0the absorber will be treated by the nordheim integral method.
0mass of moderator-1 = 15.995 sigma(per absorber atom)= 4.2744696E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2 = 238.051 sigma(per absorber atom)= 4.5846292E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000

0group	res abs	res fiss	res scat
11	2.461100E-04	6.736606E-06	2.885803E-04
12	6.544668E-04	3.101118E-05	1.239800E-04
13	2.654986E-03	1.309495E-04	7.104586E-04
14	6.526409E-02	3.904689E-03	1.058714E-02

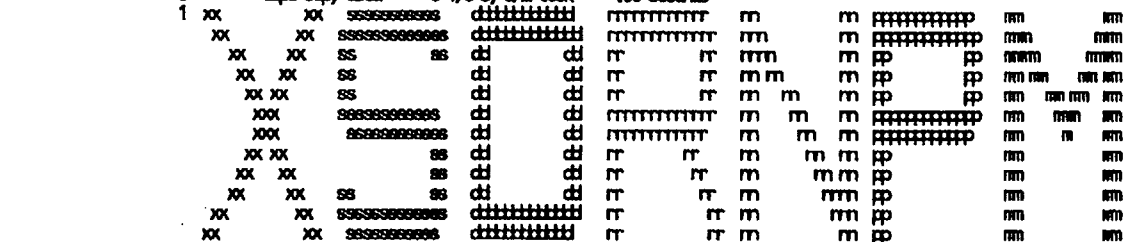
0excess resonance integrals
0 resolved
0absorption 6.13880E+02
fission 3.54207E+01
- elapsed time .33 min.
- elapsed time .33 min.
1 this xsdrn working tape was created 02/16/96 at 10:01:00
the title of the parent case is as follows
scale 4.2 - 27 group neutron burnup library
based on endf-b version 4 data with endf-b version 5 fission products
compiled for nrc 1/27/89

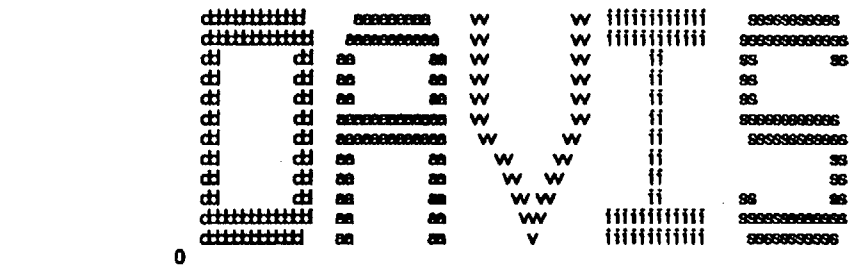
tape id	4321	number of nuclides	65
number of neutron groups	27	number of gamma groups	0
first thermal group	15	logical unit	4

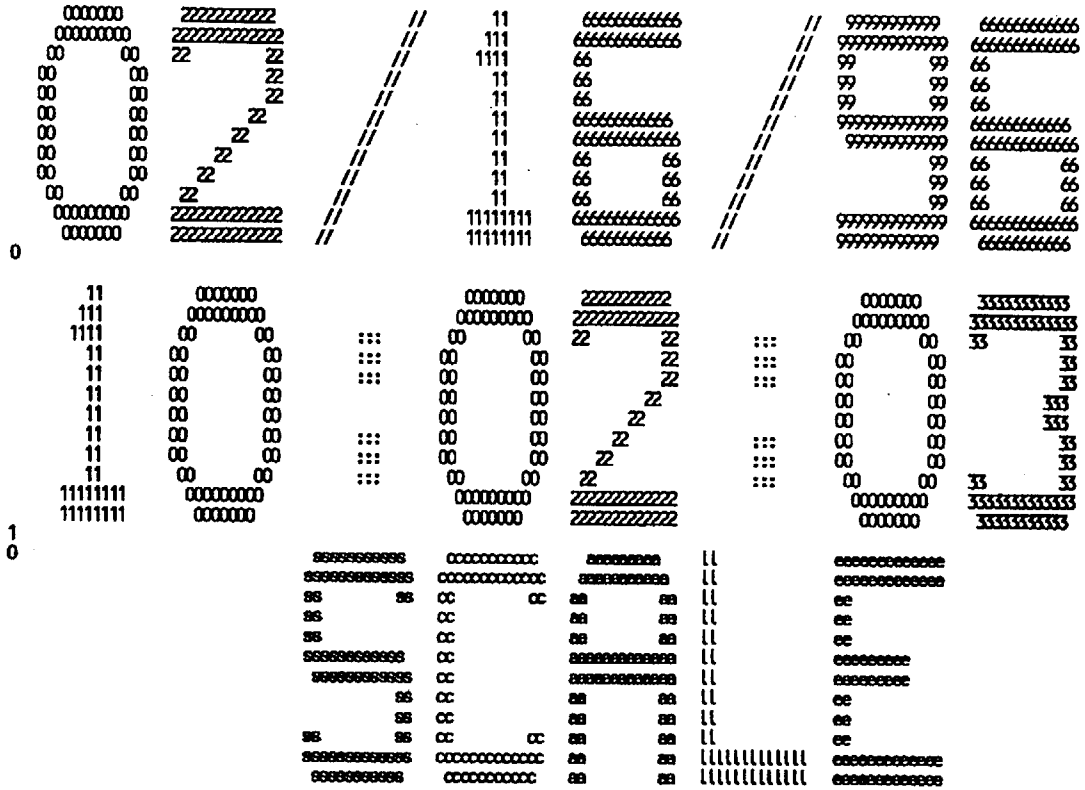
table of contents

1/v cross sections normalized to 1.0 at 0.0253 ev			id	999
hydrogen	endf/b-iv mat 1269/thrml002	updated 10/13/89	id	1001
b-10 1273 218ngp 042575 p-3 295k			id	5010
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	5011
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	6
kr-83	mt=102,103,103,105,106,107	updated 10/13/89	id	36083
kr-85	mt= 102		id	36085
sr-90	mt=102	updated 10/13/89	id	38090
y-89	mt=102	updated 10/13/89	id	39089
zr-93	mt= 102		id	40093
zr-94	mt=102	updated 10/13/89	id	40094
zr-95	mt=102	updated 10/13/89	id	40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	40302
nb-94	mt=102	updated 10/13/89	id	41094
mo-95	mt=102	updated 10/13/89	id	42095
tc-99	mt=102	updated 10/13/89	id	43099
ru-101	mt=102	updated 10/13/89	id	44101
ru-106	mt=102	updated 10/13/89	id	44106
rh-103	mt=102	updated 10/13/89	id	45103
rh-105	mt= 102		id	45105
pd-105	mt=102	updated 10/13/89	id	46105
pd-108	mt=102	updated 10/13/89	id	46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id	47109
sb-124	mt=102	updated 10/13/89	id	51124
xe-131	mt=102,103,104,105,106	updated 10/13/89	id	54131
xe-132	mt=102,103,104,105,106	updated 10/13/89	id	54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id	54135
xe-136	mt= 102, 103, 104, 105, 107		id	54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id	55133
cs-134	mt=102	updated 10/13/89	id	55134
cs-135	mt= 102		id	55135
cs-137	mt=102	updated 10/13/89	id	55137

```
        ba-136      mt=102                          updated 10/13/89          id   56136
        la-139      mt=102                          updated 10/13/89          id   57139
        ce-144        mt= 102                                                 id   58144
        pr-141      mt=102,103,104,105,106,107      updated 10/13/89          id   59141
        pr-143      mt=102                          updated 10/13/89          id   59143
        nd-143      mt=102                          updated 10/13/89          id   60143
        nd-145      mt=102                          updated 10/13/89          id   60145
        nd-147      mt=102                          updated 10/13/89          id   60147
        pm-147      mt=102                          updated 10/13/89          id   61147
        pm-148        mt= 102                                                 id   61148
        sm-147      endf/b-v fission product        updated 10/13/89          id   62147
        sm-149      mt=102,103,107                  updated 10/13/89          id   62149
        sm-150      mt=102                          updated 10/13/89          id   62150
        sm-151      mt=102,103,104,105,106,107      updated 10/13/89          id   62151
        sm-152      mt=102,103,104,105,106,107      updated 10/13/89          id   62152
        eu-153      mt=102,103,104,105,106,107      updated 10/13/89          id   63153
        eu-154      mt=102,103,104,105,106,107      updated 10/13/89          id   63154
        eu-155      mt=102,103,104,105,106,107      updated 10/13/89          id   63155
        gd-155      mt=102                          updated 10/13/89          id   64155
       u-234 1043 sigo=5+4 newclacs p-3 295k f-1/e-m(1.+5)                     id   92234
        uranium-235  endf/b-iv mat 1261             updated 10/13/89          id   92235
       u-236 1163 sigo=5+4 newclacs p-3 295k f-1/e-m(1.+5)                     id   92236
        uranium-238  endf/b-iv mat 1262             updated 10/13/89          id   92238
        neptunium-237  endf/b-iv mat 1263           updated 10/13/89          id   93237
       pu-238 1050 sigo=5+4 newclacs p-3 295k f-1/e-m(1.+5)                    id   94238
        plutonium-239  endf/b-iv mat 1264           updated 10/13/89          id   94239
        plutonium-240  endf/b-iv mat 1265           updated 10/13/89          id   94240
        plutonium-241  endf/b-iv mat 1266           updated 10/13/89          id   94241
        plutonium-242  endf/b-iv mat 1161           updated 10/13/89          id   94242
       am-241 1056 sigo=5+4 newclacs 218gp p-3 295k                            id   95241
       am-243 1057 218 gp wt f-1/e-m 090576 p3 295k                            id   95243
        curium-244   endf/b-iv mat 1162             updated 10/13/89          id   96244
0       tape copy used      0 i/o's, and took      .00 seconds
```







program verification information

code system: scale version: 4.2

program: c0c001

creation date: 04/27/95

```
                    ******                                                      ******
                    ******            library:  /neutronics/scale/exe           ******
                    ******                                                      ******
                    ******                                                      ******
                    ******  this is not a  scale  configuration controlled code ******
                    ******                                                      ******
                    ******            jobname:  davis                           ******
                    ******                                                      ******
                    ******  date of execution:  02/16/96                       ******
                    ******                                                      ******
                    ******  time of execution:  10:02:05                       ******
                    ******                                                      ******
                    ******                                                      ******
                    ************************************************************
                    ************************************************************
                    ************************************************************
1
                    720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0      -1q array has      1 entries.
0       1q array has     15 entries.
0       2q array has     10 entries.
0       3q array has     12 entries.
0       4q array has      9 entries.
0       5q array has     12 entries.
0direct access unit  9 requires    12 blocks of length  704 for cross section mixing.
1                    720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2      isn  quadrature order                 8
 izn  number of zones                    4      isct order of scattering              3
 im   number of special intervals       24      ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h  1
 ibl  0/1/2/3 = vacuum/refl/per/White    1      iim  inner iteration maximum        20
 ibr  right boundary condition           3      iom  outer iteration maximum        25
 mxx  number of mixtures                 3      iclc -1/0/n--flat res/sn/qpt          0
 ms   mixing table length               65      ith  0/1 = forward/adjoint           0
 igm  number of energy groups           27      iflu not used(always wgtd)            0
 nng  number of neutron groups          27      iprt -2/-1/0/n=mixture xsec print    -2
 ngg  number of gamma groups             0      idl  0/1/2/3=no/prt rd/pch n/both   53
 ifTg number of first thermal group     15      ipbt -1/0/1=none/fine/all bal. prt    0
0                            special options

 ifg  0/1 = none/weighting calculation   1      ipn  0/1/2 diff. coef. param         0
 iqm  volumetric sources (0/n=no/yes)    0      idfm 0/1 = none/density factors 39*   1
 ipn  boundary sources (0/n=no/yes)      0      iaz  0/n = none/n activities by zone  0
 ifn  0/1/2 = input 33*/34*/use last    53      iai  0/1=none/activities by interval  0
 itmx maximum time (minutes)            10      ifct 0/1=no/yes upscatter scaling     0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0      ipvt 0/1/2=no/k/alpha parametric srch 0
 isx  broad group fluxes                 0      isen outer iteration acceleration     0
 ibln activity data unit                 0      nbnd band rebaln parameter            0
 jbkl 0/1/2 buckling geometry            0
0                          weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1      ihtf total xsect pan in brd gp tables 3
 igmf number of broad groups            27      nbsf pan g-g or file number           4
 itp  0/10/20/30/40 0/c/e/ac/a           0      nusf table length or max order        4
 ipp  -2/-1/0/n=wgted xsect print       -2      mxsm extra 1-d x-sect positions       0
 iep  -1/n anisn xsect print            -1
0                          floating point parameters
```

eps	overall convergence	1.00000E-04	dy	cyl/pla ht for buckling	.00000E+00
ptc	point convergence	1.00000E-04	dz	plane depth for buckling	.00000E+00
xnf	normalization factor	1.00000E+00	vsc	void streaming correction	.00000E+00
ev	eigenvalue guess	.00000E+00	pv	ipvt=1/2--k/alpha	1.00000E+00
evm	eigenvalue modifier	.00000E+00	eql	ev change eps for search	1.00000E-03
bf	buckling factor=1.420892	1.42089E+00	xnpm	new param mod for search	7.50000E-01

this case will require 2535 locations for mixing
this case has been allocated 200000 locations
1 720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 13q array has 65 entries.
0 14q array has 65 entries.
0 15q array has 65 entries.
0 data block 2 (mixing table, etc.)
0

	nuclides on tape	cccc identification	mixing table mixture	mixing table component	mixing table atom density	extra xsect id's
1	999		1	92235	4.44493E-04	
2	1001		1	92234	4.65638E-06	
3	5010		1	92236	4.78943E-06	
4	5011		1	92238	2.18734E-02	
5	8016		1	8016	4.55359E-02	
6	6		3	6	2.09710E-02	
7	36083		1	36083	1.21060E-06	
8	36085		1	36085	5.82772E-07	
9	38090		1	38090	1.32013E-05	
10	39089		1	39089	1.02024E-05	
11	42095		1	42095	1.31680E-05	
12	40094		1	40093	1.05725E-05	
13	40095		1	40094	1.62229E-05	
14	40302		1	40095	2.03583E-06	
15	41094		1	41094	7.53797E-12	
16	42095		1	43099	1.58444E-05	
17	43099		1	45103	8.51543E-06	
18	44101		1	45105	2.07139E-08	
19	44106		1	44101	1.42308E-05	
20	45103		1	44106	2.14911E-06	
21	45105		1	46105	5.27789E-06	
22	46105		1	46108	1.39356E-06	
23	46108		1	47109	9.89759E-07	
24	47109		1	51124	2.30439E-10	
25	51124		1	54131	7.31080E-06	
26	54131		1	54132	1.32259E-05	
27	54132		1	54135	6.67573E-09	
28	54135		1	54136	2.70586E-05	
29	54136		1	55134	6.68995E-07	
30	55133		1	55135	8.57012E-06	
31	55134		1	55137	1.68757E-05	
32	55135		1	56136	1.31478E-07	
33	55137		1	57139	1.67362E-05	
34	56136		1	59141	1.43133E-05	
35	57139		1	59143	3.77677E-07	
36	58144		1	58144	6.39792E-06	
37	59141		1	60143	1.33774E-05	
38	59143		1	60145	9.77101E-06	
39	60143		1	61147	3.64313E-06	
40	60145		1	61148	1.04656E-08	
41	60147		1	60147	1.30684E-07	
42	61147		1	62147	1.01929E-06	
43	61148		1	62149	8.40499E-08	
44	62147		1	62150	3.35633E-06	
45	62149		1	62151	3.68860E-07	

46	62150	1	62152	1.63140E-06
47	62151	1	64155	1.63702E-09
48	62152	1	63153	9.03257E-07
49	63153	1	63154	1.63879E-07
50	63154	1	63155	9.91552E-08
51	63155	2	40802	4.25156E-02
52	64155	3	1001	4.19420E-02
53	92234	3	5010	3.81515E-06
54	92235	3	5011	1.54884E-05
55	92236	1	55133	1.75735E-05
56	92238	1	95237	2.81758E-06
57	95237	1	94238	3.26250E-07
58	94238	1	94239	9.65273E-05
59	94239	1	94240	1.62386E-05
60	94240	1	94241	8.08957E-06
61	94241	1	94242	7.23719E-07
62	94242	1	95241	1.99179E-07
63	95241	1	95243	5.27834E-08
64	95243	1	96244	3.99487E-09
65	96244	1	999	1.00000E-20

+ elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	2	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	12	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	13	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	15	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00	
17	1.29999E+00	1.58657E+01	1.52545E+06	17	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00	
21	4.00000E-01	1.70844E+01	8.17974E+05	21	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86983E+05	23	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00	
27	1.00000E-02	2.07239E+01	8.88201E+04	27	0	27	1.00000E+00	

28 1.00000E-05 2.76310E+01

1 720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0

	mixture by zone	order p(l) by zone	activity table matl no.	reaction	quadrature constants weights	directions	refl direc	wt x cos
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	2	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28593E-02
7					5.55953E-02	2.31301E-01	6	1.28593E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83032E-01	24	0
17					4.53365E-02	-9.64143E-01	24	-4.37099E-02
18					4.53365E-02	-8.17361E-01	23	-3.70655E-02
19					4.53365E-02	-5.46143E-01	22	-2.47597E-02
20					4.53365E-02	-1.91780E-01	21	-8.69444E-03
21					4.53365E-02	1.91780E-01	20	8.69444E-03
22					4.53365E-02	5.46143E-01	19	2.47597E-02
23					4.53365E-02	8.17361E-01	18	3.70655E-02
24					4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83236E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83236E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83236E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.25714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.25713E-01	-3.07844E-01	1.61278E-01
7	2.31301E-01	4.52016E-01	-2.25713E-01	3.07844E-01	-1.61278E-01
8	5.58410E-01	4.52016E-01	2.25713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86655E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40530E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40530E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17234E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17234E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1

int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.29551E-02	1	0	2.10908E-03	1.00000E+00	0	
2	2.59102E-02	4.33406E-02	1	1.62798E-01	9.49518E-03	1.00000E+00	0	
3	6.07710E-02	8.75100E-02	1	3.81836E-01	2.94045E-02	1.00000E+00	0	
4	1.14249E-01	1.74155E-01	1	7.17848E-01	1.31104E-01	1.00000E+00	0	
5	2.34061E-01	2.93967E-01	1	1.47065E+00	2.21259E-01	1.00000E+00		

6	3.53873E-01	3.80612E-01	1	2.22345E+00	1.27890E-01	1.00000E+00
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0
12	4.77405E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00
14	4.87528E-01	4.99987E-01	3	3.06329E+00	7.82768E-02	1.00000E+00
15	5.12445E-01	5.24903E-01	3	3.21979E+00	8.21777E-02	1.00000E+00
16	5.37362E-01	5.41731E-01	3	3.37634E+00	2.97427E-02	1.00000E+00
17	5.46100E-01	5.53513E-01	4	3.43125E+00	5.15631E-02	1.00000E+00
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00
21	6.80034E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00
22	7.48592E-01	7.63893E-01	4	4.70854E+00	1.46875E-01	1.00000E+00
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00
25	8.13968E-01			5.11431E+00		

- elapsed time .00 min.

outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	129	2.30684E-06	1.05050E+00	-5.54241E-02	1.00000E+00	-1.89484E-02	.00000E+00	.0000
2	201	-3.31959E-06	1.05598E+00	-1.19188E-03	-5.77070E-03	-2.77019E-03	.00000E+00	.0000
3	259	-3.35895E-06	1.05675E+00	-1.88910E-04	-7.85543E-04	-6.33710E-04	.00000E+00	.0000
4	302	1.09928E-05	1.05676E+00	-4.10437E-05	-1.82366E-04	-1.42894E-04	.00000E+00	.0000

grp to grp	inner iters	mfd int.	max. flux difference	rsf int.	max. scale factor	coarse mesh
1	1	1	1.60256E-07	24	1.00000E+00	1
2	1	1	1.82710E-07	24	1.00000E+00	1
3	1	1	1.66012E-07	24	1.00000E+00	1
4	1	1	1.57203E-07	24	1.00000E+00	1
5	1	1	1.47925E-07	24	1.00000E+00	1
6	1	1	8.90491E-08	24	1.00000E+00	1
7	1	1	5.57681E-08	24	1.00000E+00	1
8	1	1	1.21885E-08	24	1.00000E+00	1
9	1	2	7.34707E-09	24	1.00000E+00	1
10	1	2	7.04445E-09	24	1.00000E+00	1
11	1	2	7.28211E-09	24	1.00000E+00	1
12	1	24	1.75957E-08	24	1.00000E+00	1
13	1	24	2.20915E-08	24	1.00000E+00	1
14	1	24	2.13140E-08	24	1.00000E+00	1
15	1	20	4.85865E-05	24	9.99839E-01	1
16	1	20	5.97910E-05	24	9.99844E-01	1
17	1	19	7.68363E-05	24	9.99850E-01	1
18	2	24	4.75161E-05	24	1.00008E+00	1
19	1	20	7.57303E-05	24	9.99834E-01	1
20	1	20	5.73101E-05	24	9.99794E-01	1
21	2	24	5.05713E-05	24	1.00002E+00	1
22	1	19	5.68041E-05	24	9.99885E-01	1
23	1	24	1.09517E-05	24	1.00000E+00	1
24	1	24	4.63568E-05	24	1.00008E+00	1
25	1	24	5.66416E-05	24	1.00002E+00	1
26	1	2	2.57308E-05	24	1.00002E+00	2
27	1	24	3.24004E-05	19	1.00001E+00	2

5	331	-1.38528E-05	1.05708E+00	-9.66132E-06	-4.09050E-05	-2.89992E-05	.00000E+00	.0167

final monitor

lambda 1.05694E+00 production/absorption 1.05693E+00 angular flux on 16

- elapsed time .02 min.

1 720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 int. zone number radius int. midpoint area volume prod density

1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	3.09008E-05
2	1	2.59102E-02	4.33406E-02	1.62798E-01	9.49518E-03	1.39024E-02
3	1	6.07710E-02	8.75100E-02	3.81836E-01	2.94045E-02	4.31432E-02
4	1	1.14249E-01	1.74155E-01	7.17848E-01	1.31104E-01	1.94239E-01
5	1	2.34061E-01	2.95967E-01	1.47065E+00	2.21299E-01	3.35787E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	1.99196E-01
7	1	4.07351E-01	4.24781E-01	2.59546E+00	9.30429E-02	1.47765E-01
8	1	4.42212E-01	4.55167E-01	2.77850E+00	7.41004E-02	1.19812E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07946E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99987E-01	3.06325E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24908E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41751E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53513E-01	3.43125E+00	5.15631E-02	.00000E+00
18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.96175E-01	3.64974E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63892E-01	4.70354E+00	1.46875E-01	.00000E+00
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	4	7.99141E-01	8.06654E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 720 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.79147E-01	1.33355E+00	1.68345E+00	1.04266E+00	1.57657E+00	3.03138E+00	2.90569E+00	2.08120E+00
2	1.79212E-01	1.33418E+00	1.68429E+00	1.04316E+00	1.57727E+00	3.03269E+00	2.90655E+00	2.08126E+00
3	1.79155E-01	1.33356E+00	1.68351E+00	1.04269E+00	1.57649E+00	3.03108E+00	2.90533E+00	2.08107E+00
4	1.78754E-01	1.32930E+00	1.67807E+00	1.03938E+00	1.57122E+00	3.02061E+00	2.89902E+00	2.08001E+00
5	1.77714E-01	1.31833E+00	1.66424E+00	1.03101E+00	1.55797E+00	2.99468E+00	2.88349E+00	2.07740E+00
6	1.76514E-01	1.30588E+00	1.64855E+00	1.02164E+00	1.54325E+00	2.96621E+00	2.86656E+00	2.07451E+00
7	1.75557E-01	1.29601E+00	1.63662E+00	1.01450E+00	1.53217E+00	2.94522E+00	2.85417E+00	2.07234E+00
8	1.74605E-01	1.28644E+00	1.62507E+00	1.00774E+00	1.52184E+00	2.92605E+00	2.84295E+00	2.07029E+00
9	1.74084E-01	1.28126E+00	1.61887E+00	1.00415E+00	1.51641E+00	2.91605E+00	2.83715E+00	2.06920E+00
10	1.73978E-01	1.28022E+00	1.61763E+00	1.00346E+00	1.51541E+00	2.91427E+00	2.83617E+00	2.06901E+00
11	1.73817E-01	1.27870E+00	1.61584E+00	1.00247E+00	1.51399E+00	2.91174E+00	2.83477E+00	2.06872E+00
12	1.73712E-01	1.27770E+00	1.61466E+00	1.00185E+00	1.51308E+00	2.91011E+00	2.83388E+00	2.06853E+00
13	1.73517E-01	1.27585E+00	1.61244E+00	1.00059E+00	1.51127E+00	2.90667E+00	2.83195E+00	2.06815E+00
14	1.72987E-01	1.27088E+00	1.60592E+00	9.96753E-01	1.50546E+00	2.89541E+00	2.82563E+00	2.06711E+00
15	1.72392E-01	1.26419E+00	1.59752E+00	9.91434E-01	1.49706E+00	2.87877E+00	2.81593E+00	2.06597E+00
16	1.72101E-01	1.26066E+00	1.59250E+00	9.87963E-01	1.49134E+00	2.86723E+00	2.80984E+00	2.06543E+00
17	1.71961E-01	1.25863E+00	1.58988E+00	9.85632E-01	1.48736E+00	2.85927E+00	2.80457E+00	2.06531E+00
18	1.71778E-01	1.25601E+00	1.58639E+00	9.82660E-01	1.48230E+00	2.84930E+00	2.79871E+00	2.06517E+00
19	1.71548E-01	1.25289E+00	1.58078E+00	9.79294E-01	1.47662E+00	2.83816E+00	2.79214E+00	2.06498E+00
20	1.71262E-01	1.24886E+00	1.57488E+00	9.75078E-01	1.46955E+00	2.82431E+00	2.78400E+00	2.06460E+00
21	1.71031E-01	1.24605E+00	1.57074E+00	9.72092E-01	1.46452E+00	2.81449E+00	2.77851E+00	2.06450E+00
22	1.71032E-01	1.24592E+00	1.57044E+00	9.71810E-01	1.46400E+00	2.81348E+00	2.77787E+00	2.06473E+00
23	1.71110E-01	1.24678E+00	1.57157E+00	9.72538E-01	1.46518E+00	2.81577E+00	2.77955E+00	2.06501E+00
24	1.71199E-01	1.24780E+00	1.57293E+00	9.73436E-01	1.46663E+00	2.81862E+00	2.78114E+00	2.06528E+00

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58778E+00	1.44719E+00	1.30657E+00	7.96177E-01	6.70742E-01	5.84450E-01	3.68940E-01	2.02584E-01
2	1.58771E+00	1.44709E+00	1.30636E+00	7.95945E-01	6.70531E-01	5.84161E-01	3.68908E-01	2.02960E-01
3	1.58769E+00	1.44731E+00	1.30683E+00	7.96495E-01	6.70994E-01	5.84871E-01	3.68987E-01	2.03008E-01
4	1.58892E+00	1.44852E+00	1.30944E+00	7.99580E-01	6.73628E-01	5.88824E-01	3.69420E-01	2.03284E-01
5	1.59150E+00	1.45150E+00	1.31594E+00	8.07199E-01	6.80131E-01	5.98634E-01	3.70464E-01	2.03963E-01

6	1.59437E+00	1.45475E+00	1.32302E+00	8.15587E-01	6.87282E-01	6.09496E-01	3.71589E-01	2.04702E-01
7	1.59654E+00	1.45713E+00	1.32824E+00	8.21806E-01	6.92578E-01	6.17606E-01	3.72398E-01	2.05243E-01
8	1.59860E+00	1.45929E+00	1.33299E+00	8.27516E-01	6.97431E-01	6.25087E-01	3.73120E-01	2.05735E-01
9	1.59970E+00	1.46041E+00	1.33545E+00	8.30482E-01	6.99953E-01	6.28977E-01	3.73490E-01	2.05990E-01
10	1.59989E+00	1.46059E+00	1.33586E+00	8.30959E-01	7.00365E-01	6.29596E-01	3.73552E-01	2.06034E-01
11	1.60018E+00	1.46086E+00	1.33641E+00	8.31640E-01	7.00954E-01	6.30482E-01	3.73642E-01	2.06096E-01
12	1.60036E+00	1.46102E+00	1.33677E+00	8.32081E-01	7.01334E-01	6.31055E-01	3.73699E-01	2.06137E-01
13	1.60074E+00	1.46136E+00	1.33752E+00	8.32980E-01	7.02112E-01	6.32226E-01	3.73818E-01	2.06219E-01
14	1.60178E+00	1.46246E+00	1.33990E+00	8.35792E-01	7.04547E-01	6.35890E-01	3.74199E-01	2.06478E-01
15	1.60289E+00	1.46403E+00	1.34326E+00	8.39673E-01	7.07905E-01	6.40938E-01	3.74739E-01	2.06837E-01
16	1.60342E+00	1.46507E+00	1.34547E+00	8.42177E-01	7.10069E-01	6.44186E-01	3.75096E-01	2.07068E-01
17	1.60371E+00	1.46586E+00	1.34713E+00	8.44017E-01	7.11628E-01	6.46554E-01	3.75290E-01	2.07218E-01
18	1.60414E+00	1.46691E+00	1.34958E+00	8.46539E-01	7.13740E-01	6.49781E-01	3.75504E-01	2.07410E-01
19	1.60468E+00	1.46812E+00	1.35195E+00	8.49429E-01	7.16177E-01	6.53501E-01	3.75756E-01	2.07635E-01
20	1.60544E+00	1.46964E+00	1.35522E+00	8.53118E-01	7.19281E-01	6.58240E-01	3.76064E-01	2.07918E-01
21	1.60600E+00	1.47073E+00	1.35755E+00	8.55748E-01	7.21466E-01	6.61598E-01	3.76217E-01	2.08096E-01
22	1.60606E+00	1.47084E+00	1.35777E+00	8.55980E-01	7.21611E-01	6.61858E-01	3.76127E-01	2.08076E-01
23	1.60591E+00	1.47056E+00	1.35719E+00	8.55298E-01	7.20995E-01	6.60953E-01	3.75978E-01	2.07998E-01
24	1.60572E+00	1.47023E+00	1.35644E+00	8.54453E-01	7.20250E-01	6.59847E-01	3.75828E-01	2.07905E-01

