLECTOR
10   0         +20:-21:+22:-23:+24:-25                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +14.67
9    px  -14.67
10   py  +14.67
11   py  -14.67
12   pz  +22.92
13   pz  -5.15
14   px  +44.00999
15   px  -44.00999
16   py  +44.00999
17   py  -44.00999
18   pz  +50.98999
19   pz  -33.21999
20   px  +45.28
21   px  -45.28
22   py  +45.28
23   py  -45.28
24   pz  +52.26
25   pz  -34.49

mode n
imp:n 1 8r 0
m1    92235.50c     9.84601-4
      92238.50c     7.76892-5
       8016.50c     3.74161-2
       7014.50c     2.12458-3
       1001.50c     5.78356-2
mt1   lwtr.01t
m2     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m3     1001.50c     8.26407-2
       6012.50c     3.97311-2
mt3   lwtr.01t
kcode 1000 1.0 10 100
ksrc  -29 -29 -20  0 -29 -20  29 -29 -20  -29 0 -20  0 0 -20  29 0 -20
      -29 29 -20  0 29 -20  29 29 -20
```

```
      -29 -29 8  0 -29 8  29 -29 8  -29 0 8  0 0 8  29 0 8
      -29 29 8  0 29 8  29 29 8
      -29 -29 36  0 -29 36  29 -29 36  -29 0 36  0 0 36  29 0 36
      -29 29 36  0 29 36  29 29 36
print


TH09
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $3X3X3 ARRAY
9    3 -0.9300 -20 +21 -22 +23 -24 +25 #8             $PARAFFIN REFLECTOR
10   0         +20:-21:+22:-23:+24:-25                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +17.005
9    px  -17.005
10   py  +17.005
11   py  -17.005
12   pz  +25.255
13   pz  -7.485
14   px  +51.01499
15   px  -51.01499
16   py  +51.01499
17   py  -51.01499
18   pz  +57.99499
19   pz  -40.22499
20   px  +54.825
21   px  -54.825
22   py  +54.825
23   py  -54.825
24   pz  +61.805
25   pz  -44.035

mode n
imp:n 1 8r 0
m1    92235.50c     9.84601-4
      92238.50c     7.76892-5
       8016.50c     3.74161-2
       7014.50c     2.12458-3
       1001.50c     5.78356-2
mt1   lwtr.01t
m2     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
m3     1001.50c     8.26407-2
       6012.50c     3.97311-2
mt3   lwtr.01t
kcode 1000 1.0 10 100
ksrc  -34 -34 -28  0 -34 -28  34 -34 -28  -34 0 -28  0 0 -28  34 0 -28
      -34 34 -28  0 34 -28  34 34 -28
      -34 -34 5  0 -34 5  34 -34 5  -34 0 5  0 0 5  34 0 5
      -34 34 5  0 34 5  34 34 5
      -34 -34 33  0 -34 33  34 -34 33  -34 0 33  0 0 33  34 0 33
      -34 34 33  0 34 33  34 34 33
print


TH010
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $3X3X3 ARRAY
9    3 -0.9300 -20 +21 -22 +23 -24 +25 #8             $PARAFFIN REFLECTOR
10   0         +20:-21:+22:-23:+24:-25                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
```

```
8    px  +18.425
9    px  -18.425
10   py  +18.425
11   py  -18.425
12   pz  +26.675
13   pz  -8.905
14   px  +55.27499
15   px  -55.27499
16   py  +55.27499
17   py  -55.27499
18   pz  +62.25499
19   pz  -44.48499
20   px  +70.515
21   px  -70.515
22   py  +70.515
23   py  -70.515
24   pz  +77.495
25   pz  -59.725

mode n
imp:n 1 8r 0
m1   92235.50c     9.84601-4
     92238.50c     7.76892-5
      8016.50c     3.74161-2
      7014.50c     2.12458-3
      1001.50c     5.78356-2
mt1  lwtr.01t
m2    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
m3    1001.50c     8.26407-2
      6012.50c     3.97311-2
mt3  lwtr.01t
kcode 1000 1.0 10 100
ksrc  -37 -37 -30  0 -37 -30  37 -37 -30  -37 0 -30  0 0 -30  37 0 -30
      -37 37 -30  0 37 -30  37 37 -30
      -37 -37 5  0 -37 5  37 -37 5  -37 0 5  0 0 5  37 0 5
      -37 37 5  0 37 5  37 37 5
      -37 -37 40  0 -37 40  37 -37 40  -37 0 40  0 0 40  37 0 40
      -37 37 40  0 37 40  37 37 40
print


