

Loose Plate with Box

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c
c      Cask
c
10     2 -1.0      -400 424 -410 #20 #21 #22 #23
      #24 #25 #26 #27      imp:n=1 $ cavity
11     4 -7.94    (-424:410:400) 423 -411 -401 imp:n=1 $ inner steel
12     5 -11.35  (-423:411:401) 422 -412 -402 imp:n=1 $ lead
13     4 -7.94    (-422:412:402) 421 -413 -403 imp:n=1 $ outer steel
14     2 -1.0     (-421:413:403) -405      imp:n=1 $ between
c
20     0          660 -661 665 -666 504 -410  imp:n=1 fill=8(-13.7571 0
0) $ far left hor.
21     0          661 -662 665 -666 504 -410  imp:n=1 fill=8(-4.5857 0 0)
$ left hor.
22     0          662 -663 665 -666 504 -410  imp:n=1 fill=9(4.5857 0 0)
$ right hor.
23     0          663 -664 665 -666 504 -410  imp:n=1 fill=9(13.7571 0 0)
$ far right hor.
24     like 23 but trcl=20 fill=9(25)          $ top right
25     like 23 but trcl=21 fill=9(26)          $ top left
26     like 23 but trcl=22 fill=9(27)          $ bottom right
27     like 23 but trcl=23 fill=9(28)          $ bottom left
c
998    2 -1.0     405 -404 420 -414      imp:n=1 $ reflector
999    0          404:-420:414      imp:n=0
c
c      Universe 4: Loose Plate Box filled shifted right
c
400    2 -1.0     431 -432 435 -436 fill=7(0.657 0 0)  u=4 imp:n=1
403    4 -7.94    (-431:432:-435:436) 430 -433 434 -437  u=4 imp:n=1 $
loose plate box
404    2 -1.0     -430:433:-434:437      u=4 imp:n=1 $
water
c
c      Universe 10: Loose Plate Box filled shifted left
c
1000   2 -1.0     431 -432 435 -436 fill=7(-0.657 0 0)  u=10 imp:n=1
1003   4 -7.94    (-431:432:-435:436) 430 -433 434 -437  u=10 imp:n=1 $
loose plate box
1004   2 -1.0     -430:433:-434:437      u=10 imp:n=1 $
water
c
c      Universe 5: Fuel Plate
c
c 500   2 -1.0     -500          u=5 imp:n=1 $ void below plate
501    3 -2.7     505 -506 500 -501  u=5 imp:n=1 $ lower clad
502    10 -5.485  505 -506 501 -502  u=5 imp:n=1 $ fuel meat
503    3 -2.7     505 -506 502 -503  u=5 imp:n=1 $ upper clad
504    2 -1.0     -505:506:-500:503  u=5 imp:n=1 $ water
c
c      Universe 6: Fuel Plate Lattice wide (25 plates)
c
600    0          -510 lat=1 fill=0:0 0:24 0:0

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                    5 24r
                    u=6 imp:n=1
c
c    Universe 20: Fuel Plate Lattice narrow (6 plates)
c
2000  0          -2000 lat=1 fill=0:0 0:5 0:0 5 5 5 5 5
                    u=20 imp:n=1
c
c    Universe 7: x-y
c
700  0          507 -508 fill=6(0 -2.6797 0)  u=7 imp:n=1 $ wide lattice
701  0          509 -507 fill=20(0 -3.1369 0) u=7 imp:n=1 $ narrow lattice
702  2 -1.0     -509:508                      u=7 imp:n=1
c
c    Universe 8: Square fuel basket right shift
c
800  0          650 -651 652 -653  fill=4(0.215 0 0)  u=8 imp:n=1
801  4 -7.94    -650:651:-652:653          u=8 imp:n=1 $
basket
c
c    Universe 9: Square fuel basket left shift
c
900  0          650 -651 652 -653  fill=10(-0.215 0 0) u=9 imp:n=1
901  4 -7.94    -650:651:-652:653          u=9 imp:n=1 $
basket