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.22947E-02	3.69456E-02	1.21623E-01	4.23045E-01	1.06336E-01	1.76019E-01	6.67073E-01	4.91611E-01
2	8.22659E-02	3.69358E-02	1.21575E-01	4.22940E-01	1.06268E-01	1.75895E-01	6.66661E-01	4.91274E-01
3	8.23252E-02	3.71640E-02	1.21680E-01	4.23148E-01	1.06467E-01	1.76520E-01	6.67697E-01	4.92220E-01
4	8.26555E-02	3.82301E-02	1.22275E-01	4.24354E-01	1.07545E-01	1.79682E-01	6.73457E-01	4.97389E-01
5	8.34796E-02	4.09748E-02	1.23732E-01	4.27316E-01	1.10840E-01	1.87644E-01	6.87741E-01	5.10237E-01
6	8.43891E-02	4.41961E-02	1.25318E-01	4.30551E-01	1.13253E-01	1.96684E-01	7.08548E-01	5.26521E-01
7	8.50657E-02	4.67821E-02	1.26475E-01	4.32989E-01	1.15530E-01	2.03633E-01	7.15343E-01	5.35237E-01
8	8.56892E-02	4.95228E-02	1.27520E-01	4.35089E-01	1.17851E-01	2.10209E-01	7.26220E-01	5.45180E-01
9	8.60140E-02	5.06765E-02	1.28058E-01	4.36211E-01	1.18758E-01	2.13661E-01	7.31869E-01	5.50858E-01
10	8.60674E-02	5.08487E-02	1.28145E-01	4.36397E-01	1.18927E-01	2.14150E-01	7.32740E-01	5.51135E-01
11	8.61437E-02	5.10954E-02	1.28270E-01	4.36663E-01	1.19168E-01	2.14849E-01	7.33980E-01	5.52240E-01
12	8.61981E-02	5.12566E-02	1.28360E-01	4.36835E-01	1.19324E-01	2.15302E-01	7.34780E-01	5.52952E-01
13	8.62942E-02	5.15806E-02	1.28516E-01	4.37186E-01	1.19642E-01	2.16224E-01	7.36416E-01	5.54406E-01
14	8.66099E-02	5.25832E-02	1.29041E-01	4.38285E-01	1.20636E-01	2.19085E-01	7.41507E-01	5.58891E-01
15	8.70440E-02	5.39857E-02	1.29775E-01	4.39797E-01	1.22000E-01	2.22966E-01	7.48419E-01	5.64887E-01
16	8.73227E-02	5.47874E-02	1.30256E-01	4.40764E-01	1.22872E-01	2.25420E-01	7.52778E-01	5.68598E-01
17	8.75268E-02	5.54283E-02	1.30602E-01	4.41442E-01	1.23544E-01	2.27332E-01	7.56369E-01	5.71998E-01
18	8.78056E-02	5.63208E-02	1.31068E-01	4.42357E-01	1.24491E-01	2.30062E-01	7.61717E-01	5.77345E-01
19	8.81290E-02	5.73463E-02	1.31608E-01	4.43427E-01	1.25587E-01	2.33257E-01	7.68101E-01	5.83806E-01
20	8.85401E-02	5.86489E-02	1.32291E-01	4.44797E-01	1.26993E-01	2.37527E-01	7.76889E-01	5.92525E-01
21	8.88320E-02	5.95812E-02	1.32772E-01	4.45743E-01	1.28008E-01	2.40294E-01	7.82598E-01	5.99828E-01
22	8.88562E-02	5.96760E-02	1.32803E-01	4.45771E-01	1.28115E-01	2.40621E-01	7.83948E-01	6.00620E-01
23	8.87795E-02	5.94501E-02	1.32666E-01	4.45466E-01	1.27871E-01	2.39919E-01	7.82657E-01	5.99540E-01
24	8.86855E-02	5.91669E-02	1.32501E-01	4.45109E-01	1.27564E-01	2.39031E-01	7.80956E-01	5.98002E-01

0 int.	grp. 25	grp. 26	grp. 27
1	2.04150E-01	1.23962E-01	1.62609E-02
2	2.04009E-01	1.23874E-01	1.62612E-02
3	2.04507E-01	1.24353E-01	1.64089E-02
4	2.07134E-01	1.26761E-01	1.70793E-02
5	2.13672E-01	1.32779E-01	1.87817E-02
6	2.20974E-01	1.39573E-01	2.07691E-02
7	2.26487E-01	1.44775E-01	2.23667E-02
8	2.31688E-01	1.49702E-01	2.39516E-02
9	2.34329E-01	1.52250E-01	2.47990E-02
10	2.34719E-01	1.52640E-01	2.48969E-02
11	2.35275E-01	1.53139E-01	2.50362E-02
12	2.35634E-01	1.53459E-01	2.51259E-02
13	2.36363E-01	1.54110E-01	2.53081E-02
14	2.38576E-01	1.56072E-01	2.58468E-02
15	2.41467E-01	1.58587E-01	2.65125E-02

16	2.43181E-01	1.60059E-01	2.68841E-02
17	2.44910E-01	1.61817E-01	2.74610E-02
18	2.47773E-01	1.64887E-01	2.85150E-02
19	2.51269E-01	1.68619E-01	2.97503E-02
20	2.56042E-01	1.73708E-01	3.13762E-02
21	2.59853E-01	1.77863E-01	3.27133E-02
22	2.60684E-01	1.78927E-01	3.31109E-02
23	2.60187E-01	1.78562E-01	3.30648E-02
24	2.59424E-01	1.77890E-01	3.29159E-02

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.27834E-02	.00000E+00	1.27835E-02	1.05397E-02	3.25724E-03	1.12142E-02	9.98836E-01
2	.00000E+00	1.95360E-01	2.35212E-03	1.67378E-01	6.66508E-02	1.36418E-02	1.15429E-01	1.00004E+00
3	.00000E+00	2.15763E-01	2.63562E-02	1.61228E-01	8.13114E-02	1.55438E-02	1.45263E-01	1.00000E+00
4	.00000E+00	1.23897E-01	3.90464E-02	1.05435E-01	6.78865E-02	7.40509E-03	8.76483E-02	1.00001E+00
5	.00000E+00	1.64367E-01	6.80527E-02	2.59700E-01	9.47632E-02	4.41165E-03	1.33256E-01	9.99992E-01
6	.00000E+00	1.77483E-01	1.34857E-01	6.53829E-01	5.43821E-02	6.94352E-03	2.50985E-01	1.00003E+00
7	.00000E+00	8.77626E-02	9.84879E-02	7.44822E-01	3.63351E-02	7.47750E-03	1.42437E-01	1.00001E+00
8	.00000E+00	1.35239E-02	4.25805E-02	6.30765E-01	2.15051E-02	1.38255E-02	2.07712E-02	1.00005E+00
9	.00000E+00	9.81536E-04	2.17281E-02	5.35545E-01	2.06897E-02	2.29846E-02	-2.09042E-02	9.99991E-01
10	.00000E+00	7.23039E-05	2.07114E-02	4.61417E-01	1.07058E-02	3.55839E-02	-2.55057E-02	1.00001E+00
11	.00000E+00	5.73558E-06	1.07057E-02	4.23345E-01	8.15330E-03	5.80208E-02	-5.54615E-02	1.00001E+00
12	.00000E+00	4.02915E-07	8.15355E-03	2.39571E-01	9.37888E-03	6.40570E-02	-6.52571E-02	9.99960E-01
13	.00000E+00	6.39792E-08	9.37689E-03	1.78595E-01	6.15287E-03	5.94453E-02	-5.62217E-02	1.00001E+00
14	.00000E+00	1.26790E-08	6.15287E-03	1.52008E-01	7.39436E-03	8.35490E-02	-8.47806E-02	1.00000E+00
15	.00000E+00	1.43286E-09	7.47105E-03	8.44814E-02	8.86820E-03	6.94089E-03	-8.39745E-03	1.00577E+00
16	.00000E+00	4.20738E-10	9.03061E-03	4.25418E-02	9.55262E-03	5.38954E-03	-5.95372E-03	1.00282E+00
17	.00000E+00	1.35498E-10	7.65731E-03	1.44202E-02	7.36021E-03	7.62079E-03	-7.34180E-03	1.00121E+00
18	.00000E+00	9.70128E-11	7.05739E-03	8.59951E-03	4.25206E-03	2.56773E-02	-2.28560E-02	1.00013E+00
19	.00000E+00	1.37155E-10	6.48523E-03	2.36319E-02	8.66922E-03	1.01044E-02	-1.28063E-02	1.00101E+00
20	.00000E+00	2.23029E-10	9.86478E-03	1.01120E-01	9.56416E-03	2.60108E-02	-2.57754E-02	1.00185E+00
21	.00000E+00	3.26442E-11	8.97754E-03	2.08262E-02	8.09340E-03	2.43936E-02	-2.35258E-02	1.00044E+00
22	.00000E+00	3.78747E-11	1.17468E-02	4.05430E-02	9.13392E-03	7.02946E-02	-6.77078E-02	1.00043E+00
23	.00000E+00	3.62124E-11	1.41527E-02	1.62455E-01	1.78592E-02	1.21836E-01	-1.25645E-01	1.00073E+00
24	.00000E+00	9.85656E-12	2.17814E-02	1.12858E-01	2.18441E-02	1.13778E-01	-1.13917E-01	1.00056E+00
25	.00000E+00	2.88535E-12	1.86880E-02	4.27495E-02	1.41088E-02	6.19250E-02	-5.73766E-02	1.00042E+00
26	.00000E+00	2.02523E-12	9.19215E-03	2.97282E-02	6.33813E-03	5.56420E-02	-5.28068E-02	1.00030E+00
27	.00000E+00	4.82146E-13	1.98517E-03	4.44053E-03	1.08145E-03	1.55400E-02	-1.46389E-02	1.00016E+00
28	.00000E+00	1.00000E+00	6.22642E-01	5.41485E+00	6.22642E-01	9.41190E-01	6.05264E-02	1.00080E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r#n rate	fiss rate	flux*adj**2	total flux
1	1.74113E-01	1.12142E-02	1.79086E-01	.00000E+00	2.27852E-03	2.65102E-03	.00000E+00	1.21957E-01
2	1.28154E+00	1.15429E-01	1.33293E+00	.00000E+00	1.70654E-05	1.18697E-02	.00000E+00	9.03624E-01
3	1.61919E+00	1.45263E-01	1.68264E+00	.00000E+00	.00000E+00	1.45190E-02	.00000E+00	1.14088E+00
4	1.00434E+00	8.76483E-02	1.04218E+00	.00000E+00	.00000E+00	6.25975E-03	.00000E+00	7.09013E-01
5	1.51667E+00	1.33256E-01	1.57586E+00	.00000E+00	.00000E+00	1.80747E-03	.00000E+00	1.06812E+00
6	2.91654E+00	2.50985E-01	3.03003E+00	.00000E+00	.00000E+00	1.54159E-03	.00000E+00	2.05324E+00
7	2.85742E+00	1.42437E-01	2.90492E+00	.00000E+00	.00000E+00	1.49123E-03	.00000E+00	1.98016E+00
8	2.06925E+00	2.07712E-02	2.08110E+00	.00000E+00	.00000E+00	1.50630E-03	.00000E+00	1.42930E+00
9	1.59965E+00	-2.09042E-02	1.58788E+00	.00000E+00	.00000E+00	2.00510E-03	.00000E+00	1.09653E+00
10	1.46036E+00	-2.55057E-02	1.44731E+00	.00000E+00	.00000E+00	4.27114E-03	.00000E+00	1.00023E+00
11	1.33535E+00	-5.54615E-02	1.30983E+00	.00000E+00	.00000E+00	9.09949E-03	.00000E+00	9.08084E-01
12	8.30856E-01	-6.52571E-02	7.96477E-01	.00000E+00	.00000E+00	1.19534E-02	.00000E+00	5.58204E-01
13	6.99845E-01	-5.62217E-02	6.71002E-01	.00000E+00	.00000E+00	1.31836E-02	.00000E+00	4.70854E-01
14	6.28813E-01	-8.47806E-02	5.84819E-01	.00000E+00	.00000E+00	8.23088E-03	.00000E+00	4.15382E-01
15	3.73518E-01	-8.39745E-03	3.69026E-01	.00000E+00	.00000E+00	1.98407E-03	.00000E+00	2.55366E-01
16	2.06003E-01	-5.95372E-03	2.03057E-01	.00000E+00	.00000E+00	1.38096E-03	.00000E+00	1.40633E-01
17	8.60092E-02	-7.34180E-03	8.23578E-02	.00000E+00	.00000E+00	1.66006E-03	.00000E+00	5.77425E-02
18	5.06276E-02	-2.28560E-02	3.69961E-02	.00000E+00	.00000E+00	1.28586E-03	.00000E+00	2.99610E-02
19	1.28051E-01	-1.28063E-02	1.21697E-01	.00000E+00	.00000E+00	2.62594E-03	.00000E+00	8.56450E-02

20	4.36233E-01	-2.57754E-02	4.23240E-01	.00000E+00	.00000E+00	1.55009E-02	.00000E+00	2.95133E-01
21	1.18705E-01	-2.35239E-02	1.06422E-01	.00000E+00	.00000E+00	1.49508E-02	.00000E+00	7.68105E-02
22	2.13547E-01	-6.77078E-02	1.76253E-01	.00000E+00	.00000E+00	4.27190E-02	.00000E+00	1.31991E-01
23	7.31605E-01	-1.25645E-01	6.67572E-01	.00000E+00	.00000E+00	7.55704E-02	.00000E+00	4.78206E-01
24	5.50114E-01	-1.13917E-01	4.98180E-01	.00000E+00	.00000E+00	7.05000E-02	.00000E+00	3.55578E-01
25	2.34210E-01	-5.73766E-02	2.04347E-01	.00000E+00	.00000E+00	4.01535E-02	.00000E+00	1.49520E-01
26	1.52187E-01	-5.28068E-02	1.24118E-01	.00000E+00	.00000E+00	3.68822E-02	.00000E+00	9.35095E-02
27	2.47718E-02	-1.46586E-02	1.62875E-02	.00000E+00	.00000E+00	1.04036E-02	.00000E+00	1.35787E-02
28	2.32790E+01	6.06264E-02	2.32465E+01	.00000E+00	2.29558E-03	4.05807E-01	.00000E+00	1.60157E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.96046E-08	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.96046E-08	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.47035E-08	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.38419E-07	9.99999E-01
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.96046E-08	1.00000E+00
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-08	9.99998E-01
9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.96046E-08	9.99997E-01
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.79397E-08	1.00000E+00
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-08	9.99999E-01
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-08	9.99999E-01
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	4.47035E-08	9.99999E-01
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.72529E-08	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-6.05360E-09	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-9.31323E-10	1.00000E+00
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	5.58794E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.98023E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.21541E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.11759E-08	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.62050E-07	9.99995E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*db**2	total flux
1	1.73686E-01	1.12142E-02	1.74113E-01	1.12142E-02	.00000E+00	.00000E+00	.00000E+00	5.51864E-03
2	1.27745E+00	1.15429E-01	1.28154E+00	1.15429E-01	.00000E+00	.00000E+00	.00000E+00	4.06040E-02
3	1.61437E+00	1.45268E-01	1.61919E+00	1.45268E-01	.00000E+00	.00000E+00	.00000E+00	5.13074E-02
4	1.00167E+00	8.76483E-02	1.00434E+00	8.76483E-02	.00000E+00	.00000E+00	.00000E+00	3.18294E-02
5	1.51285E+00	1.33256E-01	1.51667E+00	1.33256E-01	.00000E+00	.00000E+00	.00000E+00	4.80698E-02
6	2.90970E+00	2.50985E-01	2.91654E+00	2.50985E-01	.00000E+00	.00000E+00	.00000E+00	9.24452E-02
7	2.85366E+00	1.42437E-01	2.85742E+00	1.42437E-01	.00000E+00	.00000E+00	.00000E+00	8.99845E-02
8	2.06849E+00	2.07712E-02	2.06925E+00	2.07712E-02	.00000E+00	.00000E+00	.00000E+00	6.56659E-02
9	1.60041E+00	-2.05041E-02	1.59968E+00	-2.09042E-02	.00000E+00	.00000E+00	.00000E+00	5.07775E-02
10	1.46109E+00	-2.55057E-02	1.46086E+00	-2.55057E-02	.00000E+00	.00000E+00	.00000E+00	4.63563E-02
11	1.33687E+00	-5.54615E-02	1.33639E+00	-5.54615E-02	.00000E+00	.00000E+00	.00000E+00	4.24023E-02
12	8.32190E-01	-6.52571E-02	8.30856E-01	-6.52571E-02	.00000E+00	.00000E+00	.00000E+00	2.63815E-02
13	7.01430E-01	-5.62217E-02	6.99865E-01	-5.62217E-02	.00000E+00	.00000E+00	.00000E+00	2.22558E-02
14	6.31199E-01	-8.47807E-02	6.28813E-01	-8.47806E-02	.00000E+00	.00000E+00	.00000E+00	1.99344E-02
15	3.73759E-01	-8.39746E-03	3.73518E-01	-8.39746E-03	.00000E+00	.00000E+00	.00000E+00	1.18562E-02
16	2.06170E-01	-5.95373E-03	2.06002E-01	-5.95372E-03	.00000E+00	.00000E+00	.00000E+00	6.53952E-03
17	8.62149E-02	-7.34180E-03	8.60092E-02	-7.34180E-03	.00000E+00	.00000E+00	.00000E+00	2.75258E-03
18	5.12902E-02	-2.28560E-02	5.06276E-02	-2.28560E-02	.00000E+00	.00000E+00	.00000E+00	1.61760E-03
19	1.28386E-01	-1.23068E-02	1.28051E-01	-1.23068E-02	.00000E+00	.00000E+00	.00000E+00	4.06868E-03
20	4.36949E-01	-2.57754E-02	4.36253E-01	-2.57754E-02	.00000E+00	.00000E+00	.00000E+00	1.38534E-02

21	1.19355E-01	-2.35238E-02	1.18706E-01	-2.35238E-02	.00000E+00	.00000E+00	.00000E+00	3.77798E-03
22	2.15431E-01	-6.77078E-02	2.13547E-01	-6.77078E-02	.00000E+00	.00000E+00	.00000E+00	6.80715E-03
23	7.34946E-01	-1.25645E-01	7.31605E-01	-1.25645E-01	.00000E+00	.00000E+00	.00000E+00	2.32732E-02
24	5.53091E-01	-1.13917E-01	5.50114E-01	-1.13917E-01	.00000E+00	.00000E+00	.00000E+00	1.75078E-02
25	2.35709E-01	-5.75766E-02	2.34210E-01	-5.75766E-02	.00000E+00	.00000E+00	.00000E+00	7.45765E-03
26	1.53530E-01	-5.28068E-02	1.52187E-01	-5.28068E-02	.00000E+00	.00000E+00	.00000E+00	4.85195E-03
27	2.51477E-02	-1.46388E-02	2.47718E-02	-1.46388E-02	.00000E+00	.00000E+00	.00000E+00	7.92506E-04
28	2.32750E+01	6.05267E-02	2.32790E+01	6.05264E-02	.00000E+00	.00000E+00	.00000E+00	7.38698E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.82808E-03	2.86963E-03	1.47057E-05	-2.78198E-03	1.00002E+00
2	.00000E+00	.00000E+00	5.01174E-04	2.60298E-02	1.85778E-02	5.17125E-05	-1.82283E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.66108E-03	5.02160E-02	1.58777E-02	1.37344E-04	-1.33530E-02	9.99993E-01
4	.00000E+00	.00000E+00	5.14870E-03	4.21368E-02	5.45581E-03	1.03441E-04	-4.10140E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.10940E-02	8.16685E-02	5.16491E-03	1.52147E-04	5.77670E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.85188E-02	2.35052E-01	3.21147E-03	3.20074E-04	1.49868E-02	1.00000E+00
7	.00000E+00	.00000E+00	1.25186E-02	2.35197E-01	1.18222E-03	3.44767E-04	1.07918E-02	9.99999E-01
8	.00000E+00	.00000E+00	2.16269E-03	1.58600E-01	7.63682E-03	2.94951E-04	-5.76968E-03	1.00003E+00
9	.00000E+00	.00000E+00	7.67018E-03	1.05245E-01	8.77529E-04	1.10978E-03	5.68321E-03	9.99994E-01
10	.00000E+00	.00000E+00	8.78609E-04	8.56440E-02	8.49737E-04	8.36366E-04	-8.07460E-04	9.99995E-01
11	.00000E+00	.00000E+00	8.49798E-04	7.71430E-02	8.71216E-04	1.33855E-03	-1.36004E-03	1.00000E+00
12	.00000E+00	.00000E+00	8.71222E-04	4.68572E-02	8.71390E-04	4.17006E-05	-4.19364E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.71392E-04	3.95021E-02	8.05815E-04	5.99755E-05	5.65872E-06	9.99999E-01
14	.00000E+00	.00000E+00	8.05816E-04	3.58004E-02	6.74662E-04	9.53559E-05	3.57777E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.18410E-04	2.05627E-02	8.41565E-04	8.25774E-05	-2.04980E-04	9.99919E-01
16	.00000E+00	.00000E+00	9.39685E-04	1.08549E-02	9.41267E-04	5.11980E-05	-5.25125E-05	9.99936E-01
17	.00000E+00	.00000E+00	1.00274E-03	3.98074E-03	9.79870E-04	2.40486E-05	-1.02259E-06	9.99981E-01
18	.00000E+00	.00000E+00	1.02774E-03	2.30066E-03	7.42873E-04	1.57548E-05	2.68504E-04	9.99996E-01
19	.00000E+00	.00000E+00	7.80713E-04	6.44297E-03	9.50802E-04	4.17416E-05	-2.02299E-04	9.99975E-01
20	.00000E+00	.00000E+00	1.13347E-03	2.40599E-02	1.02287E-03	1.78887E-04	-6.71484E-05	9.99958E-01
21	.00000E+00	.00000E+00	1.26780E-03	5.59527E-03	1.33651E-03	6.16428E-05	-1.30136E-04	9.99991E-01
22	.00000E+00	.00000E+00	1.68609E-03	1.11406E-02	1.48871E-03	1.29808E-04	6.77556E-05	9.99995E-01
23	.00000E+00	.00000E+00	2.20558E-03	3.96499E-02	2.91096E-03	6.00461E-04	-1.30585E-03	1.00000E+00
24	.00000E+00	.00000E+00	3.59082E-03	2.82317E-02	3.87437E-03	6.57647E-04	-9.42275E-04	1.00000E+00
25	.00000E+00	.00000E+00	3.49494E-03	1.09051E-02	2.80682E-03	3.70910E-04	3.16922E-04	1.00000E+00
26	.00000E+00	.00000E+00	1.46077E-03	7.93862E-03	1.04911E-03	3.46649E-04	6.48583E-05	1.00000E+00
27	.00000E+00	.00000E+00	3.04206E-04	1.49458E-03	7.70061E-07	1.08315E-04	1.94094E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.39728E-02	1.39607E+00	8.39725E-02	7.57151E-03	-7.46604E-03	9.99974E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.72044E-01	8.43219E-03	1.73686E-01	1.12142E-02	1.02529E-04	.00000E+00	.00000E+00	3.74292E-02
2	1.25986E+00	9.72008E-02	1.27745E+00	1.15423E-01	.00000E+00	.00000E+00	.00000E+00	2.74684E-01
3	1.59127E+00	1.31910E-01	1.61437E+00	1.45263E-01	.00000E+00	.00000E+00	.00000E+00	3.47125E-01
4	9.87054E-01	8.72381E-02	1.00167E+00	8.76489E-02	.00000E+00	.00000E+00	.00000E+00	2.15423E-01
5	1.48980E+00	1.39033E-01	1.51285E+00	1.33256E-01	.00000E+00	.00000E+00	.00000E+00	3.25314E-01
6	2.86408E+00	2.65972E-01	2.90970E+00	2.50985E-01	.00000E+00	.00000E+00	.00000E+00	6.25998E-01
7	2.80740E+00	1.55229E-01	2.85366E+00	1.42437E-01	.00000E+00	.00000E+00	.00000E+00	6.11259E-01
8	2.06534E+00	1.50015E-02	2.06849E+00	2.07712E-02	.00000E+00	.00000E+00	.00000E+00	4.47877E-01
9	1.60352E+00	-1.52209E-02	1.60041E+00	-2.09041E-02	.00000E+00	.00000E+00	.00000E+00	3.47254E-01
10	1.46536E+00	-2.63132E-02	1.46106E+00	-2.55057E-02	.00000E+00	.00000E+00	.00000E+00	3.17128E-01
11	1.34605E+00	-5.68215E-02	1.33687E+00	-5.54615E-02	.00000E+00	.00000E+00	.00000E+00	2.90767E-01
12	8.42834E-01	-6.52990E-02	8.32192E-01	-6.52571E-02	.00000E+00	.00000E+00	.00000E+00	1.81571E-01
13	7.10528E-01	-5.62160E-02	7.01430E-01	-5.62217E-02	.00000E+00	.00000E+00	.00000E+00	1.53068E-01
14	6.45024E-01	-8.47449E-02	6.31199E-01	-8.47807E-02	.00000E+00	.00000E+00	.00000E+00	1.38377E-01
15	3.75259E-01	-8.60263E-03	3.73759E-01	-8.39745E-03	.00000E+00	.00000E+00	.00000E+00	8.11588E-02
16	2.07151E-01	-6.00604E-03	2.06170E-01	-5.95373E-03	.00000E+00	.00000E+00	.00000E+00	4.47889E-02
17	8.74088E-02	-7.34282E-03	8.62149E-02	-7.34180E-03	.00000E+00	.00000E+00	.00000E+00	1.88189E-02
18	5.50007E-02	-2.25871E-02	5.12982E-02	-2.28560E-02	.00000E+00	.00000E+00	.00000E+00	1.15461E-02
19	1.30398E-01	-1.25086E-02	1.28388E-01	-1.23068E-02	.00000E+00	.00000E+00	.00000E+00	2.80488E-02
20	4.41084E-01	-2.58426E-02	4.36949E-01	-2.57754E-02	.00000E+00	.00000E+00	.00000E+00	9.51558E-02
21	1.25088E-01	-2.36539E-02	1.19565E-01	-2.35238E-02	.00000E+00	.00000E+00	.00000E+00	2.62969E-02