TH011
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $3X3X3 ARRAY
9    2 -1.1800 -20 +21 -22 +23 -24 +25 #8             $PLEXIGLASS REFLECTOR
10   0         +20:-21:+22:-23:+24:-25                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +14.54
9    px  -14.54
10   py  +14.54
11   py  -14.54
12   pz  +22.79
13   pz  -5.02
14   px  +43.61999
15   px  -43.61999
16   py  +43.61999
17   py  -43.61999
18   pz  +50.59999
19   pz  -32.82999
20   px  +44.89
21   px  -44.89
22   py  +44.89
23   py  -44.89
24   pz  +51.87
25   pz  -34.10

mode n
imp:n 1 8r 0
m1   92235.50c     9.84601-4
     92238.50c     7.76892-5
      8016.50c     3.74161-2
      7014.50c     2.12458-3
      1001.50c     5.78356-2
mt1  lwtr.01t
```

```
m2    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
kcode 1000 1.0 10 100
ksrc  -29 -29 -23  0 -29 -23  29 -29 -23  -29 0 -23  0 0 -23  29 0 -23
      -29 29 -23  0 29 -23  29 29 -23
      -29 -29 5  0 -29 5  29 -29 5  -29 0 5  0 0 5  29 0 5
      -29 29 5  0 29 5  29 29 5
      -29 -29 32  0 -29 32  29 -29 32  -29 0 32  0 0 32  29 0 32
      -29 29 32  0 29 32  29 29 32
print


TH012
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $4X4X4 ARRAY
9    0         +14:-15:+16:-17:+18:-19                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +15.495
9    px  -15.495
10   py  +15.495
11   py  -15.495
12   pz  +23.745
13   pz  -5.975
14   px  +108.46499
15   px  -15.49499
16   py  +108.46499
17   py  -15.49499
18   pz  +112.90499
19   pz  -5.97499

mode n
imp:n 1 7r 0
m1   92235.50c     9.84601-4
     92238.50c     7.76892-5
      8016.50c     3.74161-2
      7014.50c     2.12458-3
      1001.50c     5.78356-2
mt1  lwtr.01t
m2    8016.50c     1.42047-2
      1001.50c     5.68187-2
      6012.50c     3.55117-2
kcode 1000 1.0 10 100
ksrc  0 0 5  31 0 5  62 0 5  93 0 5  0 31 5  31 31 5  62 31 5  93 31 5
      0 62 5  31 62 5  62 62 5  93 62 5  0 93 5  31 93 5  62 93 5  93 93 5
      0 0 35  31 0 35  62 0 35  93 0 35  0 31 35  31 31 35  62 31 35  93 31 35
      0 62 35  31 62 35  62 62 35  93 62 35  0 93 35  31 93 35  62 93 35  93 93 35
      0 0 65  31 0 65  62 0 65  93 0 65  0 31 65  31 31 65  62 31 65  93 31 65
      0 62 65  31 62 65  62 62 65  93 62 65  0 93 65  31 93 65  62 93 65  93 93 65
      0 0 95  31 0 95  62 0 95  93 0 95  0 31 95  31 31 95  62 31 95  93 31 95
      0 62 95  31 62 95  62 62 95  93 62 95  0 93 95  31 93 95  62 93 95  93 93 95
print