c Fuel Plate
500 py -0.0381  $ cladding bottom, 0.005-in thick per SOW
501 py -0.0254  $ fuel meat bottom, 1/2 0.020-in per drawing
502 py 0.0254   $ fuel meat top, 1/2 0.020-in per drawing
503 py 0.0381   $ cladding bottom, 0.005-in thick per SOW
504 pz 76.1822  $ fuel bottom
505 px -3.1369  $ 2.47"/2
506 px 3.1369   $ 2.47"/2
507 py -2.7178  $ y extent of expanded plates
508 py 3.2426   $ y extent of expanded plates
509 py -5       $ y extent of compressed plates (dummy)
c
510 rpp -1000 1000 -0.1212 0.1212 -1000 1000 $ lattice
c
c cask surfaces
c
400  cz 20.32    $ IR cask
401  cz 22.86    $ IR lead
402  cz 43.18    $ OR lead
403  cz 48.26    $ OR cask
404  cz 78.74    $ 1 foot water reflector
405  hex 0 0 -25.25 0 0 190.5355 0 48.27 0
c
410  pz 137.1422 $ bottom of lid
411  pz 139.6822 $ steel
412  pz 164.0154 $ lead
413  pz 165.2854 $ steel
414  pz 195.7654 $ 1 foot water reflector

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c
420    pz -55.72    $ 1 foot water reflector
421    pz -25.24    $ bottom of cask
422    pz -22.7     $ steel
423    pz -3.0912   $ lead
424    pz 0         $ steel
c
c    loose plate basket surfaces
c
430    px -4.1021
431    px -3.7846
432    px 3.7846
433    px 4.1021
434    py -3.4925
435    py -3.1750
436    py 3.1750
437    py 3.4925
c
c    square fuel basket surfaces
c
650    px -4.318    $ inner
651    px 4.318
652    py -4.318
653    py 4.318
660    px -18.3428 $ outer
661    px -9.1714
662    px 0
663    px 9.1714
664    px 18.3428
665    py -4.5857
666    py 4.5857
c
2000  rpp -1000 1000 -0.0382 0.0382 -1000 1000 $ lattice

m2      1001.62c    2          $ water
        8016.62c    1
mt2     lwtr.60t
m3      13027.62c   1          $ Al
m4      6000.66c   -0.08      $ SS-304
        14000.60c   -1.0
        15031.66c   -0.045
        24000.50c   -19.0
        25055.62c   -2.0
        26000.55c   -68.375
        28000.50c   -9.5
m5      82000.50c   1          $ Pb
m10     92235.69c  -0.661
        92238.69c  -2.654
        13027.62c  -1.908
        14000.60c  -0.261      $ fuel.
m11     40000.66c   1
c
*tr20   0 0 0          60 30 90 150 60 90 $ 60 deg CCW
*tr21   0 0 0          120 30 90 210 120 90 $ 120 deg CCW

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*tr22      0 0 0          60 150 90 30  60 90 $ 60 deg CW
*tr23      0 0 0          120 210 90 30  120 90 $ 120 deg CW
c
*tr25      6.8786  11.9140 0  60 30  90 150 60 90 $ 60 deg CCW
*tr26     -6.8786  11.9140 0  120 30  90 210 120 90 $ 120 deg CCW
*tr27      6.8786 -11.9140 0  60 150 90 30  60 90 $ 60 deg CW
*tr28     -6.8786 -11.9140 0  120 210 90 30  120 90 $ 120 deg CW
c
tr30       0.647 0 0
tr31      -0.647 0 0
mode      n
kcode    5000 1.0 50 1050
sdef     cel=d1 x=d2 y=d3 z=d4
si1      L 20:800:400:700:600:502 21:800:400:700:600:502
          22:900:1000:700:600:502 23:900:1000:700:600:502
          24:900:1000:700:600:502 25:900:1000:700:600:502
          26:900:1000:700:600:502 27:900:1000:700:600:502
sp1      1 1 1 1  1 1 1 1
si2     -3.1269 3.1269
sp2      0 1
si3     -0.0254 0.0254
sp3      0 1
si4      78 137
sp4      0 1

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