22	2.26061E-01	-6.76401E-02	2.15431E-01	-6.77078E-02	.00000E+00	.00000E+00	.00000E+00	4.79124E-02
23	7.53847E-01	-1.26951E-01	7.34946E-01	-1.25645E-01	.00000E+00	.00000E+00	.00000E+00	1.61471E-01
24	5.69481E-01	-1.14859E-01	5.53091E-01	-1.13917E-01	.00000E+00	.00000E+00	.00000E+00	1.21788E-01
25	2.43582E-01	-5.70596E-02	2.35709E-01	-5.73766E-02	.00000E+00	.00000E+00	.00000E+00	5.20202E-02
26	1.60397E-01	-5.27419E-02	1.55530E-01	-5.28068E-02	.00000E+00	.00000E+00	.00000E+00	3.40977E-02
27	2.69670E-02	-1.44448E-02	2.51471E-02	-1.46389E-02	.00000E+00	.00000E+00	.00000E+00	5.67287E-03
28	2.32499E+01	5.31614E-02	2.32750E+01	6.06267E-02	1.02529E-04	.00000E+00	.00000E+00	5.04165E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	6.04869E-03	8.00993E-03	4.26681E-04	-8.43219E-03	9.99946E-01
2	.00000E+00	.00000E+00	4.59365E-03	7.66324E-02	1.00719E-01	1.07913E-03	-9.72008E-02	9.99962E-01
3	.00000E+00	.00000E+00	4.77980E-02	6.90679E-02	1.79701E-01	5.42866E-06	-1.31910E-01	9.99977E-01
4	.00000E+00	.00000E+00	7.04018E-02	4.58799E-02	1.57639E-01	3.25281E-06	-8.72381E-02	9.99987E-01
5	.00000E+00	.00000E+00	1.30068E-01	1.48535E-01	2.69100E-01	3.77607E-06	-1.39053E-01	9.99991E-01
6	.00000E+00	.00000E+00	2.75159E-01	4.55294E-01	5.41121E-01	1.14771E-05	-2.65972E-01	9.99992E-01
7	.00000E+00	.00000E+00	5.52875E-01	7.95209E-01	7.06087E-01	2.53526E-05	-1.53229E-01	9.99987E-01
8	.00000E+00	.00000E+00	7.36558E-01	1.00101E+00	7.50579E-01	4.70163E-05	-1.50015E-02	9.99911E-01
9	.00000E+00	.00000E+00	7.40850E-01	9.16288E-01	7.25615E-01	9.59307E-05	1.52209E-02	9.99890E-01
10	.00000E+00	.00000E+00	7.22315E-01	8.65882E-01	6.95865E-01	2.11574E-04	2.63131E-02	9.99896E-01
11	.00000E+00	.00000E+00	7.00804E-01	8.06109E-01	6.43566E-01	4.57768E-04	5.68214E-02	9.99940E-01
12	.00000E+00	.00000E+00	5.60220E-01	4.20130E-01	4.94335E-01	5.97796E-04	6.52990E-02	9.99979E-01
13	.00000E+00	.00000E+00	4.90284E-01	3.37784E-01	4.33185E-01	8.97230E-04	5.62160E-02	9.99970E-01
14	.00000E+00	.00000E+00	4.70291E-01	3.21534E-01	3.84096E-01	1.45517E-03	8.47449E-02	9.99989E-01
15	.00000E+00	.00000E+00	2.50802E-01	1.28604E-01	2.40928E-01	1.28139E-03	8.57047E-03	1.00009E+00
16	.00000E+00	.00000E+00	1.66381E-01	5.41407E-02	1.59503E-01	8.76394E-04	5.98615E-03	1.00010E+00
17	.00000E+00	.00000E+00	8.55556E-02	1.49526E-02	7.77975E-02	4.17663E-04	7.33096E-03	1.00011E+00
18	.00000E+00	.00000E+00	7.56921E-02	9.66449E-03	5.28088E-02	2.95698E-04	2.25897E-02	9.99973E-01
19	.00000E+00	.00000E+00	1.25250E-01	3.31428E-02	1.09998E-01	7.26455E-04	1.24912E-02	1.00011E+00
20	.00000E+00	.00000E+00	3.00285E-01	2.40023E-01	2.71379E-01	3.07074E-03	2.57972E-02	1.00013E+00
21	.00000E+00	.00000E+00	1.40132E-01	4.43519E-02	1.15380E-01	1.09894E-03	2.36594E-02	9.99954E-01
22	.00000E+00	.00000E+00	2.64259E-01	1.24809E-01	1.94230E-01	2.37240E-03	6.76174E-02	1.00007E+00
23	.00000E+00	.00000E+00	6.20838E-01	7.35921E-01	4.85257E-01	1.06096E-02	1.26949E-01	1.00008E+00
24	.00000E+00	.00000E+00	6.30606E-01	6.52794E-01	5.03897E-01	1.18346E-02	1.14856E-01	1.00008E+00
25	.00000E+00	.00000E+00	4.06751E-01	2.66556E-01	3.42925E-01	6.76082E-03	5.70585E-02	1.00002E+00
26	.00000E+00	.00000E+00	3.21333E-01	2.83699E-01	2.62184E-01	6.55401E-03	5.27431E-02	1.00001E+00
27	.00000E+00	.00000E+00	1.06970E-01	5.92555E-02	9.02696E-02	2.25470E-03	1.44447E-02	1.00001E+00
28	.00000E+00	.00000E+00	8.99402E+00	8.91332E+00	8.99402E+00	5.34710E-02	-5.33086E-02	9.99982E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux*adj**2	total flux
1	1.71265E-01	3.02770E-09	1.72044E-01	8.43219E-03	4.42751E-10	.00000E+00	.00000E+00	1.95992E-01
2	1.24852E+00	-2.93830E-08	1.25985E+00	9.72008E-02	.00000E+00	.00000E+00	.00000E+00	1.42926E+00
3	1.57363E+00	3.10709E-09	1.59127E+00	1.31910E-01	.00000E+00	.00000E+00	.00000E+00	1.80228E+00
4	9.73905E-01	1.08098E-08	9.87054E-01	8.72381E-02	.00000E+00	.00000E+00	.00000E+00	1.11581E+00
5	1.46740E+00	-3.42338E-08	1.48980E+00	1.39033E-01	.00000E+00	.00000E+00	.00000E+00	1.68159E+00
6	2.82012E+00	1.26755E-07	2.86408E+00	2.65972E-01	.00000E+00	.00000E+00	.00000E+00	3.23183E+00
7	2.78208E+00	5.12217E-08	2.80740E+00	1.53229E-01	.00000E+00	.00000E+00	.00000E+00	3.18612E+00
8	2.06541E+00	3.82637E-08	2.06536E+00	1.50015E-02	.00000E+00	.00000E+00	.00000E+00	2.36521E+00
9	1.60561E+00	3.62845E-09	1.60852E+00	-1.52209E-02	.00000E+00	.00000E+00	.00000E+00	1.83755E+00
10	1.47005E+00	-6.61256E-08	1.46536E+00	-2.63132E-02	.00000E+00	.00000E+00	.00000E+00	1.68214E+00
11	1.35608E+00	3.56062E-08	1.34605E+00	-5.68215E-02	.00000E+00	.00000E+00	.00000E+00	1.55127E+00
12	8.54012E-01	5.04672E-08	8.42824E-01	-6.52990E-02	.00000E+00	.00000E+00	.00000E+00	9.76609E-01
13	7.19861E-01	2.93091E-09	7.10628E-01	-5.62160E-02	.00000E+00	.00000E+00	.00000E+00	8.23356E-01
14	6.59269E-01	3.15814E-08	6.45024E-01	-8.47449E-02	.00000E+00	.00000E+00	.00000E+00	7.53583E-01
15	3.75799E-01	-3.19654E-06	3.75236E-01	-8.60843E-03	.00000E+00	.00000E+00	.00000E+00	4.30535E-01
16	2.07880E-01	-2.18879E-06	2.07151E-01	-6.00604E-03	.00000E+00	.00000E+00	.00000E+00	2.37950E-01
17	8.86460E-02	-1.18536E-06	8.74088E-02	-7.34282E-03	.00000E+00	.00000E+00	.00000E+00	1.01357E-01
18	5.90139E-02	2.66675E-06	5.50007E-02	-2.25871E-02	.00000E+00	.00000E+00	.00000E+00	6.71999E-02
19	1.32432E-01	-1.74388E-06	1.30898E-01	-1.25086E-02	.00000E+00	.00000E+00	.00000E+00	1.51435E-01
20	4.44997E-01	-4.53686E-06	4.41084E-01	-2.58426E-02	.00000E+00	.00000E+00	.00000E+00	5.09107E-01
21	1.27394E-01	5.54501E-06	1.23088E-01	-2.36539E-02	.00000E+00	.00000E+00	.00000E+00	1.45437E-01
22	2.38580E-01	-2.27256E-06	2.26061E-01	-6.76401E-02	.00000E+00	.00000E+00	.00000E+00	2.71907E-01

23	7.80016E-01	-1.69919E-06	7.53847E-01	-1.26951E-01	.00000E+00	.00000E+00	.00000E+00	8.89739E-01
24	5.97130E-01	-3.49528E-06	5.69481E-01	-1.14859E-01	.00000E+00	.00000E+00	.00000E+00	6.79411E-01
25	2.58585E-01	-1.14040E-06	2.43582E-01	-5.70596E-02	.00000E+00	.00000E+00	.00000E+00	2.95864E-01
26	1.77498E-01	1.18286E-06	1.60897E-01	-5.27419E-02	.00000E+00	.00000E+00	.00000E+00	1.99827E-01
27	3.28258E-02	-1.16969E-07	2.69670E-02	-1.44448E-02	.00000E+00	.00000E+00	.00000E+00	3.62673E-02
28	2.32882E+01	-1.47938E-04	2.32499E+01	5.31614E-02	4.42751E-10	.00000E+00	.00000E+00	2.66444E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.27834E-02	.00000E+00	2.26608E-02	2.15153E-02	3.67863E-03	3.02770E-09	9.98631E-01
2	.00000E+00	1.93360E-01	7.44695E-03	2.70040E-01	1.86048E-01	1.47727E-02	-2.95830E-08	1.00000E+00
3	.00000E+00	2.15765E-01	7.68108E-02	2.80511E-01	2.76890E-01	1.56866E-02	3.10709E-09	9.99986E-01
4	.00000E+00	1.23897E-01	1.14597E-01	1.93451E-01	2.30981E-01	7.51277E-03	1.08098E-08	1.00000E+00
5	.00000E+00	1.66367E-01	2.09224E-01	4.89908E-01	3.69028E-01	4.56756E-03	-3.42338E-08	9.99989E-01
6	.00000E+00	1.77485E-01	4.28515E-01	1.34418E+00	5.98714E-01	7.27507E-03	1.26755E-07	1.00001E+00
7	.00000E+00	8.77626E-02	6.63681E-01	1.77523E+00	7.43604E-01	7.84762E-03	5.12217E-08	9.99989E-01
8	.00000E+00	1.35239E-02	7.80301E-01	1.79088E+00	7.79721E-01	1.41675E-02	3.82637E-08	9.99920E-01
9	.00000E+00	9.81536E-04	7.70248E-01	1.55708E+00	7.47182E-01	2.41308E-02	3.62845E-09	9.99892E-01
10	.00000E+00	7.29059E-05	7.43905E-01	1.41294E+00	7.07420E-01	3.66317E-02	-6.61256E-08	9.99900E-01
11	.00000E+00	5.73558E-06	7.12360E-01	1.30660E+00	6.52591E-01	5.98166E-02	3.56062E-08	9.99942E-01
12	.00000E+00	4.02915E-07	5.69244E-01	7.06538E-01	5.04585E-01	6.46766E-02	5.04672E-08	9.99974E-01
13	.00000E+00	6.39792E-08	5.00532E-01	5.55881E-01	4.40144E-01	6.04025E-02	2.98071E-09	9.99971E-01
14	.00000E+00	1.26790E-08	4.77250E-01	5.09342E-01	3.92155E-01	8.50995E-02	3.15814E-08	9.99985E-01
15	.00000E+00	1.43286E-09	2.58692E-01	2.33648E-01	2.50688E-01	8.30466E-03	-3.19654E-05	1.00031E+00
16	.00000E+00	4.20738E-10	1.76351E-01	1.07547E-01	1.69997E-01	6.31713E-03	-2.18879E-05	1.00033E+00
17	.00000E+00	1.35498E-10	9.42157E-02	3.33535E-02	8.61380E-02	8.06250E-03	-1.19536E-05	1.00029E+00
18	.00000E+00	9.70128E-11	8.37770E-02	2.05647E-02	5.77837E-02	2.59888E-02	2.66675E-06	1.00002E+00
19	.00000E+00	1.37155E-10	1.30506E-01	6.32176E-02	1.19618E-01	1.08726E-02	-1.74388E-05	1.00025E+00
20	.00000E+00	2.23025E-10	3.11284E-01	3.65203E-01	2.81966E-01	2.92599E-02	-4.53689E-05	1.00033E+00
21	.00000E+00	3.26442E-11	1.50377E-01	7.07734E-02	1.24810E-01	2.55542E-02	5.54501E-06	1.00005E+00
22	.00000E+00	3.78747E-11	2.77670E-01	1.76478E-01	2.04853E-01	7.27868E-02	-2.27256E-05	1.00019E+00
23	.00000E+00	3.62134E-11	6.37196E-01	9.38023E-01	5.04029E-01	1.33046E-01	-1.69919E-06	1.00019E+00
24	.00000E+00	9.85656E-12	6.55978E-01	7.95824E-01	5.29616E-01	1.26271E-01	-3.49528E-06	1.00015E+00
25	.00000E+00	2.88536E-12	4.28954E-01	3.20211E-01	3.59841E-01	6.90567E-02	-1.14040E-06	1.00009E+00
26	.00000E+00	2.02323E-12	3.31986E-01	3.21366E-01	2.69421E-01	6.25427E-02	1.18286E-06	1.00006E+00
27	.00000E+00	4.82146E-13	1.09259E-01	6.51904E-02	9.13518E-02	1.79040E-02	-1.16969E-07	1.00003E+00
28	.00000E+00	1.00000E+00	9.70064E+00	1.57242E+01	9.70064E+00	1.00223E+00	-1.48078E-04	1.00003E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.71245E-01	3.02770E-09	1.79089E-01	.00000E+00	2.36106E-03	2.65102E-03	.00000E+00	3.60897E-01
2	1.24852E+00	-2.95830E-08	1.33295E+00	.00000E+00	1.70654E-05	1.18697E-02	.00000E+00	2.64818E+00
3	1.57363E+00	3.10709E-09	1.68264E+00	.00000E+00	.00000E+00	1.45190E-02	.00000E+00	3.34159E+00
4	9.73905E-01	1.08098E-08	1.04218E+00	.00000E+00	.00000E+00	6.25975E-03	.00000E+00	2.06998E+00
5	1.46740E+00	-3.42338E-08	1.57586E+00	.00000E+00	.00000E+00	1.80747E-03	.00000E+00	3.12309E+00
6	2.82012E+00	1.26755E-07	3.03003E+00	.00000E+00	.00000E+00	1.54159E-03	.00000E+00	6.00311E+00
7	2.78208E+00	5.12217E-08	2.90495E+00	.00000E+00	.00000E+00	1.49125E-03	.00000E+00	5.86752E+00
8	2.06541E+00	3.82637E-08	2.08110E+00	.00000E+00	.00000E+00	1.50630E-03	.00000E+00	4.30604E+00
9	1.60561E+00	3.62845E-09	1.58788E+00	.00000E+00	.00000E+00	2.00510E-03	.00000E+00	3.33211E+00
10	1.47005E+00	-6.61256E-08	1.44731E+00	.00000E+00	.00000E+00	4.27114E-03	.00000E+00	3.04586E+00
11	1.35608E+00	3.56062E-08	1.30983E+00	.00000E+00	.00000E+00	9.09946E-03	.00000E+00	2.79248E+00
12	8.54012E-01	5.04672E-08	7.96471E-01	.00000E+00	.00000E+00	1.19534E-02	.00000E+00	1.74276E+00
13	7.19851E-01	2.98091E-09	6.71002E-01	.00000E+00	.00000E+00	1.31836E-02	.00000E+00	1.46901E+00
14	6.59269E-01	3.15814E-08	5.84819E-01	.00000E+00	.00000E+00	8.23038E-03	.00000E+00	1.32734E+00
15	3.75795E-01	-3.19654E-05	3.69026E-01	.00000E+00	.00000E+00	1.98407E-03	.00000E+00	7.78715E-01
16	2.07880E-01	-2.18879E-05	2.03057E-01	.00000E+00	.00000E+00	1.38096E-03	.00000E+00	4.29911E-01
17	8.86460E-02	-1.18536E-05	8.23378E-02	.00000E+00	.00000E+00	1.66006E-03	.00000E+00	1.80651E-01
18	5.90139E-02	2.66675E-06	3.69961E-02	.00000E+00	.00000E+00	1.28686E-03	.00000E+00	1.09625E-01
19	1.32432E-01	-1.74388E-05	1.21697E-01	.00000E+00	.00000E+00	2.62594E-03	.00000E+00	2.69198E-01
20	4.44997E-01	-4.53689E-05	4.29240E-01	.00000E+00	.00000E+00	1.55009E-02	.00000E+00	9.13249E-01
21	1.27394E-01	5.54501E-06	1.06422E-01	.00000E+00	.00000E+00	1.49508E-02	.00000E+00	2.52325E-01
22	2.38680E-01	-2.27256E-05	1.76253E-01	.00000E+00	.00000E+00	4.27190E-02	.00000E+00	4.58618E-01
23	7.80016E-01	-1.69919E-06	6.67572E-01	.00000E+00	.00000E+00	7.53704E-02	.00000E+00	1.55269E+00

24	5.97130E-01	-3.49528E-06	4.92030E-01	.00000E+00	.00000E+00	7.05000E-02	.00000E+00	1.17428E+00
25	2.58989E-01	-1.14040E-06	2.04347E-01	.00000E+00	.00000E+00	4.01535E-02	.00000E+00	5.02654E-01
26	1.77498E-01	1.18286E-06	1.24118E-01	.00000E+00	.00000E+00	3.68822E-02	.00000E+00	3.32897E-01
27	3.28258E-02	-1.14969E-07	1.62895E-02	.00000E+00	.00000E+00	1.04036E-02	.00000E+00	5.63112E-02
28	2.32882E+01	-1.47938E-04	2.32468E+01	.00000E+00	2.39811E-03	4.05807E-01	.00000E+00	4.84405E+01

- elapsed time .02 min.
Odirect access unit 9 requires 516 blocks of length 1456 for cross section weighting.
1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.40137E-03	2.49138E-02	3.15261E-02	1.90644E-02	2.91252E-02	5.56679E-02	3.16998E-02	4.64092E-03
2	3.76978E-03	3.88027E-02	4.88315E-02	2.94639E-02	4.47955E-02	8.43712E-02	4.78814E-02	6.98265E-03
3	3.06314E-03	3.31037E-02	4.31123E-02	2.71720E-02	4.22810E-02	8.02579E-02	4.58942E-02	5.58177E-03
4	1.05736E-03	1.21810E-02	1.65256E-02	1.09243E-02	1.74049E-02	3.32996E-02	1.92586E-02	2.05083E-03
5	1.75210E-03	1.89768E-02	2.47479E-02	1.59911E-02	2.42886E-02	4.63660E-02	2.65833E-02	3.32516E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.67877E-03	5.71553E-03	1.29553E-02	1.45265E-02	1.25215E-02	1.87644E-02	1.89986E-03	1.33233E-03
2	7.02718E-03	8.57400E-03	1.86440E-02	2.19868E-02	1.88995E-02	2.84999E-02	2.82256E-03	2.00118E-03
3	5.63552E-03	8.04724E-03	1.74386E-02	2.02830E-02	1.74684E-02	2.63376E-02	2.64021E-03	1.85765E-03
4	1.87183E-03	3.27522E-03	7.08272E-03	8.14569E-03	7.05052E-03	1.05898E-02	1.15375E-03	7.76181E-04
5	3.27072E-03	4.66002E-03	1.00944E-02	1.17308E-02	1.01255E-02	1.52063E-02	1.58075E-03	1.09141E-03

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.62874E-03	4.75050E-03	2.77254E-03	5.78883E-03	5.15258E-03	1.46018E-02	2.77568E-02	2.50359E-02
2	2.46775E-03	7.68379E-03	4.13657E-03	8.66324E-03	7.90828E-03	2.27590E-02	4.22387E-02	3.82970E-02
3	2.28112E-03	7.06078E-03	3.85468E-03	8.01808E-03	7.32915E-03	2.10258E-02	3.92398E-02	3.55407E-02
4	9.17633E-04	2.78623E-03	1.57718E-03	3.28855E-03	2.94274E-03	8.42024E-03	1.61109E-02	1.45534E-02
5	1.31844E-03	3.95566E-03	2.24870E-03	4.68531E-03	4.20601E-03	1.19959E-02	2.27894E-02	2.05671E-02

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.25471E-02	1.13865E-02	3.01290E-03	3.85284E-01
2	1.92886E-02	1.77526E-02	4.92127E-03	5.89421E-01
3	1.77815E-02	1.63991E-02	4.51963E-03	5.43224E-01
4	7.21140E-03	6.54625E-03	1.65659E-03	2.18613E-01
5	1.02609E-02	9.34362E-03	2.45288E-03	3.13192E-01

1 720 d, sas2h: babcock wilcox 15x15, 3.00w/o, 20gd/mtu burn high temp
Ocell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.77150E-01	1.31256E+00	1.65719E+00	1.02683E+00	1.55150E+00	2.98244E+00	2.87629E+00	2.07613E+00
2	1.73894E-01	1.27946E+00	1.61673E+00	1.00297E+00	1.51471E+00	2.91301E+00	2.80548E+00	2.02887E+00
3	1.72705E-01	1.26744E+00	1.60169E+00	9.93999E-01	1.50105E+00	2.88661E+00	2.78045E+00	2.00658E+00
4	1.71241E-01	1.24877E+00	1.57468E+00	9.74900E-01	1.46923E+00	2.82369E+00	2.71578E+00	2.00477E+00
5	1.73388E-01	1.27228E+00	1.60542E+00	9.94492E-01	1.50044E+00	2.88411E+00	2.81897E+00	2.02878E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59277E+00	1.45288E+00	1.31897E+00	8.10821E-01	6.85214E-01	6.03364E-01	3.70952E-01	2.04277E-01
2	1.60004E+00	1.46072E+00	1.33613E+00	8.31298E-01	7.00658E-01	6.30037E-01	3.73597E-01	2.06065E-01
3	1.60229E+00	1.46328E+00	1.34165E+00	8.37796E-01	7.06280E-01	6.38494E-01	3.74480E-01	2.06663E-01
4	1.60549E+00	1.46971E+00	1.35537E+00	8.53277E-01	7.19577E-01	6.58417E-01	3.75990E-01	2.07900E-01
5	1.60087E+00	1.46334E+00	1.34161E+00	8.37288E-01	7.05767E-01	6.37701E-01	3.74123E-01	2.06545E-01

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.38740E-02	4.25031E-02	1.24404E-01	4.28697E-01	1.11577E-01	1.91724E-01	6.94619E-01	5.16495E-01
2	8.61054E-02	5.09716E-02	1.28207E-01	4.36529E-01	1.19047E-01	2.14498E-01	7.33356E-01	5.51684E-01
3	8.68337E-02	5.32758E-02	1.29422E-01	4.39064E-01	1.21339E-01	2.21076E-01	7.46052E-01	5.61948E-01
4	8.85567E-02	5.87136E-02	1.32311E-01	4.44814E-01	1.27071E-01	2.37569E-01	7.77578E-01	5.93611E-01
5	8.67911E-02	5.26676E-02	1.29332E-01	4.38758E-01	1.21225E-01	2.20837E-01	7.46967E-01	5.64169E-01

Ozone	grp. 25	grp. 26	grp. 27
1	2.16895E-01	1.56828E-01	1.97258E-02
2	2.34996E-01	1.52888E-01	2.49661E-02
3	2.40030E-01	1.57333E-01	2.61755E-02
4	2.56746E-01	1.74590E-01	3.16872E-02
5	2.41495E-01	1.59643E-01	2.70539E-02

Oflux disadvantage factors (zone average/cell average-flux)

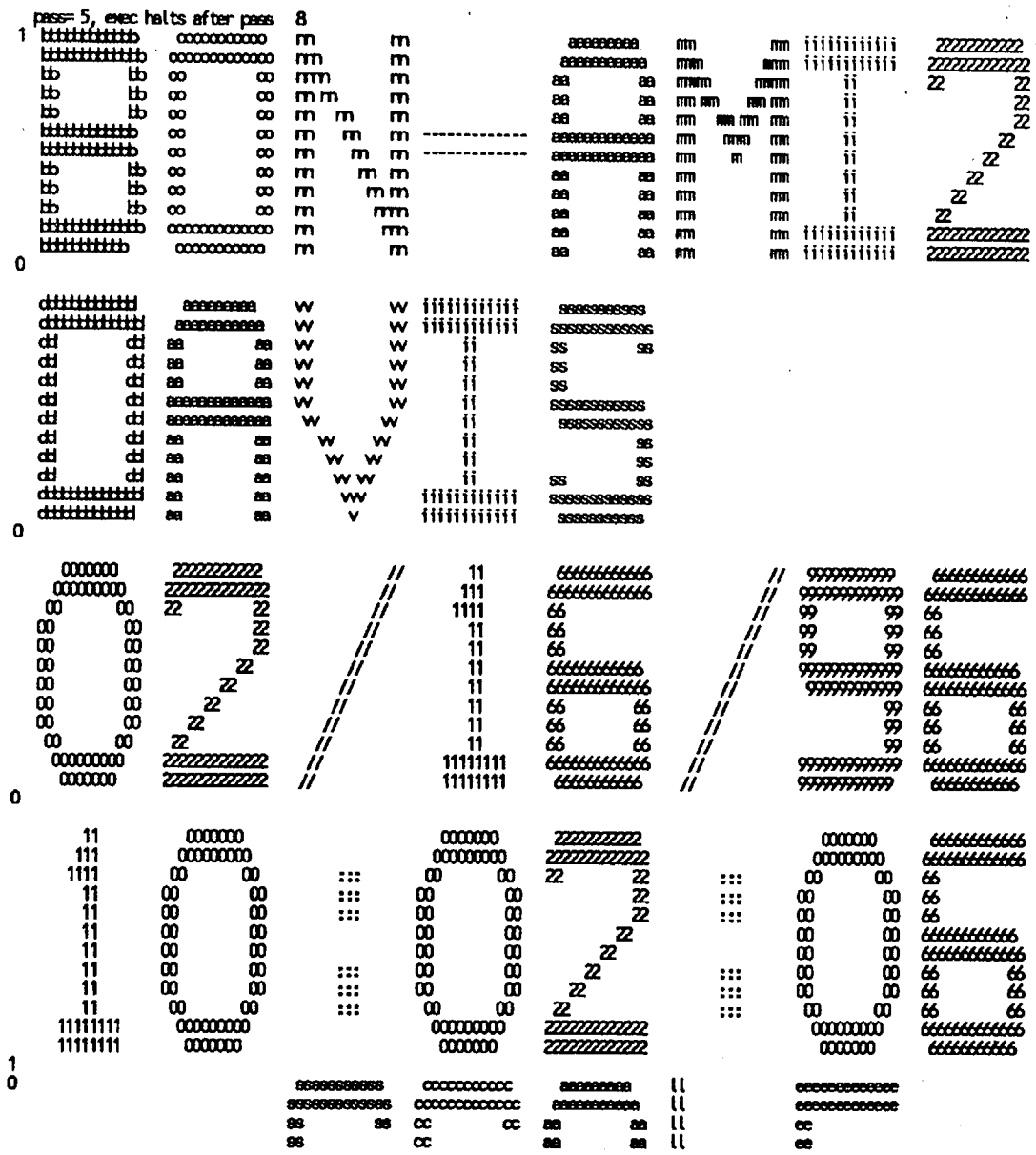
Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02169E+00	1.03166E+00	1.03224E+00	1.03252E+00	1.03408E+00	1.03409E+00	1.02033E+00	1.00855E+00
2	1.00293E+00	1.00564E+00	1.00704E+00	1.00852E+00	1.00951E+00	1.01002E+00	1.00585E+00	1.00004E+00
3	9.96059E-01	9.96195E-01	9.97675E-01	9.99504E-01	1.00040E+00	1.00087E+00	1.00052E+00	9.98936E-01
4	9.87616E-01	9.81520E-01	9.80851E-01	9.80800E-01	9.79194E-01	9.79051E-01	9.87507E-01	9.98062E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.94941E-01	9.92855E-01	9.83125E-01	9.68990E-01	9.68044E-01	9.46155E-01	9.91471E-01	9.89019E-01
2	9.99480E-01	9.98210E-01	9.95915E-01	9.92847E-01	9.92761E-01	9.87982E-01	9.98595E-01	9.97678E-01
3	1.00089E+00	9.99959E-01	1.00008E+00	1.00061E+00	1.00073E+00	1.00126E+00	1.00095E+00	1.00057E+00
4	1.00289E+00	1.00436E+00	1.01026E+00	1.01910E+00	1.01928E+00	1.03249E+00	1.00499E+00	1.00656E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.66390E-01	8.07005E-01	9.61895E-01	9.77068E-01	9.20366E-01	8.70141E-01	9.31166E-01	9.15498E-01
2	9.98079E-01	9.67797E-01	9.91300E-01	9.94921E-01	9.82051E-01	9.73501E-01	9.85094E-01	9.77871E-01
3	1.00049E+00	1.01155E+00	1.00069E+00	1.00070E+00	1.00093E+00	1.00335E+00	9.98772E-01	9.98064E-01
4	1.02034E+00	1.11479E+00	1.02308E+00	1.01380E+00	1.04822E+00	1.07821E+00	1.04211E+00	1.05219E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00
Ozone	grp. 25	grp. 26	grp. 27					
1	8.98143E-01	8.50826E-01	7.29057E-01					
2	9.73095E-01	9.57688E-01	9.22829E-01					
3	9.98940E-01	9.85530E-01	9.67532E-01					
4	1.06316E+00	1.09864E+00	1.17126E+00					
5	1.00000E+00	1.00000E+00	1.00000E+00					