TH013
1    1 -1.555  -1 +3 -5  u=1                          $CYLINDER OF URANYL NITRATE
2    0         -1 +5 -6  u=1                          $CYLINDER VOID
3    2 -1.1800 +1 -2 +4 -7  u=1                       $CYLINDER OF PLEXIGLASS
4    2 -1.1800 -1 +6 -7  u=1                          $PLEXIGLASS (TOP)
5    2 -1.1800 -1 -3 +4  u=1                          $PLEXIGLASS (BOTTOM)
6    0         +2:-4:+7  u=1                          $VOID
7    0         -8 +9 -10 +11 -12 +13  u=2 fill=1 lat=1 $CELL FILLED WITH 1-6
8    0         -14 +15 -16 +17 -18 +19  fill=2        $5X5X5 ARRAY
9    0         +14:-15:+16:-17:+18:-19                $ZERO IMPORTANCE OUTSIDE WORLD

1    cz  9.52
2    cz  10.16
3    pz  0.0
4    pz  -0.64
5    pz  +17.5609
6    pz  +17.77
7    pz  +18.41
8    px  +17.36
9    px  -17.36
10   py  +17.36
11   py  -17.36
12   pz  +25.61
```

```
13   pz  -7.84
14   px  +86.79999
15   px  -86.79999
16   py  +86.79999
17   py  -86.79999
18   pz  +92.50999
19   pz  -74.73999

mode n
imp:n 1 7r 0
m1    92235.50c     9.84601-4
      92238.50c     7.76892-5
       8016.50c     3.74161-2
       7014.50c     2.12458-3
       1001.50c     5.78356-2
mt1  lwtr.01t
m2     8016.50c     1.42047-2
       1001.50c     5.68187-2
       6012.50c     3.55117-2
kcode 1000 1.0 10 100
ksrc  -70 -70 -61  -35 -70 -61  0 -70 -61  35 -70 -61  70 -70 -61
      -70 -35 -61  -35 -35 -61  0 -35 -61  35 -35 -61  70 -35 -61
      -70 0 -61  -35 0 -61  0 0 -61  35 0 -61  70 0 -61
      -70 35 -61  -35 35 -61  0 35 -61  35 35 -61  70 35 -61
      -70 70 -61  -35 70 -61  0 70 -61  35 70 -61  70 70 -61
      -70 -70 -28  -35 -70 -28  0 -70 -28  35 -70 -28  70 -70 -28
      -70 -35 -28  -35 -35 -28  0 -35 -28  35 -35 -28  70 -35 -28
      -70 0 -28  -35 0 -28  0 0 -28  35 0 -28  70 0 -28
      -70 35 -28  -35 35 -28  0 35 -28  35 35 -28  70 35 -28
      -70 70 -28  -35 70 -28  0 70 -28  35 70 -28  70 70 -28
      -70 -70 5  -35 -70 5  0 -70 5  35 -70 5  70 -70 5
      -70 -35 5  -35 -35 5  0 -35 5  35 -35 5  70 -35 5
      -70 0 5  -35 0 5  0 0 5  35 0 5  70 0 5
      -70 35 5  -35 35 5  0 35 5  35 35 5  70 35 5
      -70 70 5  -35 70 5  0 70 5  35 70 5  70 70 5
      -70 -70 38  -35 -70 38  0 -70 38  35 -70 38  70 -70 38
      -70 -35 38  -35 -35 38  0 -35 38  35 -35 38  70 -35 38
      -70 0 38  -35 0 38  0 0 38  35 0 38  70 0 38
      -70 35 38  -35 35 38  0 35 38  35 35 38  70 35 38
      -70 70 38  -35 70 38  0 70 38  35 70 38  70 70 38
      -70 -70 71  -35 -70 71  0 -70 71  35 -70 71  70 -70 71
      -70 -35 71  -35 -35 71  0 -35 71  35 -35 71  70 -35 71
      -70 0 71  -35 0 71  0 0 71  35 0 71  70 0 71
      -70 35 71  -35 35 71  0 35 71  35 35 71  70 35 71
      -70 70 71  -35 70 71  0 70 71  35 70 71  70 70 71
print
```