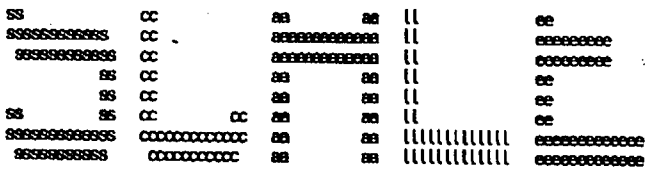
Ocell averaged currents

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.40137E-03	2.49138E-02	3.15261E-02	1.90644E-02	2.91252E-02	5.56679E-02	3.16998E-02	4.64092E-03
2	3.76978E-03	3.88027E-02	4.88315E-02	2.94639E-02	4.47955E-02	8.43712E-02	4.78814E-02	6.98245E-03
3	3.06314E-03	3.31039E-02	4.31123E-02	2.71720E-02	4.22810E-02	8.02579E-02	4.58942E-02	5.58177E-03
4	1.05736E-03	1.21810E-02	1.65256E-02	1.09243E-02	1.74049E-02	3.32996E-02	1.92588E-02	2.00508E-03
5	1.75210E-03	1.89768E-02	2.47479E-02	1.55911E-02	2.42886E-02	4.63660E-02	2.66833E-02	3.32516E-03
Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.67877E-03	5.71553E-03	1.29953E-02	1.45285E-02	1.25215E-02	1.50644E-02	1.89986E-03	1.33233E-03
2	7.02718E-03	8.57400E-03	1.86440E-02	2.19368E-02	1.88995E-02	2.84999E-02	2.82255E-03	2.00118E-03
3	5.63552E-03	8.04724E-03	1.74386E-02	2.02830E-02	1.74684E-02	2.63376E-02	2.64021E-03	1.85766E-03
4	1.87183E-03	3.27522E-03	7.08272E-03	8.14569E-03	7.05052E-03	1.05898E-02	1.15375E-03	7.76181E-04
5	3.27072E-03	4.66002E-03	1.00944E-02	1.17308E-02	1.01255E-02	1.52063E-02	1.58075E-03	1.09141E-03
Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.62874E-03	4.75050E-03	2.77254E-03	5.76889E-03	5.15258E-03	1.46018E-02	2.77568E-02	2.50357E-02
2	2.46775E-03	7.68579E-03	4.13657E-03	8.66524E-03	7.90828E-03	2.27590E-02	4.22387E-02	3.82970E-02
3	2.28112E-03	7.06078E-03	3.85468E-03	8.01808E-03	7.32915E-03	2.10258E-02	3.92598E-02	3.55407E-02
4	9.17655E-04	2.78625E-03	1.57718E-03	3.28855E-03	2.94274E-03	8.42024E-03	1.61109E-02	1.45536E-02
5	1.31844E-03	3.95566E-03	2.24870E-03	4.68331E-03	4.20601E-03	1.19959E-02	2.27894E-02	2.05671E-02
Ozone	grp. 25	grp. 26	grp. 27					
1	1.25471E-02	1.13866E-02	3.01230E-03					
2	1.92889E-02	1.77526E-02	4.92127E-03					
3	1.77815E-02	1.63991E-02	4.51963E-03					
4	7.21140E-03	6.54629E-03	1.65465E-03					
5	1.02609E-02	9.34362E-03	2.45286E-03					

Ozone	volume	vol. fraction
1	6.88643E-01	3.30753E-01
2	3.17352E-02	1.52468E-02
3	2.16724E-01	1.04122E-01
4	1.14454E+00	5.49878E-01
5	2.08144E+00	1.00000E+00

- elapsed time .03 min.
Orequested parm=halt8,skipcellwt,skipshipdata


pass= 5, exec halts after pass 8



```
program verification information
code system:  scale  version:  4.2

program:  c0c008
creation date:  04/27/95
library:  /neutronics/scale/exe
this is not a  scale  configuration controlled code
jobname:  davis
date of execution:  02/16/96
time of execution:  10:02:06
```

```
1
0      -1q array has     1 entries.
0       0q array has     4 entries.
0       1q array has     6 entries.
0       2q array has     2 entries.
1logical assignments
0master library   12
 working library  17
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0igm--geometry (0/1/2/3--inf mod/sleb/cyl/sphere                2
0izm--number of zones or material regions                       4
0ms--mixing table length                                       70
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
```

```
Dissopt--dancoff factor option                                    0
Dconvergence criterion    1.00000E-03
Dgeometry correction factor for wigner rational approximation  1.350E+00
0        3q array has      70 entries.
0        4q array has      70 entries.
0        5q array has      70 entries.
0        6q array has       4 entries.
0        7q array has       4 entries.
0        8q array has       4 entries.
0        9q array has       4 entries.
0       10q array has      70 entries.
0       11q array has       4 entries.
Dm i x i n g   t a b l e
Dentry  mixture  isotope  number density  new identifier
    1        3     8016    2.09710E-02             201
    2        3     1001    4.19420E-02             202
    3        3     5010    3.81515E-06             203
    4        3     5011    1.54884E-05             204
    5        2    40302    4.25156E-02             205
    6        1    92235    1.47017E-04          200006
    7        1    92234    1.54011E-06          200007
    8        1    92236    1.58412E-05          200008
    9        1    92238    7.23470E-05          200009
   10        1     8016    1.50611E-02          200010
   11        1     8016    1.15315E-02          200011
   12        1    36083    4.00409E-07          200012
   13        1    36085    1.92753E-07          200013
   14        1    38090    4.36638E-06          200014
   15        1    39089    3.37449E-06          200015
   16        1    42095    4.35535E-06          200016
   17        1    40093    3.43072E-06          200017
   18        1    40094    5.36576E-06          200018
   19        1    40095    6.73357E-07          200019
   20        1    41094    2.49521E-12          200020
   21        1    43099    5.24059E-06          200021
   22        1    45103    2.81650E-06          200022
   23        1    45105    6.85117E-09          200023
   24        1    44101    4.70687E-06          200024
   25        1    44106    7.10823E-07          200025
   26        1    46105    1.74568E-06          200026
   27        1    46108    4.60857E-07          200027
   28        1    47109    3.27366E-07          200028
   29        1    51124    7.62183E-11          200029
   30        1    54131    2.41807E-06          200030
   31        1    54132    4.37452E-06          200031
   32        1    54135    2.20802E-09          200032
   33        1    54136    8.94972E-06          200033
   34        1    55134    2.21272E-07          200034
   35        1    55135    2.83459E-06          200035
   36        1    55137    5.58169E-06          200036
   37        1    56136    4.34868E-08          200037
   38        1    57139    5.53655E-06          200038
   39        1    59141    4.73417E-06          200039
   40        1    59143    1.24918E-07          200040
   41        1    58144    2.11613E-06          200041
   42        1    60143    4.42460E-06          200042
   43        1    60145    3.23179E-06          200043
   44        1    61147    1.20498E-06          200044
   45        1    61148    3.46153E-09          200045
   46        1    60147    4.32241E-08          200046
```

47	1	62147	3.37132E-07	200047
48	1	62149	2.77995E-08	200048
49	1	62150	1.11012E-06	200049
50	1	62151	1.22001E-07	200050
51	1	62152	5.39591E-07	200051
52	1	64155	5.41449E-10	200052
53	1	63153	2.98755E-07	200053
54	1	63154	5.42034E-08	200054
55	1	63155	3.27959E-08	200055
56	1	40302	4.42681E-05	200056
57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	5.74632E-06	200060
61	1	93237	9.31923E-07	200061
62	1	94238	1.07908E-07	200062
63	1	94239	3.19867E-05	200063
64	1	94240	5.37093E-06	200064
65	1	94241	2.67558E-06	200065
66	1	94242	2.39572E-07	200066
67	1	95241	6.58791E-08	200067
68	1	95243	1.74682E-08	200068
69	1	96244	1.32132E-09	200069
70	1	999	3.30753E-21	200070

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.29052E+01	0
3	3	8.14000E-01	6.07600E+02	3.54852E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

8067 locations of 200000 available are required to make a new master containing the self-shielded values

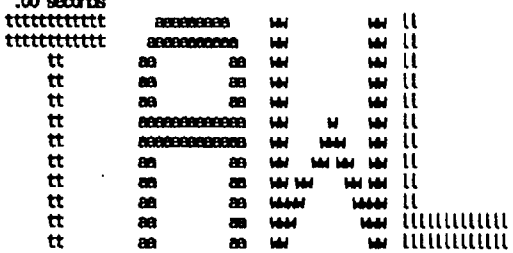
Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

Ocopy	999	1/v cross sectio	from log 12	to log 1	bondarenko	trigger 0
Ocopy	1001	hydrogen	from log 12	to log 18	bondarenko	trigger 0
Ocopy	1001	hydrogen	from log 18	to log 1	bondarenko	trigger 0
Ocopy	1001	hydrogen	from log 18	to log 1	bondarenko	trigger 0
Ocopy	5010	b-10 1273 218grp	from log 12	to log 18	bondarenko	trigger 0
Ocopy	5010	b-10 1273 218grp	from log 18	to log 1	bondarenko	trigger 0
Ocopy	5010	b-10 1273 218grp	from log 18	to log 1	bondarenko	trigger 0
Ocopy	5011	boron-11	from log 12	to log 18	bondarenko	trigger 0
Ocopy	5011	boron-11	from log 18	to log 1	bondarenko	trigger 0
Ocopy	5011	boron-11	from log 18	to log 1	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from log 12	to log 18	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
Ocopy	8016	oxygen-16	from log 18	to log 1	bondarenko	trigger 0
Ocopy	36083	kr-83	from log 12	to log 1	bondarenko	trigger 0
Ocopy	36085	kr-85	from log 12	to log 1	bondarenko	trigger 0
Ocopy	38090	sr-90	from log 12	to log 1	bondarenko	trigger 0
Ocopy	39089	y-89	from log 12	to log 1	bondarenko	trigger 0
Ocopy	40093	zr-93	from log 12	to log 1	bondarenko	trigger 0
Ocopy	40094	zr-94	from log 12	to log 1	bondarenko	trigger 0
Ocopy	40095	zr-95	from log 12	to log 1	bondarenko	trigger 0
Ocopy	40302	zircalloy	from log 12	to log 18	bondarenko	trigger 0
Ocopy	40302	zircalloy	from log 18	to log 1	bondarenko	trigger 0
Ocopy	40302	zircalloy	from log 18	to log 1	bondarenko	trigger 0
Ocopy	41094	nb-94	from log 12	to log 1	bondarenko	trigger 0
Ocopy	42095	mo-95	from log 12	to log 1	bondarenko	trigger 0
Ocopy	43099	tc-99	from log 12	to log 1	bondarenko	trigger 0
Ocopy	44101	ru-101	from log 12	to log 1	bondarenko	trigger 0

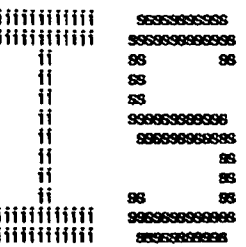
```
0copy    44106  ru-106          from lag 12 to lag  1   bondarenko trigger 0
0copy    45103  rh-103          from lag 12 to lag  1   bondarenko trigger 0
0copy    45105  rh-105          from lag 12 to lag  1   bondarenko trigger 0
0copy    46105  pd-105          from lag 12 to lag  1   bondarenko trigger 0
0copy    46108  pd-108          from lag 12 to lag  1   bondarenko trigger 0
0copy    47109  silver-109      from lag 12 to lag  1   bondarenko trigger 0
0copy    51124  sb-124          from lag 12 to lag  1   bondarenko trigger 0
0copy    54131  xe-131          from lag 12 to lag  1   bondarenko trigger 0
0copy    54132  xe-132          from lag 12 to lag  1   bondarenko trigger 0
0copy    54135  xenon-135       from lag 12 to lag  1   bondarenko trigger 0
0copy    54136  xe-136          from lag 12 to lag  1   bondarenko trigger 0
0copy    55133  cesium-133      from lag 12 to lag  1   bondarenko trigger 0
0copy    55134  cs-134          from lag 12 to lag  1   bondarenko trigger 0
0copy    55135  cs-135          from lag 12 to lag  1   bondarenko trigger 0
0copy    55137  cs-137          from lag 12 to lag  1   bondarenko trigger 0
0copy    56136  ba-136          from lag 12 to lag  1   bondarenko trigger 0
0copy    57139  la-139          from lag 12 to lag  1   bondarenko trigger 0
0copy    58144  ce-144          from lag 12 to lag  1   bondarenko trigger 0
0copy    59141  pr-141          from lag 12 to lag  1   bondarenko trigger 0
0copy    59143  pr-143          from lag 12 to lag  1   bondarenko trigger 0
0copy    60143  nd-143          from lag 12 to lag  1   bondarenko trigger 0
0copy    60145  nd-145          from lag 12 to lag  1   bondarenko trigger 0
0copy    60147  nd-147          from lag 12 to lag  1   bondarenko trigger 0
0copy    61147  pm-147          from lag 12 to lag  1   bondarenko trigger 0
0copy    61148  pm-148          from lag 12 to lag  1   bondarenko trigger 0
0copy    62147  sm-147          from lag 12 to lag  1   bondarenko trigger 0
0copy    62149  sm-149          from lag 12 to lag  1   bondarenko trigger 0
0copy    62150  sm-150          from lag 12 to lag  1   bondarenko trigger 0
0copy    62151  sm-151          from lag 12 to lag  1   bondarenko trigger 0
0copy    62152  sm-152          from lag 12 to lag  1   bondarenko trigger 0
0copy    63153  eu-153          from lag 12 to lag  1   bondarenko trigger 0
0copy    63154  eu-154          from lag 12 to lag  1   bondarenko trigger 0
0copy    63155  eu-155          from lag 12 to lag  1   bondarenko trigger 0
0copy    64155  gd-155          from lag 12 to lag  1   bondarenko trigger 0
0copy    92234  u-234 1043 sigc from lag 12 to lag  1   bondarenko trigger 0
0copy    92235  uranium-235     from lag 12 to lag  1   bondarenko trigger 0
0copy    92236  u-236 1163 sigc from lag 12 to lag  1   bondarenko trigger 0
0copy    92238  uranium-238     from lag 12 to lag  1   bondarenko trigger 0
0copy    93237  neptunium-237   from lag 12 to lag  1   bondarenko trigger 0
0copy    94238  pu-238 1050 sigc from lag 12 to lag  1   bondarenko trigger 0
0copy    94239  plutonium-239   from lag 12 to lag  1   bondarenko trigger 0
0copy    94240  plutonium-240   from lag 12 to lag  1   bondarenko trigger 0
0copy    94241  plutonium-241   from lag 12 to lag  1   bondarenko trigger 0
0copy    94242  plutonium-242   from lag 12 to lag  1   bondarenko trigger 0
0copy    95241  am-241 1056 sigc from lag 12 to lag  1   bondarenko trigger 0
0copy    95243  am-243 1057 218  from lag 12 to lag  1   bondarenko trigger 0
0copy    96244  curium-244      from lag 12 to lag  1   bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
      based on endf-b version 4 data with endf-b version 5 fission products
        compiled for nrc     1/27/89
          last updated       9/16/93
             l.m.petrie   -   ornl
      tape id                          4321        number of nuclides          70
      number of neutron groups           27        number of gamma groups       0
      first thermal group                15        logical unit                 1
                              table of contents
     1/v cross sections normalized to 1.0 at 0.0253 ev                    id  200070
      hydrogen       endf/b-iv mat 1269/thrmf002   updated 10/13/89       id     202
      hydrogen       endf/b-iv mat 1269/thrmf002   updated 10/13/89       id  200057
     b-10 1273 218grp 042375 p-3 293k                                     id     205
```

```
b-10 1273 218ngp 042375 p-3 295k                                                id  200058
 boron-11       endf/b-iv mat 1160          updated 10/13/89                    id     204
 boron-11       endf/b-iv mat 1160          updated 10/13/89                    id  200059
 oxygen-16      endf/b-iv mat 1276          updated 10/13/89                    id     201
 oxygen-16      endf/b-iv mat 1276          updated 10/13/89                    id  200010
 oxygen-16      endf/b-iv mat 1276          updated 10/13/89                    id  200011
 kr-83          mt=102,103,103,105,106,107  updated 10/13/89                    id  200012
 kr-85            mt=  102                                                      id  200013
 sr-90          mt=102                      updated 10/13/89                    id  200014
  y-89          mt=102                      updated 10/13/89                    id  200015
 zr-93            mt=  102                                                      id  200017
 zr-94          mt=102                      updated 10/13/89                    id  200018
 zr-95          mt=102                      updated 10/13/89                    id  200019
 zircalloy      endf/b-iv mat 1284          updated 10/13/89                    id     205
 zircalloy      endf/b-iv mat 1284          updated 10/13/89                    id  200056
 rb-94          mt=102                      updated 10/13/89                    id  200020
 mo-95          mt=102                      updated 10/13/89                    id  200016
 tc-99          mt=102                      updated 10/13/89                    id  200021
 ru-101         mt=102                      updated 10/13/89                    id  200024
 ru-106         mt=102                      updated 10/13/89                    id  200025
 rh-103         mt=102                      updated 10/13/89                    id  200022
 rh-105           mt=  102                                                      id  200023
 pd-105         mt=102                      updated 10/13/89                    id  200026
 pd-108         mt=102                      updated 10/13/89                    id  200027
 silver-109     endf/b-iv mat 1139          updated 10/13/89                    id  200028
 sb-124         mt=102                      updated 10/13/89                    id  200029
 xe-131         mt=102,103,104,105,106      updated 10/13/89                    id  200030
 xe-132         mt=102,103,104,105,106      updated 10/13/89                    id  200031
 xenon-135      endf/b-iv mat 1294          updated 10/13/89                    id  200032
 xe-136           mt=  102, 103, 104, 105, 107                                  id  200033
 cesium-133     endf/b-iv mat 1141          updated 10/13/89                    id  200060
 cs-134         mt=102                      updated 10/13/89                    id  200034
 cs-135           mt=  102                                                      id  200035
 cs-137         mt=102                      updated 10/13/89                    id  200036
 ba-136         mt=102                      updated 10/13/89                    id  200037
 la-139         mt=102                      updated 10/13/89                    id  200038
 ce-144           mt=  102                                                      id  200041
 pr-141         mt=102,103,104,105,106,107  updated 10/13/89                    id  200039
 pr-143         mt=102                      updated 10/13/89                    id  200040
 nd-143         mt=102                      updated 10/13/89                    id  200042
 nd-145         mt=102                      updated 10/13/89                    id  200043
 nd-147         mt=102                      updated 10/13/89                    id  200046
 pm-147         mt=102                      updated 10/13/89                    id  200044
 pm-148           mt=  102                                                      id  200045
 sm-147         endf/b-v fission product    updated 10/13/89                    id  200047
 sm-149         mt=102,103,107              updated 10/13/89                    id  200048
 sm-150         mt=102                      updated 10/13/89                    id  200049
 sm-151         mt=102,103,104,105,106,107  updated 10/13/89                    id  200050
 sm-152         mt=102,103,104,105,106,107  updated 10/13/89                    id  200051
 eu-153         mt=102,103,104,105,106,107  updated 10/13/89                    id  200053
 eu-154         mt=102,103,104,105,106,107  updated 10/13/89                    id  200054
 eu-155         mt=102,103,104,105,106,107  updated 10/13/89                    id  200055
 gd-155         mt=102                      updated 10/13/89                    id  200052
u-234 1043 sigo=5+4 newxlacs p-3 295k f-1/e-m(1.+5)                             id  200007
 uranium-235    endf/b-iv mat 1261          updated 10/13/89                    id  200006
u-236 1163 sigo=5+4 newxlacs p-3 295k f-1/e-m(1.+5)                             id  200008
 uranium-238    endf/b-iv mat 1262          updated 10/13/89                    id  200009
 neptunium-237  endf/b-iv mat 1263          updated 10/13/89                    id  200061
pu-238 1050 sigo=5+4 newxlacs p-3 295k f-1/e-m(1.+5)                            id  200062
 plutonium-239  endf/b-iv mat 1264          updated 10/13/89                    id  200063
```

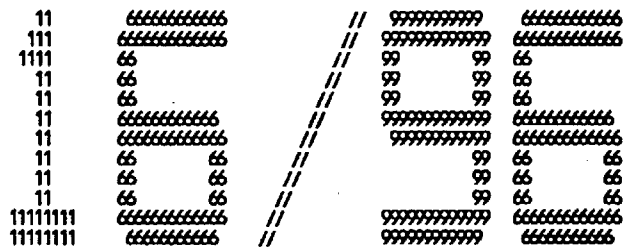
```
      plutonium-240  endf/b-iv mat 1265          updated 10/13/89          id   20064
      plutonium-241  endf/b-iv mat 1266          updated 10/13/89          id   20065
      plutonium-242  endf/b-iv mat 1161          updated 10/13/89          id   20066
     am-241 1056 sigp-5+4 newklacs 218ngp p-3 295k                         id   20067
     am-243 1057 218 gp wt f-1/e-m 090876 p3 295k                          id   20068
      curium-244     endf/b-iv mat 1162          updated 10/13/89          id   20069
0      tape copy used      0 i/o's, and took     .00 seconds
1
```



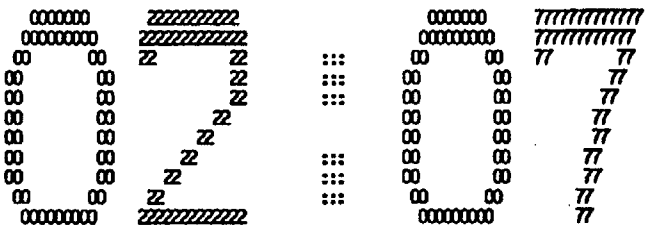
```
0
```



```
0
```



```
0
```



```
     11111111       0000000                   0000000    2222222222222          0000000        77
1
0
                        sssssssssss    ccccccccccc    aaaaaaaaa    ll            eeeeeeeeeeeee
                       ssssssssssssss ccccccccccccc  aaaaaaaaaaa   ll            eeeeeeeeeeeee
                       ss         ss  cc         cc  aa       aa   ll            ee
                       ss             cc             aa       aa   ll            ee
                       ss             cc             aa       aa   ll            ee
                       sssssssssssss  cc             aaaaaaaaaaaaa ll            eeeeeeeee
                        sssssssssssss cc             aaaaaaaaaaaaa ll            eeeeeeeee
                                  ss  cc             aa       aa   ll            ee
                                  ss  cc             aa       aa   ll            ee
                       ss         ss  cc         cc  aa       aa   ll            ee
                       sssssssssssss  ccccccccccccc  aa       aa   lllllllllllll eeeeeeeeeeeee
                        sssssssssss    ccccccccccc   aa       aa   lllllllllllll eeeeeeeeeeeee


              ******************************************************************************
              ******************************************************************************
              ******************************************************************************
              *****                                                                    *****
              *****                      program verification information              *****
              *****                                                                    *****
              *****                      code system:   scale  version:   4.2          *****
              *****                                                                    *****
              ******************************************************************************
              ******************************************************************************
              *****                                                                    *****
              *****                                                                    *****
              *****                  program:  c0c002                                  *****
              *****                                                                    *****
              *****            creation date:  04/27/95                                *****
              *****                                                                    *****
              *****                  library:  /neutronics/scale/exe                   *****
              *****                                                                    *****
              *****                                                                    *****
              *****    this is not a   scale  configuration controlled code            *****
              *****                                                                    *****
              *****                  jobname:  davis                                   *****
              *****                                                                    *****
              *****        date of execution:  02/16/96                                *****
              *****                                                                    *****
              *****        time of execution:  10:02:07                                *****
              *****                                                                    *****
              *****                                                                    *****
              ******************************************************************************
              ******************************************************************************
              ******************************************************************************
1
0      -1q array has      1 entries.
0       0q array has      4 entries.
0       1q array has     12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
```

```
        0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0       2q array has     70 entries.
0       3q array has     15 entries.
0       4q array has      5 entries.
0 general information concerning cross section library
    tape identification number              4349
    number of nuclides on tape                65
    number of neutron energy groups           27
    first thermal neutron energy group        15
    number of gamma energy groups              0
0   direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                      scale 4.2 - 27 group neutron burnup library
                        based on endf-b version 4 data with endf-b version 5 fission products
                          compiled for nnc      1/27/89
                            last updated       9/16/93
                              l.m.petrie   -    ornl
- work tape   4349

xsdrn weighted tape--parent case entitled--  720 d, sas2h: babcock wilcox 15x15,
 3.00w%, 20gwd/mtu burn high temp

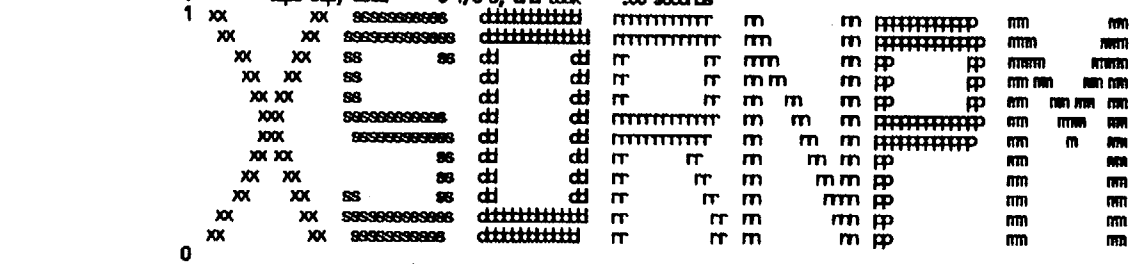

0 nuclides from xsdrn tape
    1    hydrogen       endf/b-iv mat 1269/thrml002   updated 10/13/89          202
    2   b-10 1273 218grp 042375 p-3 293k                                         203
    3    boron-11       endf/b-iv mat 1160            updated 10/13/89          204
    4    oxygen-16      endf/b-iv mat 1276            updated 10/13/89          201
    5    zircalloy      endf/b-iv mat 1284            updated 10/13/89          205
0 nuclides from work tape
    6   1/v cross sections normalized to 1.0 at 0.0253 ev                         999
    7    hydrogen       endf/b-iv mat 1269/thrml002   updated 10/13/89         1001
    8   b-10 1273 218grp 042375 p-3 293k                                        5010
    9    boron-11       endf/b-iv mat 1160            updated 10/13/89         5011
   10    oxygen-16      endf/b-iv mat 1276            updated 10/13/89         8016
   11    oxygen-16      endf/b-iv mat 1276            updated 10/13/89            6
   12    kr-83          mt=102,103,103,105,106,107    updated 10/13/89        36083
   13    kr-85             mt=  102                                             36085
   14    sr-90          mt=102                        updated 10/13/89        38090
   15     y-89          mt=102                        updated 10/13/89        39089
   16    zr-93             mt=  102                                             40093
   17    zr-94          mt=102                        updated 10/13/89        40094
   18    zr-95          mt=102                        updated 10/13/89        40095
   19    zircalloy      endf/b-iv mat 1284            updated 10/13/89        40802
   20    nb-94          mt=102                        updated 10/13/89        41094
   21    mo-95          mt=102                        updated 10/13/89        42095
   22    tc-99          mt=102                        updated 10/13/89        43099
   23    ru-101         mt=102                        updated 10/13/89        44101
   24    ru-106         mt=102                        updated 10/13/89        44106
   25    rh-103         mt=102                        updated 10/13/89        45103
   26    rh-105            mt=  102                                          45105
   27    pd-105         mt=102                        updated 10/13/89        46105
   28    pd-108         mt=102                        updated 10/13/89        46108
   29    silver-109     endf/b-iv mat 1139            updated 10/13/89        47109
   30    sb-124         mt=102                        updated 10/13/89        51124
   31    xe-131         mt=102,103,104,105,106        updated 10/13/89        54131
   32    xe-132         mt=102,103,104,105,106        updated 10/13/89        54132
   33    xenon-135      endf/b-iv mat 1294            updated 10/13/89        54135
```

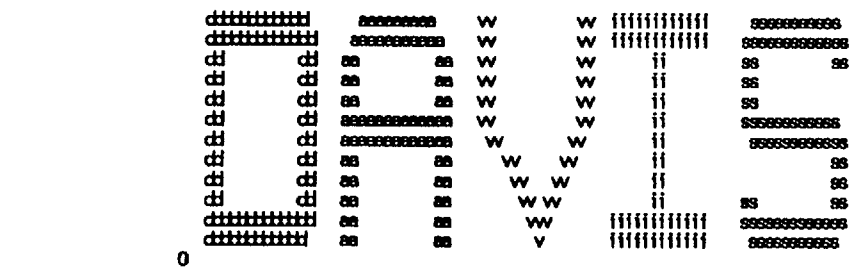
```
   34    xe-136          mt=  102, 103, 104, 105, 107                          54136
   35    cesium-133    endf/b-iv mat 1141            updated 10/13/89          55133
   36    cs-134        mt=102                        updated 10/13/89          55134
   37    cs-135          mt=  102                                              55135
   38    cs-137        mt=102                        updated 10/13/89          55137
   39    ba-136        mt=102                        updated 10/13/89          56136
   40    la-139        mt=102                        updated 10/13/89          57139
   41    ce-144          mt=  102                                              58144
   42    pr-141        mt=102,103,104,105,106,107    updated 10/13/89          59141
   43    pr-143        mt=102                        updated 10/13/89          59143
   44    nd-143        mt=102                        updated 10/13/89          60143
   45    nd-145        mt=102                        updated 10/13/89          60145
   46    nd-147        mt=102                        updated 10/13/89          60147
   47    pm-147        mt=102                        updated 10/13/89          61147
   48    pm-148          mt=  102                                              61148
   49    sm-147        endf/b-v fission product      updated 10/13/89          62147
   50    sm-149        mt=102,103,107                updated 10/13/89          62149
   51    sm-150        mt=102                        updated 10/13/89          62150
   52    sm-151        mt=102,103,104,105,106,107    updated 10/13/89          62151
   53    sm-152        mt=102,103,104,105,106,107    updated 10/13/89          62152
   54    eu-153        mt=102,103,104,105,106,107    updated 10/13/89          63153
   55    eu-154        mt=102,103,104,105,106,107    updated 10/13/89          63154
   56    eu-155        mt=102,103,104,105,106,107    updated 10/13/89          63155
   57    gd-155        mt=102                        updated 10/13/89          64155
   58   u-234 1043 sigz=5+4 nsx1acs p-3 293k f-1/e-m(1.+5)                      92234
   59    uranium-235   endf/b-iv mat 1261           updated 10/13/89          92235
   60   u-236 1163 sigz=5+4 nsx1acs p-3 293k f-1/e-m(1.+5)                      92236
   61    uranium-238   endf/b-iv mat 1262           updated 10/13/89          92238
   62    neptunium-237 endf/b-iv mat 1263           updated 10/13/89          93237
   63   pu-238 1050 sigz=5+4 nsx1acs p-3 293k f-1/e-m(1.+5)                      94238
   64    plutonium-239 endf/b-iv mat 1264           updated 10/13/89          94239
   65    plutonium-240 endf/b-iv mat 1265           updated 10/13/89          94240
   66    plutonium-241 endf/b-iv mat 1266           updated 10/13/89          94241
   67    plutonium-242 endf/b-iv mat 1161           updated 10/13/89          94242
   68   am-241 1056 sigz=5+4 nsx1acs 218ngp p-3 293k                            95241
   69   am-243 1057 218 gp wt f-1/e-m 090576 p3 293k                            95243
   70    curium-244    endf/b-iv mat 1162           updated 10/13/89          96244
0 hydrogen       endf/b-iv mat 1269/thrm1002   updated 10/13/89          202    temperature=  607.60
                          thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042575 p-3 293k                                          203    temperature=  607.60
                          thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 boron-11       endf/b-iv mat 1160            updated 10/13/89          204    temperature=  607.60
                          thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 oxygen-16      endf/b-iv mat 1276            updated 10/13/89          201    temperature=  607.60
0 zircalloy      endf/b-iv mat 1284            updated 10/13/89          205    temperature=  650.00
0resonance data for this nuclide
0mass number (a)          =   90.436          temperature(kelvin)     =  650.000
0potential scatter sigma  =    6.385          lumped nuclear density  = 4.251560E-02
0spin factor (g)          =    1.079          lump dimension (a-bar)  = 6.730999E-01
0inner radius             = 6.324600E-01      dancoff correction (c)  = 1.680690E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group      res abs        res fiss       res scat
   8     -1.156752E-03    .000000E+00   -7.806083E-01
   9     -4.625978E-02    .000000E+00   -2.073270E+00
  10     -5.962230E-02    .000000E+00   -1.351984E+00
  11     -1.761672E-01    .000000E+00   -7.350731E-01
0excess resonance integrals
0              resolved
```

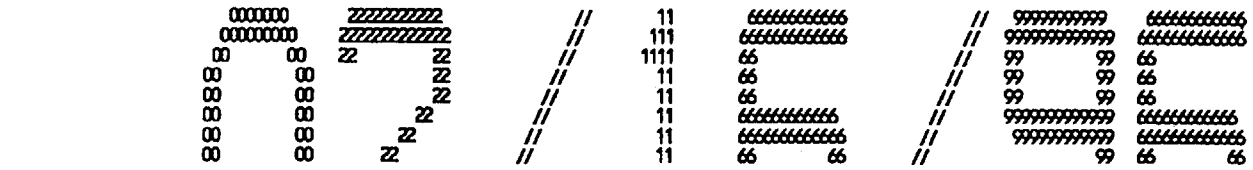
```
absorption      2.92402E-01
 fission         .00000E+00
-  elapsed time    .00 min.
-  elapsed time    .02 min.
1     this xscfm working tape was created 02/16/96 at 10:02:07
      the title of the parent case is as follows
      xscfm weighted tape-parent case entitled--  720 d, ses2h: babcock wilcox 15x15,
       3.00wt%, 20gwd/mtu burn high temp

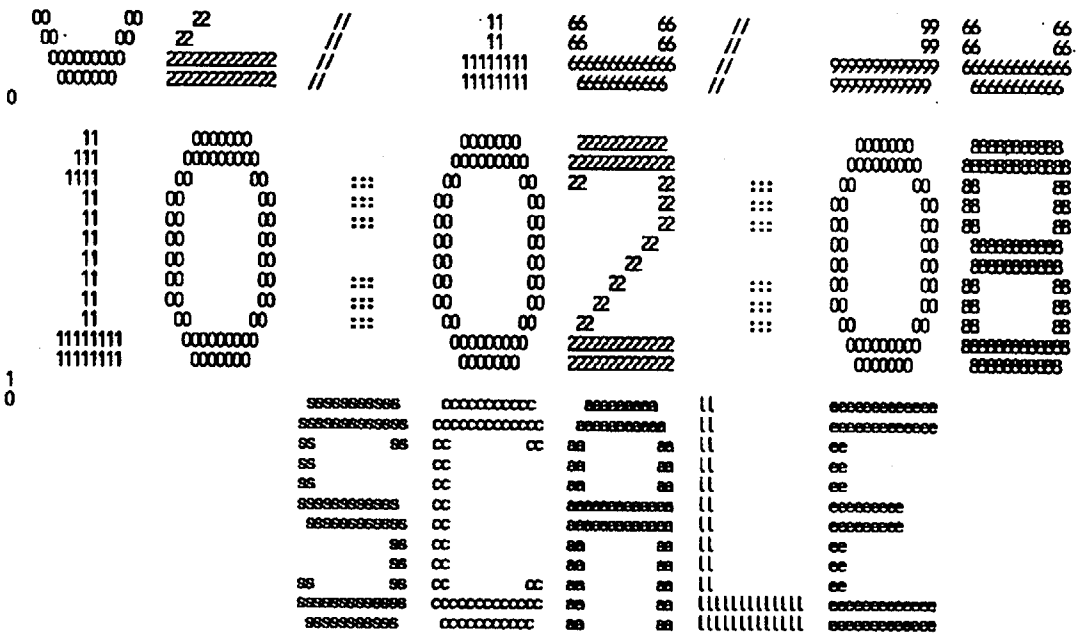
        tape id                          8670        number of nuclides          70
        number of neutron groups           27        number of gamma groups       0
        first thermal group                15        logical unit                 4
                                  table of contents
       hydrogen        endf/b-iv mat 1269/thrml002   updated 10/13/89        id   202
      b-10 1273 218ngp 042375 p-3 293k                                        id   203
       boron-11        endf/b-iv mat 1160            updated 10/13/89        id   204
       oxygen-16       endf/b-iv mat 1276            updated 10/13/89        id   201
       zircalloy       endf/b-iv mat 1284            updated 10/13/89        id   205
      1/v cross sections normalized to 1.0 at 0.0253 ev                        id   999
       hydrogen        endf/b-iv mat 1269/thrml002   updated 10/13/89        id  1001
      b-10 1273 218ngp 042375 p-3 293k                                        id  5010
       boron-11        endf/b-iv mat 1160            updated 10/13/89        id  5011
       oxygen-16       endf/b-iv mat 1276            updated 10/13/89        id  8016
       oxygen-16       endf/b-iv mat 1276            updated 10/13/89        id     6
       kr-83           mt=102,103,103,105,106,107    updated 10/13/89        id 36083
       kr-85             mt=  102                                            id 36085
       sr-90           mt=102                        updated 10/13/89        id 38090
        y-89           mt=102                        updated 10/13/89        id 39089
       zr-93             mt=  102                                            id 40093
       zr-94           mt=102                        updated 10/13/89        id 40094
       zr-95           mt=102                        updated 10/13/89        id 40095
       zircalloy       endf/b-iv mat 1284            updated 10/13/89        id 40802
       nb-94           mt=102                        updated 10/13/89        id 41094
       mo-95           mt=102                        updated 10/13/89        id 42095
       tc-99           mt=102                        updated 10/13/89        id 43099
       ru-101          mt=102                        updated 10/13/89        id 44101
       ru-106          mt=102                        updated 10/13/89        id 44106
       rh-103          mt=102                        updated 10/13/89        id 45103
       rh-105            mt=  102                                            id 45105
       pd-105          mt=102                        updated 10/13/89        id 46105
       pd-108          mt=102                        updated 10/13/89        id 46108
       silver-109      endf/b-iv mat 1139            updated 10/13/89        id 47109
       sb-124          mt=102                        updated 10/13/89        id 51124
       xe-131          mt=102,103,104,105,106        updated 10/13/89        id 54131
       xe-132          mt=102,103,104,105,106        updated 10/13/89        id 54132
       xenon-135       endf/b-iv mat 1294            updated 10/13/89        id 54135
       xe-136            mt=  102,  103,  104,  105,  107                    id 54136
       cesium-133      endf/b-iv mat 1141            updated 10/13/89        id 55133
       cs-134          mt=102                        updated 10/13/89        id 55134
       cs-135            mt=  102                                            id 55135
       cs-137          mt=102                        updated 10/13/89        id 55137
       ba-136          mt=102                        updated 10/13/89        id 56136
       la-139          mt=102                        updated 10/13/89        id 57139
       ce-144            mt=  102                                            id 58144
       pr-141          mt=102,103,104,105,106,107    updated 10/13/89        id 59141
       pr-143          mt=102                        updated 10/13/89        id 59143
       nd-143          mt=102                        updated 10/13/89        id 60143
       nd-145          mt=102                        updated 10/13/89        id 60145
       nd-147          mt=102                        updated 10/13/89        id 60147
       pm-147          mt=102                        updated 10/13/89        id 61147
```

```
        pm-148          mt=  102                                                id    61148
        sm-147          endf/b-v fission product        updated 10/13/89         id    62147
        sm-149          mt=102,103,107                  updated 10/13/89         id    62149
        sm-150          mt=102                          updated 10/13/89         id    62150
        sm-151          mt=102,103,104,105,106,107      updated 10/13/89         id    62151
        sm-152          mt=102,103,104,105,106,107      updated 10/13/89         id    62152
        eu-153          mt=102,103,104,105,106,107      updated 10/13/89         id    63153
        eu-154          mt=102,103,104,105,106,107      updated 10/13/89         id    63154
        eu-155          mt=102,103,104,105,106,107      updated 10/13/89         id    63155
        gd-155          mt=102                          updated 10/13/89         id    64155
       u-234 1043 sigo=5+4 newclacs p-3 293k f-1/e-m(1.+5)                      id    92234
        uranium-235     endf/b-iv mat 1261              updated 10/13/89         id    92235
       u-236 1163 sigo=5+4 newclacs p-3 293k f-1/e-m(1.+5)                      id    92236
        uranium-238     endf/b-iv mat 1262              updated 10/13/89         id    92238
        neptunium-237   endf/b-iv mat 1263              updated 10/13/89         id    93237
       pu-238 1050 sigo=5+4 newclacs p-3 293k f-1/e-m(1.+5)                     id    94238
        plutonium-239   endf/b-iv mat 1264              updated 10/13/89         id    94239
        plutonium-240   endf/b-iv mat 1265              updated 10/13/89         id    94240
        plutonium-241   endf/b-iv mat 1266              updated 10/13/89         id    94241
        plutonium-242   endf/b-iv mat 1161              updated 10/13/89         id    94242
       am-241 1056 sigo=5+4 newclacs 218gp p-3 293k                             id    95241
       am-243 1057 218 gp wt f-1/e-m 090376 p3 293k                             id    95243
        curium-244      endf/b-iv mat 1162              updated 10/13/89         id    96244
0       tape copy used      0 i/o's, and took     .00 seconds
```









program verification information

code system: scale version: 4.2

program: c0c001

creation date: 04/27/95

library: /neutronics/scale/exe

this is not a scale configuration controlled code

jobname: davis

date of execution: 02/16/96

```
                    *****
                    *****    time of execution:  10:02:08                    *****
                    *****                                                    *****
                    *****                                                    *****
                    ************************************************************
                    ************************************************************
                    ************************************************************

1
                    720 d, second part of sas2h pass to make library
0       -1q array has      1 entries.
0        0q array has     11 entries.
0        1q array has     15 entries.
0        2q array has     10 entries.
0        3q array has     12 entries.
0        4q array has      9 entries.
0        5q array has     12 entries.
0direct access unit   9 requires     12 blocks of length  704 for cross section mixing.
1                    720 d, second part of sas2h pass to make library
0general problem description data block
0                              general problem data

 ige  1/2/3 = plane/cylinder/sphere      2      isn  quadrature order                  8
 izm  number of zones                    4      isct order of scattering               3
 im   number of special intervals       28      ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h   1
 ibl  0/1/2/3 = vacuum/refl/per/white    1      iim  inner iteration maximum         20
 ibr  right boundary condition           3      iom  outer iteration maximum         25
 mxx  number of mixtures                 3      iclc -1/0/n--flat res/sn/qpt           0
 ms   mixing table length               70      ith  0/1 = forward/adjoint            0
 igm  number of energy groups           27      iflu not used(always wgtd)             0
 nng  number of neutron groups          27      iprt -2/-1/0/n=mixture xsec print     -2
 ngg  number of gamma groups             0      idl  0/1/2/3=no/prt nd/pch n/both     14
 iftg number of first thermal group     15      ipbt -1/0/1=none/fine/all bal. prt     0
0                              special options

 ifg  0/1 = none/weighting calculation   1      ipn  0/1/2 diff. coef. param           0
 iqm  volumetric sources (0/n=no/yes)    0      idfm 0/1 = none/density factors 38*    0
 ipm  boundary sources (0/n=no/yes)      0      iaz  0/n = none/n activities by zone    0
 ifn  0/1/2 = input 33*/34*/use last    14      iai  0/1=none/activities by interval   0
 itmx maximum time (minutes)            10      ifct 0/1=no/yes upscatter scaling      0
 idt1 0/1/2/3=no/xsect/srce/flux--out    0      ipvt 0/1/2=no/k/alpha parametric srch  0
 isx  broad group fluxes                 0      isen outer iteration acceleration      0
 ibln activity data unit                 0      rbnd band rebaln parameter             0
 jbkl 0/1/2 buckling geometry            0
0                              weighting data (ifg=1)

 icon -1/0/1=cell/zone/region weight    -1      ihtf total xsect pan in brd gp tables  3
 igmf number of broad groups             3      ndsf pan g-g or file number            4
 itp  0/10/20/30/40 0/c/e/ac/a           0      nusf table length or mx order          6
 ipp  -2/-1/0/n=gted xsect print        -2      mscm extra 1-d x-sect positions        0
 iap  -1/n anisn xsect print            -1
0                              floating point parameters

 eps  overall convergence       1.00000E-04     dy   cyl/pla ht for buckling    .00000E+00
 ptc  point convergence         1.00000E-04     dz   plane depth for buckling  2.00000E+02
 xnf  normalization factor      1.00000E+00     vsc  void streaming correction  .00000E+00
 ev   eigenvalue guess           .00000E+00     pv   ipvt=1/2--k/alpha          1.00000E+00
 evm  eigenvalue modifier        .00000E+00     eql  ev change eps for search  1.00000E-03
 bf   buckling factor=1.420892  1.42089E+00     xnpn new param mod for search  7.50000E-01
     this case will require       2611 locations for mixing
     this case has been allocated 200000 locations
```

1 720 d, second part of sas2h pass to make library
0 13q array has 70 entries.
0 14q array has 70 entries.
0 15q array has 70 entries.
0 data block 2 (mixing table, etc.)

	nuclides on tape	cccc identification	mixture	mixing table component	atom density	extra xsect id's
1	202		3	201	2.09710E-02	
2	203		3	202	4.19420E-02	
3	204		3	203	3.81515E-06	
4	201		3	204	1.54884E-05	
5	205		2	205	4.25156E-02	
6	999		1	92235	1.47017E-04	
7	1001		1	92234	1.54011E-06	
8	5010		1	92236	1.58612E-05	
9	5011		1	92238	7.23470E-03	
10	8016		1	8016	1.50611E-02	
11	6		1	6	1.15315E-02	
12	36083		1	36083	4.00409E-07	
13	36085		1	36085	1.92753E-07	
14	38090		1	38090	4.36638E-06	
15	39089		1	39089	3.37449E-06	
16	40093		1	42095	4.35535E-06	
17	40094		1	40093	3.43072E-06	
18	40095		1	40094	5.36576E-06	
19	40302		1	40095	6.73557E-07	
20	41094		1	41094	2.69321E-12	
21	42095		1	43099	5.24059E-06	
22	43099		1	45103	2.81650E-06	
23	44101		1	45105	6.85117E-09	
24	44106		1	44101	4.70687E-06	
25	45103		1	44106	7.10825E-07	
26	45105		1	46105	1.74568E-06	
27	46105		1	46108	4.60857E-07	
28	46108		1	47109	3.27366E-07	
29	47109		1	51124	7.62183E-11	
30	51124		1	54131	2.41809E-06	
31	54131		1	54132	4.37452E-06	
32	54132		1	54135	2.20802E-09	
33	54135		1	54136	8.94972E-06	
34	54136		1	55134	2.21272E-07	
35	55133		1	55135	2.83459E-06	
36	55134		1	55137	5.58169E-06	
37	55135		1	56136	4.34868E-08	
38	55137		1	57139	5.53655E-06	
39	56136		1	59141	4.73417E-06	
40	57139		1	59143	1.24918E-07	
41	58144		1	58144	2.11613E-06	
42	59141		1	60143	4.42460E-06	
43	59143		1	60145	3.23179E-06	
44	60143		1	61147	1.20498E-06	
45	60145		1	61148	3.46153E-09	
46	60147		1	60147	4.32241E-08	
47	61147		1	62147	3.37132E-07	
48	61148		1	62149	2.77995E-08	
49	62147		1	62150	1.11012E-06	
50	62149		1	62151	1.22001E-07	
51	62150		1	62152	5.39591E-07	
52	62151		1	64155	5.41449E-10	
53	62152		1	63153	2.98755E-07	

54	63153	1	63154	5.42034E-08
55	63154	1	63155	3.27959E-08
56	63155	1	40302	4.42681E-03
57	64155	1	1001	2.30630E-02
58	92234	1	5010	2.09787E-06
59	92235	1	5011	8.51673E-06
60	92236	1	55133	5.74632E-06
61	92238	1	93237	9.31923E-07
62	93237	1	94238	1.07908E-07
63	94238	1	94239	3.19267E-05
64	94239	1	94240	5.37093E-06
65	94240	1	94241	2.67558E-06
66	94241	1	94242	2.39572E-07
67	94242	1	95241	6.58791E-08
68	95241	1	95243	1.74582E-08
69	95243	1	96244	1.32132E-09
70	96244	1	999	3.30753E-21

- elapsed time .00 min.
0 24259 locations will be used
0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 720 d, second part of ses2h pass to make library
neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60881E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	1	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	1	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	1	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	2	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.09946E+07	2	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01086E+07	2	0	12	1.00000E+00	
13	3.00000E+01	1.27769E+01	5.69595E+06	2	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00	
15	3.04999E+00	1.50080E+01	2.10601E+06	2	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	2	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00	
21	4.00000E-01	1.70844E+01	8.17974E+05	3	0	21	1.00000E+00	
22	3.25000E-01	1.72620E+01	6.90070E+05	3	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86953E+05	3	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	3	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 720 d, second part of ses2h pass to make library
0 mixture by zone | order p(l) by zone | activity table matl no. | reaction | quadrature constants weights | directions | refl direc | wt x cos

1	3	3		0	-2.79004E-01	3	0
2	2	3		5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3		5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3		0	-6.04419E-01	8	0
5				5.55953E-02	-5.58410E-01	8	-3.10450E-02
6				5.55953E-02	-2.31301E-01	7	-1.28593E-02
7				5.55953E-02	2.31301E-01	6	1.28593E-02
8				5.55953E-02	5.58410E-01	5	3.10450E-02
9				0	-8.50774E-01	15	0
10				5.22844E-02	-8.21784E-01	15	-4.29665E-02
11				5.22844E-02	-6.01588E-01	14	-3.14537E-02
12				5.22844E-02	-2.20196E-01	13	-1.15128E-02
13				5.22844E-02	2.20196E-01	12	1.15128E-02
14				5.22844E-02	6.01588E-01	11	3.14537E-02
15				5.22844E-02	8.21784E-01	10	4.29665E-02
16				0	-9.83032E-01	24	0
17				4.53365E-02	-9.64143E-01	24	-4.37099E-02
18				4.53365E-02	-8.17361E-01	23	-3.70655E-02
19				4.53365E-02	-5.46143E-01	22	-2.47597E-02
20				4.53365E-02	-1.91780E-01	21	-8.69444E-03
21				4.53365E-02	1.91780E-01	20	8.69444E-03
22				4.53365E-02	5.46143E-01	19	2.47597E-02
23				4.53365E-02	8.17361E-01	18	3.70655E-02
24				4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83236E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83236E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83236E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.76564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61278E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61278E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86885E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40830E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40830E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83032E-01	-4.49528E-01	8.36885E-01	5.00703E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20862E-01	4.16520E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20862E-01	2.78176E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17234E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17234E-01
22	5.46143E-01	-4.49528E-01	-3.20862E-01	-2.78176E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20862E-01	-4.16520E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.97644E-02	1	0	4.90881E-03		0	
2	3.95287E-02	5.92931E-02	1	2.48566E-01	1.47264E-02		0	
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0	
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0	
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01			
6	3.16230E-01	3.55759E-01	1	1.98693E+00	1.76717E-01			
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.55258E-01			
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42355E-01			

10	5.92851E-01	6.12696E-01	1	3.72550E+00	1.52173E-01
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02
13	6.73100E-01	6.96883E-01	3	4.22921E+00	2.05562E-01
14	7.20067E-01	7.43650E-01	3	4.52431E+00	2.19422E-01
15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29051E-01
17	9.11591E-01	9.60886E-01	4	5.72769E+00	5.88891E-01
18	1.00918E+00	1.10577E+00	4	6.34088E+00	1.35731E+00
19	1.20436E+00	1.30195E+00	4	7.56726E+00	1.59667E+00
20	1.39955E+00	1.49714E+00	4	8.79366E+00	1.83603E+00
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79349E+00
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.03285E+00
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00
29	2.96100E+00			1.86045E+01	

- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	186	2.48569E-05	1.05705E+00	-6.31734E-02	1.00000E+00	-1.95208E-02	.00000E+00	.0000
2	281	-1.32135E-05	1.05387E+00	-1.33080E-03	-7.88857E-03	-2.81310E-03	.00000E+00	.0000
3	354	1.01005E-05	1.05448E+00	-1.99520E-04	-1.06861E-03	-6.40909E-04	.00000E+00	.0167
4	409	-8.38361E-06	1.05490E+00	-4.26851E-05	-2.45785E-04	-1.43411E-04	.00000E+00	.0167
5	444	5.49109E-06	1.05478E+00	-9.70884E-06	-5.56824E-05	-3.16001E-05	.00000E+00	.0167

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	17	1.13149E-06	28	1.00000E+00	1
2	1	17	1.35454E-06	28	1.00000E+00	1
3	1	17	1.24975E-06	28	1.00000E+00	1
4	1	17	1.20728E-06	28	1.00000E+00	1
5	1	17	1.22270E-06	28	1.00000E+00	1
6	1	17	8.15168E-07	28	1.00000E+00	1
7	1	17	5.15490E-07	28	1.00000E+00	2
8	1	16	1.01462E-07	28	1.00000E+00	2
9	1	27	8.55716E-06	28	9.99992E-01	3
10	1	26	3.16370E-06	28	9.99997E-01	3
11	1	26	2.76400E-06	28	9.99997E-01	3
12	1	25	9.50851E-07	28	9.99999E-01	3
13	1	26	2.33163E-06	28	1.00000E+00	3
14	1	25	3.07850E-07	28	1.00000E+00	3
15	1	2	3.05769E-05	28	9.99966E-01	2
16	1	2	3.76252E-05	28	9.99968E-01	2
17	1	2	4.32990E-05	28	9.99892E-01	3
18	1	2	5.08065E-05	28	9.99962E-01	3
19	1	2	4.31020E-05	28	9.99914E-01	3
20	1	2	3.33729E-05	28	9.99956E-01	3
21	1	2	5.14854E-05	28	9.99954E-01	3
22	1	23	2.32014E-05	28	9.99978E-01	3
23	1	27	1.81769E-05	28	9.99978E-01	4
24	1	1	1.87144E-05	9	1.00001E+00	4
25	1	1	2.12591E-05	8	1.00001E+00	5
26	1	1	1.56697E-05	6	1.00001E+00	6
27	1	1	1.42699E-05	5	1.00001E+00	8

6	471	-4.26156E-06	1.05471E+00	-2.09436E-06	-1.22728E-05	-7.12417E-06	.00000E+00	.0167

final monitor

lambda 1.05486E+00 production/absorption 1.07880E+00 angular flux on 16

- elapsed time .02 min.
1 720 d, second part of sas2h pass to make library
0 int. zone number radius int. midpoint area volume prod density

int.	zone	number	radius	int. midpoint	area	volume	prod density
1	1		.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1		3.95287E-02	5.92931E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1		7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1		1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1		2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1		3.16230E-01	3.55759E-01	1.98693E+00	1.76717E-01	.00000E+00
7	1		3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1		4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1		5.53403E-01	5.73167E-01	3.47713E+00	1.42355E-01	.00000E+00
10	1		5.92931E-01	6.12698E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2		6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2		6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3		6.73100E-01	6.96883E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3		7.20067E-01	7.43550E-01	4.52631E+00	2.19422E-01	.00000E+00
15	3		7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4		8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.42890E-02
17	4		9.11591E-01	9.60886E-01	5.72769E+00	5.88871E-01	2.64366E-02
18	4		1.00918E+00	1.10677E+00	6.34088E+00	1.35731E+00	5.96802E-02
19	4		1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	6.87644E-02
20	4		1.39955E+00	1.49714E+00	8.79860E+00	1.83603E+00	7.79853E-02
21	4		1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	8.71568E-02
22	4		1.78991E+00	1.88750E+00	1.12463E+01	2.31478E+00	9.64330E-02
23	4		1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	1.05772E-01
24	4		2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.15189E-01
25	4		2.37545E+00	2.47305E+00	1.49254E+01	3.05285E+00	1.24702E-01
26	4		2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.34341E-01
27	4		2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	7.08334E-02
28	4		2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	7.33258E-02
29			2.96100E+00		1.86045E+01		

1 720 d, second part of sas2h pass to make library
0 total flux

int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.28271E-02	9.04508E-02	1.12334E-01	6.83895E-02	1.02675E-01	1.92730E-01	1.98048E-01	1.46974E-01
2	1.28219E-02	9.03997E-02	1.12271E-01	6.89013E-02	1.02623E-01	1.92643E-01	1.98005E-01	1.46968E-01
3	1.28225E-02	9.04126E-02	1.12291E-01	6.89192E-02	1.02657E-01	1.92713E-01	1.98062E-01	1.46979E-01
4	1.28239E-02	9.04930E-02	1.12405E-01	6.89976E-02	1.02787E-01	1.92956E-01	1.98218E-01	1.47008E-01
5	1.28414E-02	9.06344E-02	1.12601E-01	6.91305E-02	1.03003E-01	1.93355E-01	1.98466E-01	1.47052E-01
6	1.28580E-02	9.08289E-02	1.12869E-01	6.93139E-02	1.03301E-01	1.93908E-01	1.98805E-01	1.47108E-01
7	1.28789E-02	9.10778E-02	1.13215E-01	6.95517E-02	1.03685E-01	1.94620E-01	1.99246E-01	1.47178E-01
8	1.29042E-02	9.13887E-02	1.13654E-01	6.98589E-02	1.04194E-01	1.95556E-01	1.99823E-01	1.47261E-01
9	1.29255E-02	9.16622E-02	1.14048E-01	7.01408E-02	1.04662E-01	1.96424E-01	1.99359E-01	1.47330E-01
10	1.29400E-02	9.18766E-02	1.14377E-01	7.03889E-02	1.05083E-01	1.97210E-01	1.99864E-01	1.47379E-01
11	1.29522E-02	9.20543E-02	1.14652E-01	7.05972E-02	1.05437E-01	1.97886E-01	1.98264E-01	1.47423E-01
12	1.29654E-02	9.21865E-02	1.14825E-01	7.07055E-02	1.05606E-01	1.98223E-01	1.98466E-01	1.47467E-01
13	1.29831E-02	9.24275E-02	1.15095E-01	7.08430E-02	1.05796E-01	1.98563E-01	1.96658E-01	1.47536E-01
14	1.30339E-02	9.28113E-02	1.15548E-01	7.10982E-02	1.06170E-01	1.99222E-01	1.97058E-01	1.47627E-01
15	1.30819E-02	9.33052E-02	1.16173E-01	7.14847E-02	1.06767E-01	2.00255E-01	1.97666E-01	1.47728E-01
16	1.31568E-02	9.40962E-02	1.17188E-01	7.21295E-02	1.07782E-01	2.02136E-01	1.98758E-01	1.47868E-01
17	1.32300E-02	9.48836E-02	1.18204E-01	7.27777E-02	1.08812E-01	2.04029E-01	1.99901E-01	1.48095E-01
18	1.32885E-02	9.55219E-02	1.19036E-01	7.33133E-02	1.09678E-01	2.05666E-01	2.00918E-01	1.48299E-01
19	1.33395E-02	9.60887E-02	1.19784E-01	7.37979E-02	1.10470E-01	2.07194E-01	2.01885E-01	1.48511E-01
20	1.33694E-02	9.64294E-02	1.20242E-01	7.40969E-02	1.10964E-01	2.08177E-01	2.02523E-01	1.48666E-01
21	1.33982E-02	9.66486E-02	1.20541E-01	7.42936E-02	1.11293E-01	2.08845E-01	2.02965E-01	1.48782E-01
22	1.34002E-02	9.67916E-02	1.20739E-01	7.44250E-02	1.11514E-01	2.09314E-01	2.03283E-01	1.48869E-01
23	1.34077E-02	9.68836E-02	1.20869E-01	7.45114E-02	1.11663E-01	2.09631E-01	2.03501E-01	1.48931E-01
24	1.34121E-02	9.69385E-02	1.20948E-01	7.45642E-02	1.11755E-01	2.09833E-01	2.03642E-01	1.48973E-01
25	1.34140E-02	9.69637E-02	1.20986E-01	7.45895E-02	1.11799E-01	2.09937E-01	2.03716E-01	1.48994E-01

26	1.34136E-02	9.69609E-02	1.20984E-01	7.45883E-02	1.11795E-01	2.09944E-01	2.08722E-01	1.48995E-01
27	1.34118E-02	9.69405E-02	1.20957E-01	7.45708E-02	1.11771E-01	2.09889E-01	2.08685E-01	1.48981E-01
28	1.34094E-02	9.69109E-02	1.20918E-01	7.45443E-02	1.11726E-01	2.09799E-01	2.08622E-01	1.48961E-01
0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15922E-01	1.07135E-01	1.00898E-01	6.54265E-02	5.58852E-02	5.32975E-02	2.90548E-02	1.60960E-02
2	1.15922E-01	1.07135E-01	1.00900E-01	6.54314E-02	5.58901E-02	5.32986E-02	2.90571E-02	1.60970E-02
3	1.15920E-01	1.07127E-01	1.00881E-01	6.54075E-02	5.58678E-02	5.32656E-02	2.90506E-02	1.60935E-02
4	1.15916E-01	1.07106E-01	1.00832E-01	6.53500E-02	5.58136E-02	5.31864E-02	2.90348E-02	1.60848E-02
5	1.15909E-01	1.07073E-01	1.00756E-01	6.52624E-02	5.57315E-02	5.30659E-02	2.90112E-02	1.60719E-02
6	1.15900E-01	1.07028E-01	1.00654E-01	6.51433E-02	5.56205E-02	5.29024E-02	2.89801E-02	1.60547E-02
7	1.15887E-01	1.06969E-01	1.00518E-01	6.49871E-02	5.54758E-02	5.26886E-02	2.89409E-02	1.60328E-02
8	1.15874E-01	1.06890E-01	1.00339E-01	6.47814E-02	5.52861E-02	5.24076E-02	2.88915E-02	1.60047E-02
9	1.15864E-01	1.06815E-01	1.00171E-01	6.45892E-02	5.51101E-02	5.21457E-02	2.88471E-02	1.59790E-02
10	1.15854E-01	1.06745E-01	1.00015E-01	6.44146E-02	5.49508E-02	5.19080E-02	2.88088E-02	1.59561E-02
11	1.15870E-01	1.06690E-01	9.98917E-02	6.42774E-02	5.48043E-02	5.17202E-02	2.87745E-02	1.59369E-02
12	1.15865E-01	1.06670E-01	9.98457E-02	6.42238E-02	5.47724E-02	5.16450E-02	2.87557E-02	1.59275E-02
13	1.15820E-01	1.06643E-01	9.97829E-02	6.41417E-02	5.46979E-02	5.15331E-02	2.87400E-02	1.59180E-02
14	1.15750E-01	1.06580E-01	9.96395E-02	6.39636E-02	5.45407E-02	5.12953E-02	2.87143E-02	1.58999E-02
15	1.15674E-01	1.06475E-01	9.94047E-02	6.36834E-02	5.42947E-02	5.09168E-02	2.86757E-02	1.58717E-02
16	1.15569E-01	1.06302E-01	9.90157E-02	6.32219E-02	5.38884E-02	5.02928E-02	2.86047E-02	1.58252E-02
17	1.15474E-01	1.06131E-01	9.86268E-02	6.27605E-02	5.34769E-02	4.96657E-02	2.85190E-02	1.57702E-02
18	1.15407E-01	1.05988E-01	9.82943E-02	6.23667E-02	5.31167E-02	4.91287E-02	2.84278E-02	1.57179E-02
19	1.15354E-01	1.05852E-01	9.79861E-02	6.19998E-02	5.27759E-02	4.86278E-02	2.83295E-02	1.56646E-02
20	1.15329E-01	1.05768E-01	9.77835E-02	6.17629E-02	5.25511E-02	4.83029E-02	2.82563E-02	1.56260E-02
21	1.15317E-01	1.05710E-01	9.76441E-02	6.15983E-02	5.23925E-02	4.80766E-02	2.82001E-02	1.55970E-02
22	1.15311E-01	1.05669E-01	9.75449E-02	6.14811E-02	5.22783E-02	4.79150E-02	2.81573E-02	1.55752E-02
23	1.15307E-01	1.05641E-01	9.74743E-02	6.13978E-02	5.21966E-02	4.78001E-02	2.81257E-02	1.55592E-02
24	1.15305E-01	1.05621E-01	9.74263E-02	6.13411E-02	5.21408E-02	4.77218E-02	2.81040E-02	1.55482E-02
25	1.15303E-01	1.05610E-01	9.73977E-02	6.13073E-02	5.21079E-02	4.76753E-02	2.80919E-02	1.55421E-02
26	1.15301E-01	1.05606E-01	9.73885E-02	6.12964E-02	5.20983E-02	4.76612E-02	2.80900E-02	1.55411E-02
27	1.15298E-01	1.05607E-01	9.73889E-02	6.13032E-02	5.21062E-02	4.76713E-02	2.80954E-02	1.55437E-02
28	1.15296E-01	1.05613E-01	9.74094E-02	6.13216E-02	5.21257E-02	4.76979E-02	2.81052E-02	1.55486E-02
0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	7.06002E-03	5.39608E-03	1.07464E-02	3.56726E-02	1.11395E-02	2.25540E-02	7.73947E-02	6.34270E-02
2	7.06071E-03	5.39747E-03	1.07478E-02	3.56750E-02	1.11406E-02	2.25857E-02	7.73898E-02	6.34123E-02
3	7.05775E-03	5.38991E-03	1.07420E-02	3.56611E-02	1.11259E-02	2.25014E-02	7.72727E-02	6.32853E-02
4	7.05059E-03	5.37170E-03	1.07285E-02	3.56282E-02	1.11051E-02	2.24234E-02	7.70154E-02	6.30121E-02
5	7.03970E-03	5.34371E-03	1.07082E-02	3.55790E-02	1.10678E-02	2.27061E-02	7.66337E-02	6.26077E-02
6	7.02496E-03	5.30532E-03	1.06807E-02	3.55132E-02	1.10173E-02	2.25477E-02	7.61252E-02	6.20691E-02
7	7.00570E-03	5.25465E-03	1.06450E-02	3.54284E-02	1.09512E-02	2.23414E-02	7.54772E-02	6.13842E-02
8	6.98041E-03	5.18653E-03	1.05986E-02	3.53191E-02	1.08644E-02	2.20721E-02	7.46588E-02	6.05241E-02
9	6.95684E-03	5.12249E-03	1.05556E-02	3.52185E-02	1.07855E-02	2.18227E-02	7.39223E-02	5.97562E-02
10	6.93537E-03	5.06362E-03	1.05167E-02	3.51292E-02	1.07095E-02	2.15972E-02	7.32823E-02	5.90957E-02
11	6.91829E-03	5.01852E-03	1.04856E-02	3.50572E-02	1.06527E-02	2.14275E-02	7.28165E-02	5.86358E-02
12	6.91139E-03	5.00247E-03	1.04727E-02	3.50266E-02	1.06330E-02	2.13708E-02	7.26727E-02	5.85190E-02
13	6.90152E-03	4.97297E-03	1.04556E-02	3.49874E-02	1.06005E-02	2.12669E-02	7.23956E-02	5.82280E-02
14	6.88040E-03	4.90665E-03	1.04195E-02	3.49069E-02	1.05268E-02	2.10516E-02	7.17802E-02	5.75665E-02
15	6.84694E-03	4.80164E-03	1.03639E-02	3.47827E-02	1.04089E-02	2.06655E-02	7.08810E-02	5.66156E-02
16	6.79182E-03	4.62088E-03	1.02709E-02	3.45776E-02	1.02166E-02	2.00643E-02	6.94980E-02	5.52061E-02
17	6.73651E-03	4.44198E-03	1.01746E-02	3.43628E-02	1.00264E-02	1.94691E-02	6.80913E-02	5.37995E-02
18	6.68862E-03	4.30598E-03	1.00868E-02	3.41601E-02	9.86613E-03	1.89720E-02	6.67475E-02	5.24537E-02
19	6.64342E-03	4.18892E-03	1.00017E-02	3.39583E-02	9.71702E-03	1.85129E-02	6.53964E-02	5.10985E-02
20	6.61355E-03	4.12089E-03	9.94418E-03	3.38170E-02	9.62058E-03	1.82179E-02	6.44334E-02	5.01322E-02
21	6.59252E-03	4.07681E-03	9.90301E-03	3.37128E-02	9.55300E-03	1.80116E-02	6.37119E-02	4.94092E-02
22	6.57735E-03	4.04711E-03	9.87305E-03	3.36352E-02	9.50442E-03	1.78634E-02	6.31651E-02	4.88629E-02
23	6.56650E-03	4.02679E-03	9.85144E-03	3.35784E-02	9.46948E-03	1.77565E-02	6.27552E-02	4.84536E-02
24	6.55914E-03	4.01321E-03	9.83666E-03	3.35390E-02	9.44511E-03	1.76818E-02	6.24590E-02	4.81567E-02
25	6.55487E-03	4.00484E-03	9.82759E-03	3.35155E-02	9.43009E-03	1.76343E-02	6.22637E-02	4.79571E-02
26	6.55379E-03	4.00147E-03	9.82539E-03	3.35080E-02	9.42417E-03	1.76130E-02	6.21684E-02	4.78607E-02
27	6.55503E-03	4.00200E-03	9.82702E-03	3.35137E-02	9.42554E-03	1.76135E-02	6.21592E-02	4.78268E-02

28	6.55734E-03	4.00532E-03	9.83219E-03	3.35275E-02	9.43193E-03	1.76294E-02	6.22086E-02	4.78605E-02

0 int.

	grp. 25	grp. 26	grp. 27
1	2.86830E-02	2.06921E-02	3.98060E-03
2	2.86721E-02	2.06800E-02	3.92767E-03
3	2.86089E-02	2.06202E-02	3.91540E-03
4	2.86588E-02	2.04957E-02	3.88959E-03
5	2.82439E-02	2.03052E-02	3.85005E-03
6	2.79572E-02	2.00516E-02	3.79617E-03
7	2.75928E-02	1.97265E-02	3.72568E-03
8	2.71372E-02	1.93167E-02	3.63471E-03
9	2.67329E-02	1.89514E-02	3.55244E-03
10	2.63901E-02	1.86394E-02	3.48169E-03
11	2.61603E-02	1.84386E-02	3.43887E-03
12	2.61117E-02	1.84081E-02	3.43602E-03
13	2.59487E-02	1.82580E-02	3.39571E-03
14	2.55769E-02	1.79012E-02	3.29847E-03
15	2.50587E-02	1.73970E-02	3.15374E-03
16	2.43080E-02	1.66761E-02	2.94211E-03
17	2.35713E-02	1.59956E-02	2.76010E-03
18	2.28718E-02	1.53838E-02	2.62526E-03
19	2.21718E-02	1.47911E-02	2.50009E-03
20	2.16783E-02	1.43917E-02	2.42542E-03
21	2.13130E-02	1.41066E-02	2.37527E-03
22	2.10401E-02	1.39002E-02	2.34061E-03
23	2.08373E-02	1.37505E-02	2.31606E-03
24	2.06906E-02	1.36443E-02	2.29900E-03
25	2.05921E-02	1.35731E-02	2.28769E-03
26	2.05368E-02	1.35320E-02	2.28118E-03
27	2.05206E-02	1.35175E-02	2.27873E-03
28	2.05312E-02	1.35206E-02	2.27862E-03

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	4.99611E-04	6.61276E-04	5.50619E-05	-7.16304E-04	9.99952E-01
2	.00000E+00	.00000E+00	3.79427E-04	6.14034E-03	8.07084E-03	1.75468E-04	-7.86608E-03	9.99963E-01
3	.00000E+00	.00000E+00	3.83251E-03	5.45644E-03	1.41966E-02	9.26400E-05	-1.04564E-02	9.99978E-01
4	.00000E+00	.00000E+00	5.57851E-03	3.59733E-03	1.23601E-02	4.19806E-05	-6.82338E-03	9.99988E-01
5	.00000E+00	.00000E+00	1.02522E-02	1.15225E-02	2.08752E-02	4.98651E-05	-1.06725E-02	9.99991E-01
6	.00000E+00	.00000E+00	2.14886E-02	3.44734E-02	4.09957E-02	8.42815E-05	-1.95913E-02	9.99928E-01
7	.00000E+00	.00000E+00	4.22285E-02	6.09661E-02	5.41334E-02	6.12174E-05	-1.19675E-02	9.99988E-01
8	.00000E+00	.00000E+00	5.63550E-02	7.83471E-02	5.87462E-02	3.64032E-05	-2.42234E-03	9.99912E-01
9	.00000E+00	.00000E+00	5.77869E-02	7.26181E-02	5.75068E-02	2.92783E-05	2.56207E-04	9.99885E-01
10	.00000E+00	.00000E+00	5.70853E-02	6.91811E-02	5.55973E-02	3.60679E-05	1.45795E-03	9.99895E-01
11	.00000E+00	.00000E+00	5.58787E-02	6.56109E-02	5.29812E-02	5.51711E-05	3.44575E-03	9.99935E-01
12	.00000E+00	.00000E+00	4.54186E-02	3.51057E-02	4.13062E-02	6.04664E-05	4.05294E-03	9.99978E-01
13	.00000E+00	.00000E+00	4.05757E-02	2.85778E-02	3.66489E-02	8.46561E-05	3.84136E-03	9.99969E-01
14	.00000E+00	.00000E+00	3.94761E-02	2.82151E-02	3.37050E-02	1.36166E-04	5.68539E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.16795E-02	1.08652E-02	2.08650E-02	1.12736E-04	1.21179E-03	9.99995E-01
16	.00000E+00	.00000E+00	1.42523E-02	4.58254E-03	1.35006E-02	7.64217E-05	6.55321E-04	9.99998E-01
17	.00000E+00	.00000E+00	7.30981E-03	1.29767E-03	6.75177E-03	3.71473E-05	5.20908E-04	1.00001E+00
18	.00000E+00	.00000E+00	6.48216E-03	9.46521E-04	5.17198E-03	2.96170E-05	1.28057E-03	9.99999E-01
19	.00000E+00	.00000E+00	1.07274E-02	2.92480E-03	9.70714E-03	6.55067E-05	9.54747E-04	1.00001E+00
20	.00000E+00	.00000E+00	2.62842E-02	2.07761E-02	2.37163E-02	2.73573E-04	2.29415E-03	1.00001E+00
21	.00000E+00	.00000E+00	1.26120E-02	4.18891E-03	1.08973E-02	1.05051E-04	1.60970E-03	9.99997E-01
22	.00000E+00	.00000E+00	2.49792E-02	1.28515E-02	1.99998E-02	2.46844E-04	4.75257E-03	1.00001E+00
23	.00000E+00	.00000E+00	6.47805E-02	7.82889E-02	5.14102E-02	1.13648E-03	1.22324E-02	1.00002E+00
24	.00000E+00	.00000E+00	6.92269E-02	7.39258E-02	5.70640E-02	1.34483E-03	1.08166E-02	1.00002E+00
25	.00000E+00	.00000E+00	4.61044E-02	3.13608E-02	4.08457E-02	7.97058E-04	4.96113E-03	1.00001E+00
26	.00000E+00	.00000E+00	3.68318E-02	3.50569E-02	3.25797E-02	8.10747E-04	3.66108E-03	1.00001E+00
27	.00000E+00	.00000E+00	1.24954E-02	7.60995E-03	1.15980E-02	2.89664E-04	6.12786E-04	1.00000E+00

28	.00000E+00	.00000E+00	7.90077E-01	7.85207E-01	7.90078E-01	6.32429E-03	-6.30270E-03	9.99973E-01
0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	nsn rate	fiss rate	flux*dv**2	total flux
1	1.29470E-02	-7.16804E-04	1.28513E-02	.00000E+00	3.65704E-11	.00000E+00	1.98188E-05	1.61888E-02
2	9.19899E-02	-7.86608E-03	9.04940E-02	.00000E+00	.00000E+00	.00000E+00	8.90010E-05	1.14523E-01
3	1.14556E-01	-1.04564E-02	1.12392E-01	.00000E+00	.00000E+00	.00000E+00	9.22112E-05	1.42382E-01
4	7.05289E-02	-6.82538E-03	6.89736E-02	.00000E+00	.00000E+00	.00000E+00	4.17277E-05	8.74880E-02
5	1.05323E-01	-1.06725E-02	1.02724E-01	.00000E+00	.00000E+00	.00000E+00	4.93622E-05	1.30448E-01
6	1.97660E-01	-1.99513E-02	1.92813E-01	.00000E+00	.00000E+00	.00000E+00	8.34119E-05	2.44845E-01
7	1.96125E-01	-1.19675E-02	1.98091E-01	.00000E+00	.00000E+00	.00000E+00	5.92737E-05	2.44269E-01
8	1.47403E-01	-2.42234E-03	1.46981E-01	.00000E+00	.00000E+00	.00000E+00	3.27233E-05	1.84963E-01
9	1.15857E-01	2.56207E-04	1.15921E-01	.00000E+00	.00000E+00	.00000E+00	2.16756E-05	1.45631E-01
10	1.06705E-01	1.45798E-03	1.07153E-01	.00000E+00	.00000E+00	.00000E+00	1.91688E-05	1.34398E-01
11	9.99250E-02	3.44675E-03	1.03890E-01	.00000E+00	.00000E+00	.00000E+00	1.79124E-05	1.26261E-01
12	6.43144E-02	4.05294E-03	6.54175E-02	.00000E+00	.00000E+00	.00000E+00	1.05151E-05	8.16046E-02
13	5.48576E-02	3.84136E-03	5.58766E-02	.00000E+00	.00000E+00	.00000E+00	8.74741E-06	6.96586E-02
14	5.17717E-02	5.63639E-03	5.32790E-02	.00000E+00	.00000E+00	.00000E+00	8.47287E-06	6.61280E-02
15	2.87870E-02	1.21179E-03	2.90520E-02	.00000E+00	.00000E+00	.00000E+00	4.47623E-06	3.63577E-02
16	1.59433E-02	6.55321E-04	1.60945E-02	.00000E+00	.00000E+00	.00000E+00	2.24256E-06	2.01404E-02
17	6.92311E-03	5.20908E-04	7.05892E-03	.00000E+00	.00000E+00	.00000E+00	9.00516E-07	8.79626E-03
18	5.02976E-03	1.28057E-03	5.39344E-03	.00000E+00	.00000E+00	.00000E+00	6.57154E-07	6.58142E-03
19	1.04946E-02	9.54747E-04	1.07443E-02	.00000E+00	.00000E+00	.00000E+00	1.39832E-06	1.33639E-02
20	3.50789E-02	2.29415E-03	3.56683E-02	.00000E+00	.00000E+00	.00000E+00	5.21483E-06	4.44918E-02
21	1.05670E-02	1.60970E-03	1.11366E-02	.00000E+00	.00000E+00	.00000E+00	1.25948E-06	1.37361E-02
22	2.14681E-02	4.73257E-03	2.29257E-02	.00000E+00	.00000E+00	.00000E+00	2.55950E-06	2.79982E-02
23	7.29195E-02	1.22524E-02	7.73747E-02	.00000E+00	.00000E+00	.00000E+00	7.80690E-06	9.46529E-02
24	5.87227E-02	1.08166E-02	6.34132E-02	.00000E+00	.00000E+00	.00000E+00	4.71613E-06	7.69401E-02
25	2.61979E-02	4.96113E-03	2.85785E-02	.00000E+00	.00000E+00	.00000E+00	1.63714E-06	3.45728E-02
26	1.84639E-02	3.64108E-03	2.06908E-02	.00000E+00	.00000E+00	.00000E+00	8.63529E-07	2.46928E-02
27	3.44191E-03	6.12786E-04	3.95083E-03	.00000E+00	.00000E+00	.00000E+00	1.01762E-07	4.65766E-03
28	1.74411E+00	-6.30265E-03	1.75098E+00	.00000E+00	3.65704E-11	.00000E+00	5.87850E-04	2.19577E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.20921E-04	1.65608E-04	2.48438E-06	-1.62188E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.89251E-05	1.45512E-03	1.04412E-03	1.40152E-05	-1.02922E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.49920E-04	2.76675E-03	8.74817E-04	2.02460E-05	-7.45096E-04	9.99994E-01
4	.00000E+00	.00000E+00	2.86528E-04	2.30853E-03	2.98258E-04	1.30902E-05	-2.47955E-05	9.99998E-01
5	.00000E+00	.00000E+00	6.16244E-04	4.41569E-03	2.79259E-04	1.68506E-05	3.20103E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.02177E-03	1.24040E-02	1.69473E-04	2.70655E-05	8.25221E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.72144E-04	1.25943E-02	6.33056E-05	2.68151E-05	5.82084E-04	1.00000E+00
8	.00000E+00	.00000E+00	1.17399E-04	9.20787E-03	4.43373E-04	2.21119E-05	-3.48123E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.45214E-04	6.36001E-03	5.30177E-05	7.67145E-05	3.15477E-04	9.99978E-01
10	.00000E+00	.00000E+00	5.30827E-05	4.98891E-03	4.94687E-05	5.95510E-05	-5.57626E-05	9.99997E-01
11	.00000E+00	.00000E+00	4.95020E-05	4.45642E-03	5.05287E-05	9.00528E-05	-9.08754E-05	9.99999E-01
12	.00000E+00	.00000E+00	5.08290E-05	2.76262E-03	5.13976E-05	5.67578E-05	-6.74604E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.13977E-05	2.35723E-03	4.80658E-05	6.31612E-06	-3.00305E-06	1.00000E+00
14	.00000E+00	.00000E+00	4.80658E-05	2.22876E-03	4.20013E-05	8.51155E-06	-2.42610E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.45952E-05	1.21481E-03	4.97182E-05	6.29121E-06	-1.13825E-05	9.99975E-01
16	.00000E+00	.00000E+00	5.57278E-05	6.44216E-04	5.58094E-05	3.81817E-06	-3.87826E-06	9.99970E-01
17	.00000E+00	.00000E+00	6.08344E-05	2.43808E-04	6.00140E-05	1.81234E-06	-9.82953E-07	9.99985E-01
18	.00000E+00	.00000E+00	6.30758E-05	1.66413E-04	5.37339E-05	1.38547E-06	7.96770E-06	9.99994E-01
19	.00000E+00	.00000E+00	5.54506E-05	4.01230E-04	5.91999E-05	3.11345E-06	-6.84586E-06	9.99985E-01
20	.00000E+00	.00000E+00	7.23071E-05	1.47688E-03	6.27873E-05	1.26972E-05	-3.12808E-06	9.99979E-01
21	.00000E+00	.00000E+00	8.29752E-05	3.77457E-04	9.01609E-05	4.67888E-06	-1.18467E-06	9.99989E-01
22	.00000E+00	.00000E+00	1.18953E-04	8.29879E-04	1.10843E-04	1.07088E-05	-2.60305E-06	9.99997E-01
23	.00000E+00	.00000E+00	1.70859E-04	2.97744E-03	2.18974E-04	4.86308E-05	-9.66787E-06	1.00000E+00
24	.00000E+00	.00000E+00	2.81397E-04	2.26338E-03	3.10615E-04	5.55581E-05	-8.48109E-06	1.00000E+00
25	.00000E+00	.00000E+00	2.87529E-04	9.13261E-04	2.35061E-04	3.23191E-05	2.01329E-05	1.00000E+00
26	.00000E+00	.00000E+00	1.22513E-04	7.14961E-04	9.44859E-05	3.20961E-06	-4.27384E-06	1.00000E+00
27	.00000E+00	.00000E+00	2.73967E-05	1.50756E-04	7.77779E-08	1.11996E-05	1.61172E-05	1.00000E+00
28	.00000E+00	.00000E+00	5.08364E-03	8.08963E-02	5.05363E-03	6.13620E-04	-6.07608E-04	9.99999E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.29734E-02	-8.78489E-04	1.29470E-02	-7.16304E-04	5.91701E-06	.00000E+00	1.63570E-06	2.16007E-03
2	9.22544E-02	-8.89530E-03	9.19899E-02	-7.86608E-03	.00000E+00	.00000E+00	1.11244E-05	1.53654E-02
3	1.14903E-01	-1.12015E-02	1.14556E-01	-1.04564E-02	.00000E+00	.00000E+00	1.26787E-05	1.91256E-02
4	7.07456E-02	-6.84818E-03	7.05289E-02	-6.82539E-03	.00000E+00	.00000E+00	7.43533E-06	1.17768E-02
5	1.05662E-01	-1.03524E-02	1.05323E-01	-1.05725E-02	.00000E+00	.00000E+00	8.63424E-06	1.75892E-02
6	1.98334E-01	-1.87661E-02	1.97660E-01	-1.99913E-02	.00000E+00	.00000E+00	1.01748E-05	3.30135E-02
7	1.96531E-01	-1.13854E-02	1.96125E-01	-1.19675E-02	.00000E+00	.00000E+00	8.35354E-06	3.27317E-02
8	1.47491E-01	-2.77046E-03	1.47403E-01	-2.42234E-03	.00000E+00	.00000E+00	5.27461E-06	2.45772E-02
9	1.15858E-01	5.71704E-04	1.15867E-01	2.56207E-04	.00000E+00	.00000E+00	4.58407E-06	1.93135E-02
10	1.06666E-01	1.40216E-03	1.06705E-01	1.45798E-03	.00000E+00	.00000E+00	4.91124E-06	1.77821E-02
11	9.98329E-02	3.35487E-03	9.99250E-02	3.44575E-03	.00000E+00	.00000E+00	4.76619E-06	1.66467E-02
12	6.42072E-02	4.04619E-03	6.43144E-02	4.05294E-03	.00000E+00	.00000E+00	3.21614E-06	1.07096E-02
13	5.47558E-02	3.83836E-03	5.48596E-02	3.84136E-03	.00000E+00	.00000E+00	2.73718E-06	9.13409E-03
14	5.16213E-02	5.65259E-03	5.17717E-02	5.63539E-03	.00000E+00	.00000E+00	2.57515E-06	8.61470E-03
15	2.87494E-02	1.20041E-03	2.87870E-02	1.21179E-03	.00000E+00	.00000E+00	1.41268E-06	4.79472E-03
16	1.59246E-02	6.51443E-04	1.59433E-02	6.55321E-04	.00000E+00	.00000E+00	7.82479E-07	2.65567E-03
17	6.90929E-03	5.19925E-04	6.92311E-03	5.20908E-04	.00000E+00	.00000E+00	3.39443E-07	1.15260E-03
18	4.99766E-03	1.28854E-03	5.02976E-03	1.28057E-03	.00000E+00	.00000E+00	2.45880E-07	8.35162E-04
19	1.04687E-02	9.47901E-04	1.04944E-02	9.54747E-04	.00000E+00	.00000E+00	5.14024E-07	1.74671E-03
20	3.50177E-02	2.29102E-03	3.50789E-02	2.29415E-03	.00000E+00	.00000E+00	1.71648E-06	5.84098E-03
21	1.06276E-02	1.59786E-03	1.06670E-02	1.60970E-03	.00000E+00	.00000E+00	5.20458E-07	1.77399E-03
22	2.13547E-02	4.72977E-03	2.14681E-02	4.73257E-03	.00000E+00	.00000E+00	1.04510E-06	3.56688E-03
23	7.26320E-02	1.21357E-02	7.29195E-02	1.22524E-02	.00000E+00	.00000E+00	3.54020E-06	1.21254E-02
24	5.84899E-02	1.07318E-02	5.87227E-02	1.08166E-02	.00000E+00	.00000E+00	2.85343E-06	9.76391E-03
25	2.60997E-02	4.98127E-03	2.61979E-02	4.96113E-03	.00000E+00	.00000E+00	1.25672E-06	4.35650E-03
26	1.84051E-02	3.63680E-03	1.84639E-02	3.64108E-03	.00000E+00	.00000E+00	8.76531E-07	3.07088E-03
27	3.43621E-03	6.28904E-04	3.44191E-03	6.12786E-04	.00000E+00	.00000E+00	1.58535E-07	5.72973E-04
28	1.74494E+00	-6.91036E-03	1.74411E+00	-6.30267E-03	5.91701E-06	.00000E+00	1.05343E-04	2.90787E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.64875E-04	3.50584E-04	2.91918E-05	-3.79756E-04	9.99985E-01
2	.00000E+00	.00000E+00	2.01158E-04	3.27763E-03	4.30784E-03	9.36627E-05	-4.20018E-03	9.99988E-01
3	.00000E+00	.00000E+00	2.04538E-03	2.91687E-03	7.58913E-03	4.95230E-05	-5.59310E-03	9.99991E-01
4	.00000E+00	.00000E+00	2.98111E-03	1.92592E-03	6.61731E-03	2.24755E-05	-3.65860E-03	9.99994E-01
5	.00000E+00	.00000E+00	5.48386E-03	6.17872E-03	1.11940E-02	2.66267E-05	-5.73663E-03	9.99995E-01
6	.00000E+00	.00000E+00	1.15107E-02	1.84911E-02	2.19768E-02	4.51813E-05	-1.05112E-02	9.99999E-01
7	.00000E+00	.00000E+00	2.26511E-02	3.23892E-02	2.87592E-02	3.25226E-05	-6.16029E-03	9.99991E-01
8	.00000E+00	.00000E+00	2.99914E-02	4.11648E-02	3.08662E-02	1.91268E-05	-8.91165E-04	9.99920E-01
9	.00000E+00	.00000E+00	3.04242E-02	3.79923E-02	3.00864E-02	1.53178E-05	3.25912E-04	9.99892E-01
10	.00000E+00	.00000E+00	2.98990E-02	3.61078E-02	2.90180E-02	1.88250E-05	8.65267E-04	9.99901E-01
11	.00000E+00	.00000E+00	2.91888E-02	3.40869E-02	2.72001E-02	2.86488E-05	1.95682E-03	9.99946E-01
12	.00000E+00	.00000E+00	2.36104E-02	1.81009E-02	2.12979E-02	3.11771E-05	2.28181E-03	9.99981E-01
13	.00000E+00	.00000E+00	2.09746E-02	1.47187E-02	1.88758E-02	4.36015E-05	2.05586E-03	9.99974E-01
14	.00000E+00	.00000E+00	2.08589E-02	1.43900E-02	1.71899E-02	6.94463E-05	3.09950E-03	9.99991E-01
15	.00000E+00	.00000E+00	1.10983E-02	5.64759E-03	1.05802E-02	5.85980E-05	4.59477E-04	1.00000E+00
16	.00000E+00	.00000E+00	7.33452E-03	2.38076E-03	7.01393E-03	3.97032E-05	2.82893E-04	9.99995E-01
17	.00000E+00	.00000E+00	3.77370E-03	6.67649E-04	3.47375E-03	1.91125E-05	2.80816E-04	1.00001E+00
18	.00000E+00	.00000E+00	3.34508E-03	4.62940E-04	2.52968E-03	1.44859E-05	8.00941E-04	1.00000E+00
19	.00000E+00	.00000E+00	5.49801E-03	1.49991E-03	4.97807E-03	3.35955E-05	4.85311E-04	1.00001E+00
20	.00000E+00	.00000E+00	1.34706E-02	1.08274E-02	1.22618E-02	1.41211E-04	1.08756E-03	1.00001E+00
21	.00000E+00	.00000E+00	6.44484E-03	2.10957E-03	5.48746E-03	5.28597E-05	9.04496E-04	9.99999E-01
22	.00000E+00	.00000E+00	1.26543E-02	6.33776E-03	9.86293E-03	1.21731E-04	2.66954E-03	1.00000E+00
23	.00000E+00	.00000E+00	3.20958E-02	3.90129E-02	2.56187E-02	5.66332E-04	5.91010E-03	1.00001E+00
24	.00000E+00	.00000E+00	3.40384E-02	3.63265E-02	2.80408E-02	6.60889E-04	5.33604E-03	1.00001E+00
25	.00000E+00	.00000E+00	2.25139E-02	1.52520E-02	1.95959E-02	3.87132E-04	2.53061E-03	1.00001E+00
26	.00000E+00	.00000E+00	1.79080E-02	1.66668E-02	1.53940E-02	3.85446E-04	2.12847E-03	1.00000E+00
27	.00000E+00	.00000E+00	6.04364E-03	3.52504E-03	5.37008E-03	1.34177E-04	5.39428E-04	1.00000E+00
28	.00000E+00	.00000E+00	4.05516E-01	4.02685E-01	4.05516E-01	3.14064E-05	-3.12908E-03	9.99972E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux

1	1.31088E-02	-1.25825E-03	1.29734E-02	-8.78489E-04	1.95883E-11	.00000E+00	1.05072E-05	8.58257E-03
2	9.35884E-02	-1.30955E-02	9.22544E-02	-8.89530E-03	.00000E+00	.00000E+00	4.75076E-05	6.11308E-02
3	1.16535E-01	-1.67946E-02	1.14903E-01	-1.12015E-02	.00000E+00	.00000E+00	4.92937E-05	7.61139E-02
4	7.17134E-02	-1.05068E-02	7.07456E-02	-6.84818E-03	.00000E+00	.00000E+00	2.23392E-05	4.68392E-02
5	1.07123E-01	-1.60891E-02	1.05662E-01	-1.08524E-02	.00000E+00	.00000E+00	2.66496E-05	6.99504E-02
6	2.00957E-01	-2.92773E-02	1.98334E-01	-1.87661E-02	.00000E+00	.00000E+00	4.47151E-05	1.31256E-01
7	1.98042E-01	-1.75457E-02	1.96531E-01	-1.13854E-02	.00000E+00	.00000E+00	3.14900E-05	1.29772E-01
8	1.47783E-01	-3.66163E-03	1.47491E-01	-2.77046E-03	.00000E+00	.00000E+00	1.71954E-05	9.71827E-02
9	1.15652E-01	8.97616E-04	1.15858E-01	5.71704E-04	.00000E+00	.00000E+00	1.13402E-05	7.61909E-02
10	1.05412E-01	2.26743E-03	1.06665E-01	1.40216E-03	.00000E+00	.00000E+00	1.00022E-05	7.01464E-02
11	9.98653E-02	5.31169E-03	9.98529E-02	3.35487E-03	.00000E+00	.00000E+00	9.30142E-06	6.55640E-02
12	6.35157E-02	6.32801E-03	6.42072E-02	4.04619E-03	.00000E+00	.00000E+00	5.42168E-06	4.20763E-02
13	5.41482E-02	5.89421E-03	5.47558E-02	3.83835E-03	.00000E+00	.00000E+00	4.50529E-06	3.58772E-02
14	5.06918E-02	8.75247E-03	5.16213E-02	5.63297E-03	.00000E+00	.00000E+00	4.32126E-06	3.37261E-02
15	2.86542E-02	1.69988E-03	2.87494E-02	1.20041E-03	.00000E+00	.00000E+00	2.32668E-06	1.88979E-02
16	1.58653E-02	9.34336E-04	1.59264E-02	6.51443E-04	.00000E+00	.00000E+00	1.16507E-06	1.04636E-02
17	6.82698E-03	8.00742E-04	6.90929E-03	5.19925E-04	.00000E+00	.00000E+00	4.63212E-07	4.52567E-03
18	4.73926E-03	2.08948E-03	4.99765E-03	1.28854E-03	.00000E+00	.00000E+00	3.21418E-07	3.21901E-03
19	1.03308E-02	1.43421E-03	1.04687E-02	9.47901E-04	.00000E+00	.00000E+00	7.17093E-07	6.85335E-03
20	3.47106E-02	3.37858E-03	3.50177E-02	2.29102E-03	.00000E+00	.00000E+00	2.69178E-06	2.29656E-02
21	1.03386E-02	2.50235E-03	1.06278E-02	1.59785E-03	.00000E+00	.00000E+00	6.34228E-07	6.91699E-03
22	2.04470E-02	7.39952E-03	2.13547E-02	4.72977E-03	.00000E+00	.00000E+00	1.26222E-06	1.38073E-02
23	7.05589E-02	1.80458E-02	7.26520E-02	1.21357E-02	.00000E+00	.00000E+00	3.89034E-06	4.71672E-02
24	5.60669E-02	1.60678E-02	5.84889E-02	1.07318E-02	.00000E+00	.00000E+00	2.31747E-06	3.78077E-02
25	2.47803E-02	7.51188E-03	2.60997E-02	4.98127E-03	.00000E+00	.00000E+00	7.95161E-07	1.67919E-02
26	1.71085E-02	5.76528E-03	1.84031E-02	3.63680E-03	.00000E+00	.00000E+00	4.10540E-07	1.17395E-02
27	3.06564E-03	1.16833E-03	3.43621E-03	6.28904E-04	.00000E+00	.00000E+00	4.71377E-08	2.15750E-03
28	1.74175E+00	-1.00395E-02	1.74494E+00	-6.91035E-03	1.95883E-11	.00000E+00	3.11451E-04	1.14772E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.30688E-02	.00000E+00	2.13994E-02	2.05181E-02	3.76974E-03	1.25824E-03	9.98904E-01
2	.00000E+00	1.94222E-01	7.05259E-03	2.50885E-01	1.72854E-01	1.53178E-02	1.30954E-02	1.00002E+00
3	.00000E+00	2.15975E-01	7.14098E-02	2.57622E-01	2.54297E-01	1.62366E-02	1.67945E-02	9.99888E-01
4	.00000E+00	1.23790E-01	1.05540E-01	1.76779E-01	2.11074E-01	7.74974E-03	1.05067E-02	1.00000E+00
5	.00000E+00	1.64053E-01	1.92055E-01	4.44539E-01	3.34856E-01	5.17673E-03	1.60890E-02	9.99970E-01
6	.00000E+00	1.78975E-01	3.91014E-01	1.19109E+00	5.30525E-01	8.17797E-03	2.92771E-02	1.00001E+00
7	.00000E+00	8.74405E-02	5.98420E-01	1.56413E+00	6.55180E-01	8.14086E-03	1.75452E-02	9.99991E-01
8	.00000E+00	1.34688E-02	6.89451E-01	1.57552E+00	6.86148E-01	1.31654E-02	3.66160E-03	9.99921E-01
9	.00000E+00	9.77432E-04	6.78245E-01	1.37218E+00	6.58657E-01	2.17362E-02	-9.02944E-04	9.99901E-01
10	.00000E+00	7.25977E-05	6.55483E-01	1.24851E+00	6.25092E-01	3.27972E-02	-2.26952E-03	9.99904E-01
11	.00000E+00	5.71148E-06	6.29133E-01	1.16298E+00	5.80859E-01	5.36285E-02	-5.31337E-03	9.99945E-01
12	.00000E+00	4.01221E-07	5.05927E-01	6.35521E-01	4.53865E-01	5.84032E-02	-6.32841E-03	9.99975E-01
13	.00000E+00	6.37102E-08	4.48520E-01	5.04448E-01	3.99419E-01	5.50084E-02	-5.89360E-03	9.99969E-01
14	.00000E+00	1.26257E-08	4.31160E-01	4.69287E-01	3.61314E-01	7.85815E-02	-8.73256E-03	9.99989E-01
15	.00000E+00	1.42684E-09	2.37079E-01	2.15271E-01	2.30924E-01	7.76238E-03	-1.66382E-03	1.00024E+00
16	.00000E+00	4.18970E-10	1.61924E-01	9.92824E-02	1.56953E-01	5.88910E-03	-9.37013E-04	1.00024E+00
17	.00000E+00	1.34929E-10	8.67084E-02	3.09696E-02	7.99813E-02	7.50783E-03	-8.08885E-04	1.00021E+00
18	.00000E+00	9.66060E-11	7.72340E-02	1.94685E-02	5.47047E-02	2.46136E-02	-2.09075E-03	1.00008E+00
19	.00000E+00	1.36579E-10	1.20703E-01	5.91474E-02	1.11914E-01	1.02057E-02	-1.43813E-03	1.00016E+00
20	.00000E+00	2.22091E-10	2.89027E-01	3.42904E-01	2.64750E-01	2.75970E-02	-3.38612E-03	1.00023E+00
21	.00000E+00	3.25070E-11	1.42263E-01	6.81095E-02	1.20112E-01	2.46187E-02	-2.50520E-03	1.00012E+00
22	.00000E+00	3.77155E-11	2.69524E-01	1.75990E-01	2.04269E-01	7.26250E-02	-7.40179E-03	1.00011E+00
23	.00000E+00	3.60602E-11	6.44472E-01	9.75073E-01	5.29558E-01	1.38468E-01	-1.80546E-02	1.00018E+00
24	.00000E+00	9.81512E-12	6.82119E-01	8.44898E-01	5.63620E-01	1.34479E-01	-1.60683E-02	1.00013E+00
25	.00000E+00	2.87522E-12	4.52194E-01	3.43159E-01	3.85629E-01	7.40404E-02	-7.51283E-03	1.00008E+00
26	.00000E+00	2.01472E-12	3.50698E-01	3.45044E-01	2.89272E-01	6.71679E-02	-5.78540E-03	1.00007E+00
27	.00000E+00	4.80119E-13	1.15788E-01	6.97818E-02	9.77859E-02	1.91668E-02	-1.16834E-03	1.00008E+00
28	.00000E+00	1.00000E+00	9.02810E+00	1.44640E+01	9.02810E+00	9.92051E-01	9.99158E-03	1.00002E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r&n rate	fiss rate	flux*dv**2	total flux
1	1.34078E-02	-5.92210E-09	1.31088E-02	-1.25825E-03	2.26856E-03	2.50851E-03	2.95798E-04	3.40816E-01

2	9.68924E-02	-6.22403E-08	9.35884E-02	-1.30955E-02	1.58652E-05	1.10279E-02	1.59276E-03	2.46089E+00
3	1.20893E-01	-6.99422E-08	1.16535E-01	-1.67946E-02	.00000E+00	1.33542E-02	1.82999E-03	3.06875E+00
4	7.45277E-02	-6.03651E-08	7.17134E-02	-1.05068E-02	.00000E+00	5.72025E-03	8.84473E-04	1.89158E+00
5	1.11698E-01	-7.40120E-08	1.07125E-01	-1.60897E-02	.00000E+00	1.64010E-03	1.03213E-03	2.83390E+00
6	2.09742E-01	-1.39578E-07	2.00957E-01	-2.92773E-02	.00000E+00	1.36601E-03	1.73147E-03	5.31941E+00
7	2.05582E-01	-4.84922E-07	1.98042E-01	-1.75457E-02	.00000E+00	1.31390E-03	1.22643E-03	5.16980E+00
8	1.48948E-01	-3.07247E-08	1.47783E-01	-3.66163E-05	.00000E+00	1.32553E-03	6.98152E-04	3.78928E+00
9	1.15297E-01	-5.32790E-06	1.15632E-01	8.97614E-04	.00000E+00	1.76700E-03	4.71301E-04	2.93644E+00
10	1.05618E-01	-2.08661E-06	1.06412E-01	2.26743E-05	.00000E+00	3.77407E-03	4.28686E-04	2.69138E+00
11	9.74201E-02	-1.68307E-06	9.98633E-02	5.31169E-05	.00000E+00	8.09927E-03	3.86960E-04	2.48553E+00
12	6.13341E-02	-4.06185E-07	6.35157E-02	6.32801E-05	.00000E+00	1.07519E-02	2.27642E-04	1.56759E+00
13	5.21386E-02	7.11566E-07	5.41482E-02	5.89421E-05	.00000E+00	1.19638E-02	1.94784E-04	1.33309E+00
14	4.77156E-02	1.09731E-07	5.09918E-02	8.75247E-05	.00000E+00	7.58312E-03	1.74426E-04	1.22295E+00
15	2.81121E-02	-3.94108E-06	2.86542E-02	1.65988E-05	.00000E+00	1.82802E-03	1.10911E-04	7.17467E-01
16	1.55520E-02	-2.67725E-06	1.58553E-02	9.34335E-04	.00000E+00	1.27483E-03	5.74435E-05	3.96873E-01
17	6.55979E-03	-3.14314E-06	6.82698E-03	8.00742E-04	.00000E+00	1.54140E-03	2.16052E-05	1.67739E-01
18	4.00778E-03	-1.27534E-06	4.73826E-03	2.08948E-05	.00000E+00	1.21734E-03	9.67004E-06	1.05783E-01
19	9.83652E-03	-3.91489E-06	1.05308E-02	1.43421E-05	.00000E+00	2.45697E-03	3.31437E-05	2.51866E-01
20	3.35389E-02	-7.54179E-06	3.47106E-02	3.37858E-05	.00000E+00	1.45544E-02	1.25744E-04	8.57487E-01
21	9.43671E-03	-2.85095E-06	1.05385E-02	2.50255E-05	.00000E+00	1.43881E-02	2.64497E-05	2.42825E-01
22	1.76611E-02	-2.47474E-06	2.04470E-02	7.39752E-05	.00000E+00	4.25972E-02	4.57041E-05	4.57311E-01
23	6.22472E-02	-8.76875E-06	7.08589E-02	1.80458E-02	.00000E+00	7.83473E-02	1.66818E-04	1.61401E+00
24	4.78876E-02	-5.42101E-07	5.60669E-02	1.60678E-02	.00000E+00	7.50265E-02	1.01047E-04	1.24968E+00
25	2.05412E-02	-9.54369E-07	2.47603E-02	7.51188E-05	.00000E+00	4.30311E-02	3.46075E-05	5.38677E-01
26	1.35246E-02	-1.20504E-07	1.71085E-02	5.76528E-05	.00000E+00	3.95997E-02	1.70715E-05	3.56770E-01
27	2.27879E-03	-6.61264E-09	3.05564E-03	1.16833E-05	.00000E+00	1.11363E-02	1.75437E-06	6.02772E-02
28	1.75088E+00	-4.78184E-05	1.74175E+00	-1.00398E-02	2.26442E-05	4.09170E-01	1.19250E-02	4.41258E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.30698E-02	.00000E+00	2.23848E-02	2.14956E-02	3.85648E-03	-5.92210E-09	9.98902E-01
2	.00000E+00	1.94222E-01	7.64210E-03	2.61782E-01	1.86278E-01	1.56009E-02	-6.22403E-08	1.00002E+00
3	.00000E+00	2.15915E-01	7.74376E-02	2.68752E-01	2.76957E-01	1.63990E-02	-6.99422E-08	9.99987E-01
4	.00000E+00	1.23790E-01	1.14386E-01	1.84606E-01	2.30144E-01	7.82729E-03	-6.03651E-08	9.99999E-01
5	.00000E+00	1.64063E-01	2.08408E-01	4.66656E-01	3.67205E-01	5.26987E-03	-7.40120E-08	9.99990E-01
6	.00000E+00	1.76975E-01	4.25085E-01	1.25647E+00	5.98667E-01	8.33450E-03	-1.39578E-07	1.00001E+00
7	.00000E+00	8.77405E-02	6.58944E-01	1.67008E+00	7.38136E-01	8.26141E-03	-4.84922E-07	9.99990E-01
8	.00000E+00	1.34688E-02	7.75915E-01	1.70424E+00	7.76204E-01	1.32431E-02	-3.07247E-08	9.99920E-01
9	.00000E+00	9.77432E-04	7.66901E-01	1.48975E+00	7.46108E-01	2.18575E-02	-5.32790E-06	9.99900E-01
10	.00000E+00	7.25977E-05	7.42521E-01	1.35878E+00	7.09756E-01	3.29115E-02	-2.08661E-06	9.99902E-01
11	.00000E+00	5.71148E-06	7.14265E-01	1.26711E+00	6.60490E-01	5.38024E-02	-1.68307E-06	9.99944E-01
12	.00000E+00	4.01221E-07	5.75009E-01	6.91490E-01	5.16521E-01	5.85005E-02	-4.06185E-07	9.99975E-01
13	.00000E+00	6.37102E-08	5.10120E-01	5.50101E-01	4.54992E-01	5.51430E-02	7.11566E-07	9.99989E-01
14	.00000E+00	1.26257E-08	4.91043E-01	5.14121E-01	4.12253E-01	7.87956E-02	1.09731E-07	9.99989E-01
15	.00000E+00	1.42684E-09	2.69902E-01	2.32999E-01	2.61909E-01	7.94000E-03	-3.94108E-06	1.00021E+00
16	.00000E+00	4.18970E-10	1.88564E-01	1.06850E-01	1.77508E-01	6.00905E-03	-2.67725E-06	1.00021E+00
17	.00000E+00	1.34929E-10	9.78477E-02	3.31787E-02	9.02667E-02	7.56590E-05	-3.14314E-06	1.00019E+00
18	.00000E+00	9.66060E-11	8.71263E-02	2.10447E-02	6.24600E-02	2.46591E-02	-1.27534E-06	1.00007E+00
19	.00000E+00	1.36579E-10	1.36984E-01	6.39733E-02	1.26661E-01	1.03079E-02	-3.91489E-06	1.00014E+00
20	.00000E+00	2.22091E-10	3.28654E-01	3.76185E-01	3.00770E-01	2.80265E-02	-7.54179E-06	1.00020E+00
21	.00000E+00	3.25070E-11	1.61383E-01	7.47852E-02	1.36867E-01	2.47814E-02	-2.85095E-06	1.00011E+00
22	.00000E+00	3.77155E-11	3.07276E-01	1.96009E-01	2.34243E-01	7.30063E-02	-2.47474E-06	1.00010E+00
23	.00000E+00	3.60602E-11	7.41519E-01	1.09535E+00	6.01185E-01	1.40220E-01	-8.76875E-06	1.00017E+00
24	.00000E+00	9.81512E-12	7.85665E-01	9.57414E-01	6.49036E-01	1.36540E-01	-5.42101E-07	1.00011E+00
25	.00000E+00	2.87322E-12	5.21100E-01	3.90665E-01	4.45806E-01	7.52569E-02	-9.54369E-07	1.00007E+00
26	.00000E+00	2.01472E-12	4.05560E-01	3.97485E-01	3.37140E-01	6.83962E-02	-1.20504E-07	1.00006E+00
27	.00000E+00	4.80119E-13	1.34354E-01	8.10678E-02	1.14749E-01	1.96018E-02	-6.61264E-09	1.00003E+00
28	.00000E+00	1.00000E+00	1.02287E+01	1.57328E+01	1.02287E+01	1.00211E+00	-4.78217E-05	1.00002E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2n rate	fiss rate	flux^2	total flux
1	1.34078E-02	-5.92210E-09	1.28313E-02	.00000E+00	2.25448E-03	2.50851E-03	3.27759E-04	3.67747E-01
2	9.68924E-02	-6.22403E-08	9.04944E-02	.00000E+00	1.58652E-05	1.10279E-02	1.74039E-03	2.65139E+00

3	1.20875E-01	-6.99422E-08	1.12392E-01	.00000E+00	.00000E+00	1.33342E-02	1.98418E-03	3.30655E+00
4	7.45277E-02	-6.03651E-08	6.89736E-02	.00000E+00	.00000E+00	5.72025E-03	9.55975E-04	2.03768E+00
5	1.11698E-01	-7.40120E-08	1.02724E-01	.00000E+00	.00000E+00	1.64010E-03	1.11659E-03	3.05188E+00
6	2.09742E-01	-1.39576E-07	1.92813E-01	.00000E+00	.00000E+00	1.36601E-03	1.86978E-03	5.72852E+00
7	2.03582E-01	-4.84922E-07	1.98091E-01	.00000E+00	.00000E+00	1.31990E-03	1.32555E-03	5.57657E+00
8	1.48948E-01	-3.07247E-08	1.46981E-01	.00000E+00	.00000E+00	1.32553E-03	7.53344E-04	4.09601E+00
9	1.15297E-01	-5.32790E-06	1.15921E-01	.00000E+00	.00000E+00	1.76700E-03	5.08901E-04	3.17757E+00
10	1.05618E-01	-2.08661E-06	1.07132E-01	.00000E+00	.00000E+00	3.77407E-03	4.62763E-04	2.91371E+00
11	9.74201E-02	-1.68307E-06	1.00890E-01	.00000E+00	.00000E+00	8.09927E-03	4.18940E-04	2.69400E+00
12	6.13341E-02	-4.06185E-07	6.54175E-02	.00000E+00	.00000E+00	1.07519E-02	2.46795E-04	1.70198E+00
13	5.21388E-02	7.11566E-07	5.58766E-02	.00000E+00	.00000E+00	1.19538E-02	2.10774E-04	1.44776E+00
14	4.77156E-02	1.09731E-07	5.32790E-02	.00000E+00	.00000E+00	7.58312E-03	1.89795E-04	1.33142E+00
15	2.81121E-02	-3.94108E-06	2.90520E-02	.00000E+00	.00000E+00	1.82802E-03	1.19127E-04	7.77517E-01
16	1.55520E-02	-2.67725E-06	1.60945E-02	.00000E+00	.00000E+00	1.27489E-03	6.16336E-05	4.30132E-01
17	6.55975E-03	-3.14314E-06	7.05892E-03	.00000E+00	.00000E+00	1.54140E-03	2.33061E-05	1.82213E-01
18	4.00778E-03	-1.27534E-06	5.39344E-03	.00000E+00	.00000E+00	1.21734E-03	1.08945E-05	1.14419E-01
19	9.83632E-03	-3.91488E-06	1.07443E-02	.00000E+00	.00000E+00	2.45687E-03	3.57731E-05	2.73829E-01
20	3.35383E-02	-7.54179E-06	3.56683E-02	.00000E+00	.00000E+00	1.45544E-02	1.33367E-04	9.30786E-01
21	9.43671E-03	-2.85095E-06	1.11366E-02	.00000E+00	.00000E+00	1.43881E-02	2.88628E-05	2.65252E-01
22	1.78411E-02	-2.47474E-06	2.29257E-02	.00000E+00	.00000E+00	4.25972E-02	5.05709E-05	5.02683E-01
23	6.22472E-02	-8.76875E-06	7.73747E-02	.00000E+00	.00000E+00	7.83473E-02	1.82056E-04	1.76796E+00
24	4.78876E-02	-5.42101E-07	6.34132E-02	.00000E+00	.00000E+00	7.50265E-02	1.10914E-04	1.37419E+00
25	2.05412E-02	-9.54369E-07	2.86785E-02	.00000E+00	.00000E+00	4.30811E-02	3.82565E-05	5.94398E-01
26	1.35246E-02	-1.20504E-07	2.06908E-02	.00000E+00	.00000E+00	3.95997E-02	1.92221E-05	3.96273E-01
27	2.27879E-03	-6.61264E-09	3.98083E-03	.00000E+00	.00000E+00	1.11363E-02	2.06181E-06	6.76653E-02
28	1.73088E+00	-4.78184E-05	1.75098E+00	.00000E+00	2.27053E-03	4.09170E-01	1.29276E-02	4.77601E+01

- elapsed time .02 min.

Odirect access unit 9 requires 556 blocks of length 216 for cross section weighting.

1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.14820E-03	5.05992E-05	5.29528E-03	2.50982E-03	3.18300E-03	5.52513E-03	3.71688E-03	1.74363E-03
2	6.99515E-04	4.99100E-05	5.79803E-03	3.44456E-03	4.29951E-03	6.15307E-03	4.33275E-03	2.14856E-03
3	1.17719E-03	5.47786E-05	5.87891E-03	2.91594E-03	3.85246E-03	6.77952E-03	4.37134E-03	1.88406E-03
4	8.08500E-04	4.30147E-05	4.98882E-03	2.38988E-03	2.82914E-03	4.80078E-03	3.32665E-03	1.79836E-03
5	8.32150E-04	4.36808E-05	4.98272E-03	2.41431E-03	2.87888E-03	4.88930E-03	3.37566E-03	1.79860E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11316E-03	1.01461E-05	1.09416E-03	8.74330E-04	7.94958E-04	1.04358E-03	3.18348E-04	1.64116E-04
2	1.79112E-03	1.95416E-05	2.04367E-03	1.60250E-03	1.42492E-03	1.70552E-03	6.27280E-04	3.45782E-04
3	1.12184E-03	1.05432E-05	1.29472E-03	1.22182E-03	1.12408E-03	1.58232E-03	3.81882E-04	2.04098E-04
4	1.19562E-03	1.09513E-05	1.03062E-03	6.78008E-04	6.01909E-04	6.42604E-04	3.11281E-04	1.61321E-04
5	1.19370E-03	1.09568E-05	1.04596E-03	7.05551E-04	6.28178E-04	6.89795E-04	3.15203E-04	1.63587E-04

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.96719E-05	2.05565E-04	1.77897E-04	4.51411E-04	2.74797E-04	7.93823E-04	2.12714E-03	1.86066E-03
2	1.83980E-04	3.27752E-04	3.07361E-04	8.75044E-04	4.41183E-04	1.22440E-03	3.27981E-03	2.85289E-03
3	1.47332E-04	3.58525E-04	2.62955E-04	6.59125E-04	4.39156E-04	1.29182E-03	3.25767E-03	2.86246E-03
4	7.14884E-05	7.85051E-05	1.19259E-04	3.84632E-04	1.37265E-04	3.42150E-04	1.06555E-03	8.42038E-04
5	7.52672E-05	9.27709E-05	1.26506E-04	3.98578E-04	1.52594E-04	3.90792E-04	1.17929E-03	9.46809E-04

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	8.39179E-04	5.92747E-04	9.08010E-05	4.21298E-02
2	1.30868E-03	9.51613E-04	1.63610E-04	5.52731E-02
3	1.33117E-03	9.96687E-04	1.86168E-04	5.20512E-02
4	3.52061E-04	2.13748E-04	2.65248E-05	3.45443E-02
5	4.03427E-04	2.54216E-04	3.40793E-05	3.54342E-02

1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6557E+06	1.9685E+09	7.2106E-01
2	9.0000E+05	1.5134E+05	9.9806E+06	2.7894E-01
3	4.0000E-01	1.2564E-01	3.6564E+05	1.2147E-10
4	1.0000E-05			

1 720 d, second part of ese2h pass to make library

0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3
1	3.90743E-01	1.13594E+00	2.20625E-01
2	3.95995E-01	1.13716E+00	2.11358E-01
3	3.98953E-01	1.13741E+00	2.07193E-01
4	4.16127E-01	1.13956E+00	1.77499E-01
5	4.14437E-01	1.13914E+00	1.80881E-01

0flux disadvantage factors (zone average/cell average-flux)

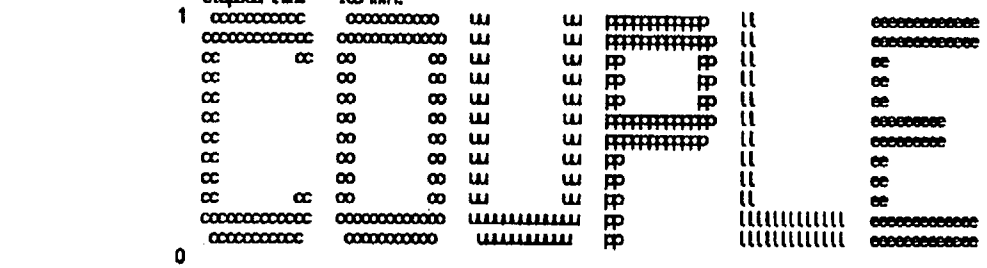
0zone	grp. 1	grp. 2	grp. 3
1	9.42829E-01	9.97195E-01	1.22310E+00
2	9.55500E-01	9.98261E-01	1.17173E+00
3	9.62698E-01	9.98479E-01	1.14864E+00
4	1.00408E+00	1.00019E+00	9.84022E-01
5	1.00000E+00	1.00000E+00	1.00000E+00

0cell averaged currents

0zone	grp. 1	grp. 2	grp. 3
1	1.71902E-02	1.83715E-02	6.56765E-03
2	1.92276E-02	2.58234E-02	1.02221E-02
3	1.95123E-02	2.23957E-02	1.03451E-02
4	1.52678E-02	1.62963E-02	2.98020E-03
5	1.54761E-02	1.66943E-02	3.36371E-03

0zone	volume	vol. fraction
1	1.25665E+00	4.56236E-02
2	1.66687E-01	6.05165E-03
3	6.58265E-01	2.38987E-02
4	2.54624E+01	9.24426E-01
5	2.75440E+01	1.00000E+00

- elapsed time .03 min.



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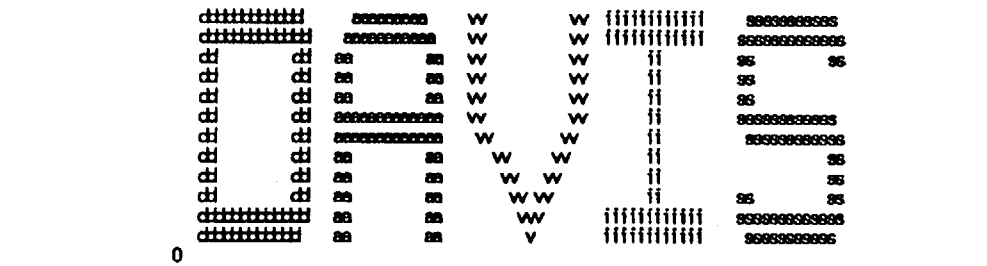

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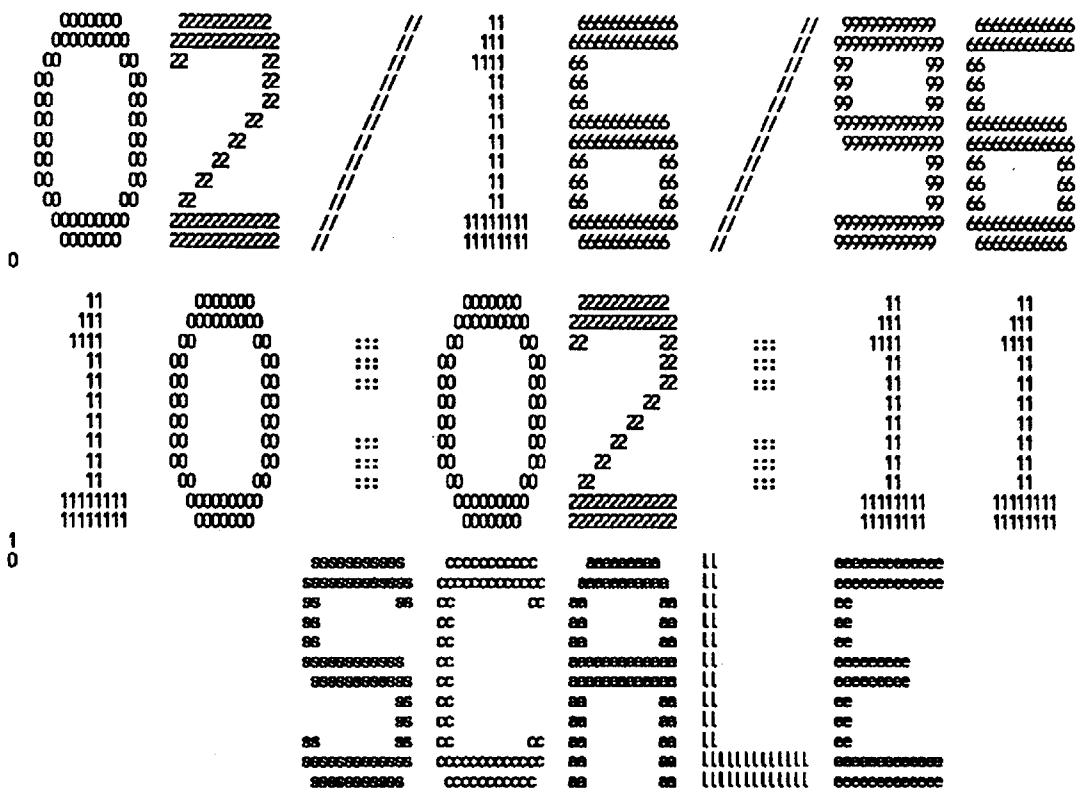


program verification information

code system: scale version: 4.2

program: a0c005

creation date: 04/27/95

```
                    *****            library:  /neutronics/scale/exe                  *****
                    *****                                                             *****
                    *****                                                             *****
                    *****    this is not a   scale  configuration controlled code     *****
                    *****                                                             *****
                    *****            jobname:  davis                                  *****
                    *****                                                             *****
                    *****    date of execution:  02/16/96                             *****
                    *****                                                             *****
                    *****    time of execution:  10:02:11                             *****
                    *****                                                             *****
                    *****                                                             *****
                    *************************************************************************
                    *************************************************************************
                    *************************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       2q array has      1 entries.
0        * core allocated to array-data (by -1$$ or default) was   200000 words. *
1         * broad 3-group flux weighting factors *
0
0                 therm =    .5110
0                 res   =    .4318
0                 fast  =   3.3315
0 user requested (see jadd) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from ampx (normalized to thermal flux), barns

                  10010 to  10020  2.82969E-01
                  10010 tot-cap    2.82969E-01
                  50100 to  40100  2.38416E-02
                  50100 to  10010  2.38416E-02
                  50100 to  40090  3.63840E-03
                  50100 to  10020  3.63840E-03
                  50100 to  30070  3.25391E+03
                  50100 to  20040  3.25409E+03
                  50100 to  10030  8.94021E-02
                  50100 tot-cap    3.25408E+03
                  50110 to  50100  1.04597E-05
                  50110 to  50120  4.30798E-03
                  50110 to  40110  1.33476E-06
                  50110 to  10010  1.33476E-06
                  50110 to  40090  1.19114E-05
                  50110 to  10030  1.19114E-05
                  50110 to  30080  1.55497E-04
                  50110 to  20040  1.55497E-04
                  50110 tot-cap    4.48718E-03
                  80160 to  80170  1.51170E-04
                  80160 to  70160  9.15206E-05
                  80160 to  10010  9.15206E-05
                  80160 to  70150  1.72607E-05
                  80160 to  10020  1.72607E-05
                  80160 to  60130  2.55664E-02
```

80160	to 20040	2.55664E-02
80160	to 80161	4.01377E-05
80160	tot-cap	2.58263E-02
360830	to 360820	2.07788E-02
360830	to 360810	2.19572E-09
360830	to 360840	1.53668E+02
360830	to 350830	8.52533E-04
360830	to 10010	8.52533E-04
360830	to 350820	6.86267E-06
360830	to 10020	6.86267E-06
360830	to 350810	2.39863E-06
360830	to 10030	2.39863E-06
360830	to 340810	3.88199E-08
360830	to 20030	3.88199E-08
360830	to 340800	4.55954E-05
360830	to 20040	4.55954E-05
360830	tot-cap	1.53690E+02
360850	to 360860	1.39090E+00
360850	tot-cap	1.39090E+00
380900	to 380910	6.28261E-01
380900	tot-cap	6.28261E-01
390890	to 390900	9.85036E-01
390890	tot-cap	9.85036E-01
400930	to 400940	1.32457E+01
400930	tot-cap	1.32457E+01
400940	to 400950	1.83934E-01
400940	tot-cap	1.83934E-01
400950	to 400960	2.19813E+00
400950	tot-cap	2.19813E+00
410940	to 410950	3.81058E+01
410940	tot-cap	3.81058E+01
420950	to 420960	3.78526E+01
420950	tot-cap	3.78526E+01
430990	to 430980	6.30459E-05
430990	to 431000	8.84718E+01
430990	tot-cap	8.84781E+01
441010	to 441020	2.78753E+01
441010	tot-cap	2.78753E+01
441050	to 441070	8.55579E-01
441050	tot-cap	8.55579E-01
451080	to 451020	2.28529E-05
451080	to 451040	3.50881E+02
451030	tot-cap	3.50883E+02
451050	to 451060	8.14800E+05
451050	tot-cap	8.14800E+05
461050	to 461060	3.34766E+01
461050	tot-cap	3.34766E+01
461080	to 461090	6.75899E+01
461080	tot-cap	6.75899E+01
471090	to 471080	5.30964E-05
471090	to 471100	3.66216E+02
471090	to 461090	3.00810E-04
471090	to 10010	3.00810E-04
471090	to 451060	2.48970E-04
471090	to 20040	2.48970E-04
471090	to 471091	6.27952E-01
471090	tot-cap	3.66221E+02
511240	to 511250	1.19520E+01
511240	tot-cap	1.19520E+01
541310	to 541300	6.43812E-02

541310 to 541290	1.34622E-05
541310 to 541320	2.54120E+02
541310 to 531310	3.87298E-05
541310 to 10010	3.87298E-05
541310 to 531300	5.39901E-07
541310 to 10020	5.39901E-07
541310 to 531290	5.53614E-07
541310 to 10030	5.53614E-07
541310 to 521280	1.81271E-05
541310 to 20040	1.81271E-05
541310 tot-cap	2.54184E+02
541320 to 541310	1.04005E-02
541320 to 541300	2.20587E-05
541320 to 541330	9.16433E-01
541320 to 531320	7.93439E-06
541320 to 10010	7.93439E-06
541320 to 531310	3.35209E-07
541320 to 10020	3.35209E-07
541320 to 531300	4.51360E-08
541320 to 10030	4.51360E-08
541320 to 521290	9.77472E-07
541320 to 20040	9.77472E-07
541320 tot-cap	9.26865E-01
541350 to 541360	1.46510E+06
541350 tot-cap	1.46510E+06
541360 to 541350	1.77907E-02
541360 to 541340	5.43372E-05
541360 to 541370	1.22968E-01
541360 to 531360	3.28531E-07
541360 to 10010	3.28531E-07
541360 to 531350	1.22906E-07
541360 to 10020	1.22906E-07
541360 to 531340	2.76311E-08
541360 to 10030	2.76311E-08
541360 to 521330	2.75575E-07
541360 to 20040	2.75575E-07
541360 tot-cap	1.40814E-01
551330 to 551320	8.33107E-03
551330 to 551340	1.00417E+02
551330 to 541330	9.01970E-04
551330 to 10010	9.01970E-04
551330 to 531300	1.42343E-05
551330 to 20040	1.42343E-05
551330 tot-cap	1.00427E+02
551340 to 551350	1.28178E+02
551340 tot-cap	1.28178E+02
551350 to 551360	2.11933E+01
551350 tot-cap	2.11933E+01
551370 to 551380	2.27369E-01
551370 tot-cap	2.27369E-01
561360 to 561370	8.92118E-01
561360 tot-cap	8.92118E-01
571390 to 571400	7.91315E+00
571390 tot-cap	7.91315E+00
581440 to 581450	1.22858E+00
581440 tot-cap	1.22858E+00
591410 to 591400	5.96984E-03
591410 to 591390	1.71528E-06
591410 to 571370	2.56518E-06
591410 to 20040	5.29664E-05

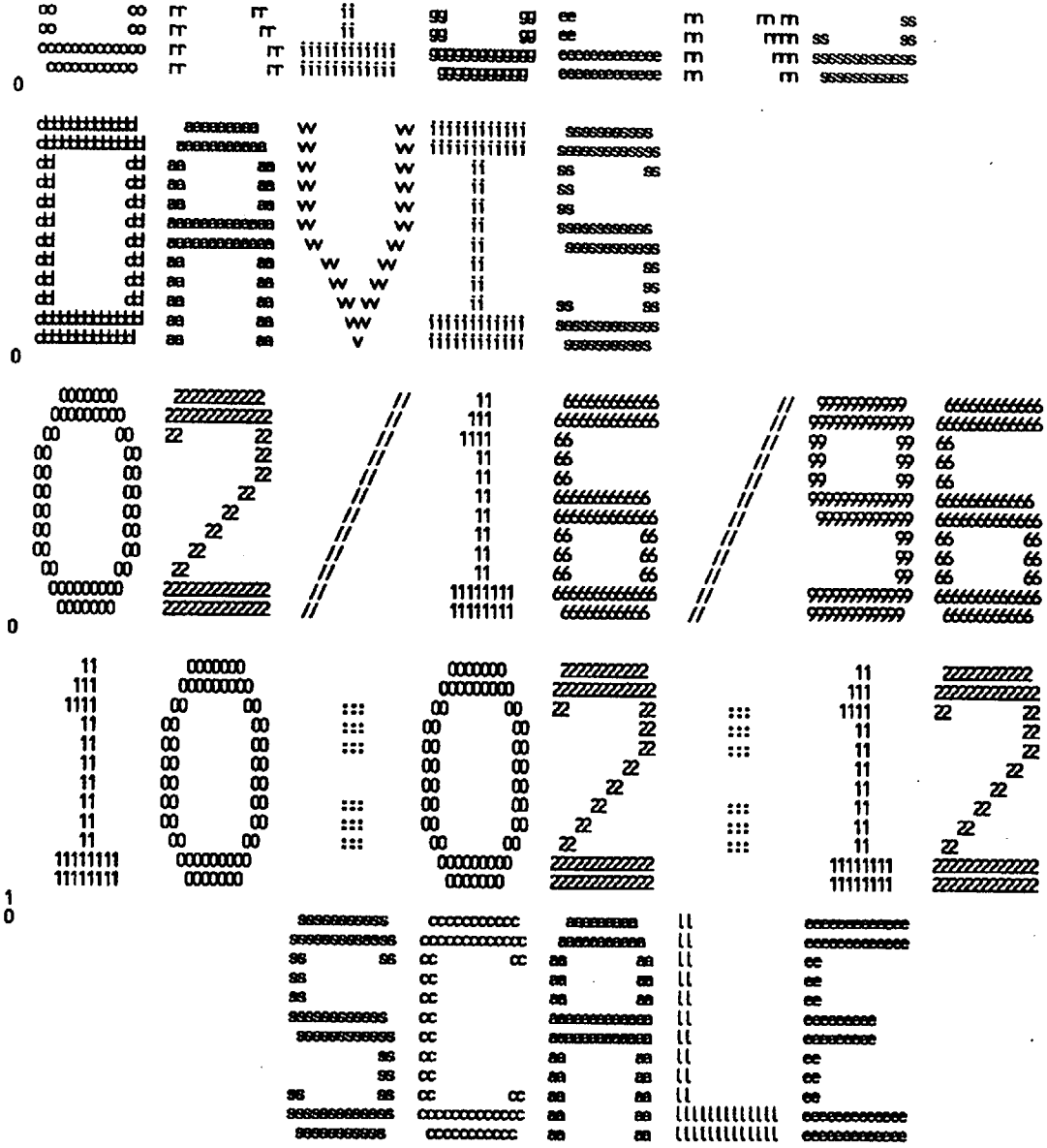
591410 to 581400 1.82016E-05
591410 to 10010 5.17872E-05
591410 to 591420 1.17723E+01
591410 to 581410 4.87956E-05
591410 to 10020 1.52100E-05
591410 to 581390 1.59511E-06
591410 to 10030 1.59511E-06
591410 to 571390 1.54048E-08
591410 to 20030 1.54048E-08
591410 to 571380 5.04013E-05
591410 tot-cap 1.17784E+01
591430 to 591440 9.73273E+01
591430 tot-cap 9.73273E+01
601430 to 601420 9.13524E-02
601430 to 601410 9.32257E-06
601430 to 581390 2.01613E-05
601430 to 20040 5.64097E-04
601430 to 591420 3.90241E-06
601430 to 10010 4.01248E-05
601430 to 601440 1.98700E+02
601430 to 591430 3.86546E-05
601430 to 10020 2.43219E-06
601430 to 591410 3.50478E-06
601430 to 10030 3.50478E-06
601430 to 581410 1.68390E-08
601430 to 20030 1.68390E-08
601430 to 581400 5.43935E-04
601430 tot-cap 1.98792E+02
601450 to 601440 1.17186E-01
601450 to 601430 1.19028E-04
601450 to 581410 8.41492E-06
601450 to 20040 2.10576E-04
601450 to 591440 2.23587E-06
601450 to 10010 1.45358E-05
601450 to 601460 7.77040E+01
601450 to 591450 1.36440E-05
601450 to 10020 1.34403E-06
601450 to 591430 2.11889E-06
601450 to 10030 2.11889E-06
601450 to 581430 4.31407E-09
601450 to 20030 4.31407E-09
601450 to 581420 2.02181E-04
601450 tot-cap 7.78215E+01
601470 to 601480 1.86601E+02
601470 tot-cap 1.86601E+02
611470 to 611460 3.20722E-02
611470 to 611450 1.00070E-04
611470 to 591430 8.87611E-06
611470 to 20040 8.22651E-05
611470 to 601460 1.22598E-05
611470 to 10010 2.79163E-05
611470 to 611480 5.75790E+02
611470 to 601470 2.48862E-05
611470 to 10020 9.22962E-06
611470 to 601450 3.48478E-06
611470 to 10030 3.48478E-06
611470 to 591450 5.23943E-09
611470 to 20030 5.23943E-09
611470 to 591440 7.33690E-05
611470 tot-cap 5.75825E+02

611480 to 611490 1.20170E+04
611480 tot-cap 1.20170E+04
621470 to 621460 8.36673E-02
621470 to 621450 7.53361E-03
621470 to 601430 6.50957E-05
621470 to 20040 1.24788E-03
621470 to 611460 1.51837E-04
621470 to 10010 2.16781E-04
621470 to 621480 2.30084E+02
621470 to 611470 1.91165E-04
621470 to 10020 1.26241E-04
621470 to 611450 1.35554E-04
621470 to 10030 1.35554E-04
621470 to 601450 6.25710E-06
621470 to 20030 6.25710E-06
621470 to 601440 1.18279E-03
621470 to 621471 1.64121E+00
621470 tot-cap 2.30178E+02
621490 to 621480 4.72877E-02
621490 to 621470 3.75517E-05
621490 to 621500 4.50644E+04
621490 to 611490 4.83152E-04
621490 to 10010 4.83152E-04
621490 to 601460 4.83152E-04
621490 to 20040 4.83152E-04
621490 tot-cap 4.50645E+04
621500 to 621510 1.33056E+02
621500 tot-cap 1.33056E+02
621510 to 621500 1.57778E-01
621510 to 621490 1.41304E-04
621510 to 601470 1.58432E-05
621510 to 20040 1.23404E-04
621510 to 611500 1.93487E-06
621510 to 10010 1.50424E-05
621510 to 621520 4.93300E+03
621510 to 611510 1.38603E-05
621510 to 10020 7.52736E-07
621510 to 611490 1.36805E-06
621510 to 10030 1.36805E-06
621510 to 601490 1.40955E-09
621510 to 20030 1.40955E-09
621510 to 601480 1.07561E-04
621510 tot-cap 4.93316E+03
621520 to 621510 1.89222E-02
621520 to 621500 1.27868E-04
621520 to 601480 2.85728E-06
621520 to 20040 1.18670E-05
621520 to 611510 8.19598E-07
621520 to 10010 2.41860E-06
621520 to 621530 7.25060E+02
621520 to 611520 2.14847E-06
621520 to 10020 5.49459E-07
621520 to 611500 1.42901E-07
621520 to 10030 1.42901E-07
621520 to 601500 4.33072E-10
621520 to 20030 4.33072E-10
621520 to 601490 9.00979E-06
621520 tot-cap 7.25079E+02
631530 to 631520 1.85779E-02
631530 to 631510 2.74439E-05

631530	to 611490	4.34008E-05
631530	to 20040	6.29487E-04
631530	to 621520	7.68614E-06
631530	to 10010	6.46932E-05
631530	to 631540	6.13434E+02
631530	to 621530	6.20694E-05
631530	to 10020	5.06233E-06
631530	to 621510	1.13456E-06
631530	to 10080	1.13456E-06
631530	to 611510	2.59366E-08
631530	to 20080	2.59366E-08
631530	to 611500	5.86087E-04
631530	tot-cap	6.13453E+02
631540	to 631530	2.93798E-02
631540	to 631520	1.05536E-05
631540	to 611500	1.08615E-10
631540	to 20040	7.55638E-04
631540	to 621530	2.31005E-06
631540	to 10010	1.23019E-05
631540	to 631550	1.06661E+03
631540	to 621540	1.23019E-05
631540	to 10020	2.30877E-06
631540	to 621520	3.91070E-06
631540	to 10080	3.91070E-06
631540	to 611520	1.66815E-08
631540	to 20080	1.66815E-08
631540	to 611510	7.55638E-04
631540	tot-cap	1.06664E+03
631550	to 631540	2.41215E-02
631550	to 631530	6.75456E-05
631550	to 611510	1.81796E-06
631550	to 20040	8.94714E-06
631550	to 621540	3.68314E-06
631550	to 10010	7.72990E-06
631550	to 631560	2.55123E+03
631550	to 621550	5.95780E-06
631550	to 10020	1.89104E-06
631550	to 621530	6.26000E-07
631550	to 10080	6.26000E-07
631550	to 611530	1.41886E-10
631550	to 20080	1.41886E-10
631550	to 611520	7.12918E-06
631550	tot-cap	2.55125E+03
641550	to 641560	1.69605E+04
641550	tot-cap	1.69605E+04
922340	to 922330	6.31950E-03
922340	fission	4.38696E+00
922340	nu-sigf	1.15326E+01
922340	to 922320	9.16290E-05
922340	to 922350	1.84139E+02
922340	to 922341	2.94188E+00
922340	tot-cap	1.88533E+02
922350	to 922340	2.88636E-02
922350	fission	3.60472E+02
922350	nu-sigf	8.72897E+02
922350	to 922330	2.76018E-05
922350	to 922360	8.53994E+01
922350	to 922351	8.36730E-02
922350	tot-cap	4.45900E+02
922360	to 922350	3.21908E-02

922360	fission	1.88166E+00
922360	nu-sigf	5.14657E+00
922360	to 922340	4.29034E-04
922360	to 922370	7.19089E+01
922360	to 922361	3.21845E+00
922360	tot-cap	7.38226E+01
922380	to 922370	6.42954E-02
922380	fission	9.43300E-01
922380	nu-sigf	2.65616E+00
922380	to 922360	4.15521E-04
922380	to 922390	8.38842E+00
922380	tot-cap	9.39844E+00
932370	to 932360	1.46575E-02
932370	fission	5.08628E+00
932370	nu-sigf	1.53206E+01
932370	to 932350	5.60749E-05
932370	to 932380	2.97595E+02
932370	to 932371	7.54349E-01
932370	tot-cap	3.02695E+02
942380	to 942370	2.35599E-03
942380	fission	2.20643E+01
942380	nu-sigf	6.25559E+01
942380	to 942360	1.31853E-05
942380	to 942390	2.64386E+02
942380	to 942381	2.95315E+00
942380	tot-cap	2.86453E+02
942390	to 942380	1.24739E-02
942390	fission	8.39238E+02
942390	nu-sigf	2.41301E+03
942390	to 942370	2.12276E-05
942390	to 942360	2.10432E-08
942390	to 942400	4.70661E+02
942390	tot-cap	1.30981E+03
942400	to 942390	5.86746E-03
942400	fission	5.78557E+00
942400	nu-sigf	1.81189E+01
942400	to 942380	5.72571E-05
942400	to 942410	1.49448E+03
942400	tot-cap	1.50027E+03
942410	to 942400	7.40039E-02
942410	fission	8.95401E+02
942410	nu-sigf	2.62727E+03
942410	to 942390	1.22514E-04
942410	to 942420	2.93008E+02
942410	tot-cap	1.18848E+03
942420	to 942410	2.39183E-02
942420	fission	4.40995E+00
942420	nu-sigf	1.38159E+01
942420	to 942400	2.90783E-04
942420	to 942430	3.28604E+02
942420	tot-cap	3.33088E+02
952410	fission	1.23494E+01
952410	nu-sigf	3.99002E+01
952410	to 952420	1.01244E+03
952410	tot-cap	1.02479E+03
952430	fission	3.40615E+00
952430	nu-sigf	1.14446E+01
952430	to 952440	4.16052E+02
952430	tot-cap	4.19456E+02
962440	to 962430	5.74828E-03

```
                  962440 fission    1.51799E+01
                  962440 nu-sigf    5.08679E+01
                  962440 to 962420  5.75241E-05
                  962440 to 962450  1.39783E+02
                  962440 to 962441  3.76645E+00
                  962440 tot-cap    1.54968E+02
Othe reaction  50100 to  30070 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  50100 to  40090 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  50110 to  40090 was not used, because  50110 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  50100 to  40100 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  80160 to  80161 was not used, because  80161 is not in library., (in subr pool)
Othe reaction 621470 to 621471 was not used, because 621471 is not in library., (in subr pool)
Othe fission product transitions for  922340 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction  922340 to 922341 was not used, because  922341 is not in library., (in subr pool)
Othe reaction  922350 to 922351 was not used, because  922351 is not in library., (in subr pool)
Othe fission product transitions for  922360 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction  922360 to 922361 was not used, because  922361 is not in library., (in subr pool)
Othe fission product transitions for  952370 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction  952370 to 952371 was not used, because  952371 is not in library., (in subr pool)
Othe fission product transitions for  942380 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction  942380 to 942381 was not used, because  942381 is not in library., (in subr pool)
Othe fission product transitions for  942400 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  942420 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  952410 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  952430 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe fission product transitions for  962440 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction  962440 to 962441 was not used, because  962441 is not in library., (in subr pool)
1
0                          case completed.  date,  2/16/1996
0 * normal termination *
1   ccccccccccc    rrrrrrrrrrr    iiiiiiiiiii      ggggggggggg    eeeeeeeeeeee  mm         mm  sssssssssss
    ccccccccccccc  rrrrrrrrrrrr   iiiiiiiiiii      ggggggggggggg  eeeeeeeeeeee  mm         mm  sssssssssssss
    cc         cc  rr         rr       ii         gg         gg  ee            mmm       mmm  ss         ss
    cc         cc  rr         rr       ii         gg             ee            mm mm     mm mm  ss
    cc         cc  rr         rr       ii         gg             ee            mm  mm   mm  mm  ss
    cc         cc  rrrrrrrrrrrr        ii         gg   ggggggg  eeeeeeeee     mm   mm mm   mm  sssssssssss
    cc         cc  rrrrrrrrrrr         ii         gg   ggggggg  eeeeeeeee     mm    mmm    mm   sssssssssss
    cc         cc  rr      rr          ii         gg         gg  ee            mm     m     mm            ss
```



```
**********************************************************************
**********************************************************************
**********************************************************************
******                                                          ******
******                program verification information          ******
******                                                          ******
******                code system:   scale  version:   4.2      ******
**********************************************************************
**********************************************************************
******                                                          ******
******                                                          ******
******                      program:  c0c004                    ******
******                creation date:  04/27/95                  ******
******                      library:  /neutronics/scale/exe     ******
******                                                          ******
******                                                          ******
******           this is not a  scale  configuration controlled code ******
******                                                          ******
******                      jobname:  davis                     ******
******                                                          ******
******           date of execution:  02/16/96                   ******
******                                                          ******
******           time of execution:  10:02:12                   ******
******                                                          ******
**********************************************************************
**********************************************************************
**********************************************************************
```

```
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0        dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0            short-lived split test fraction, qm =    9.1188E-04
0            half-norm of matrix used, am =    7.0000E+00
0            4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      5%q array has     12 entries.
1library information...

        cross-section data taken from position number  1 of library on unit 15.

        pass  5
        pass  1
        pass  0
        *scale-system control module sas2 library*
        used a time-dependent neutron spectrum, for each of the above passes
```

```
  pass 0 applies start-up fuel densities
  pass n applies mid time densities of nth library interval
first library updated was...
pass   1
pass   0
*scale-system control module sas2 library*
used a time-dependent neutron spectrum, for each of the above passes
  pass 0 applies start-up fuel densities
  pass n applies mid time densities of nth library interval
first library updated was...
*****************************************************************
*                                                               *
*          prelim lwr origen-s binary working library--id = 1143*
*        made from modified card-image origen-s libraries of scale 4.2*
*      data from the light element, actinide, and fission product libraries*
*        decay data, including gamma and total energy, are from endf/b-vi*
*                                                               *
*      neutron flux spectrum factors and cross sections were produced from*
*      the "presas2" case updating all nuclides on the scale "burnup" library*
*                                                               *
*                  fission product yields are from endf/b-v     *
*                                                               *
*              photon libraries use an 18-energy-group structure*
*             the photon data are from the master photon data base,*
*              produced to include bremsstrahlung from us2 matrix*
*                                                               *
*        see information above this box (if present) for later updates*
*                                                               *
*****************************************************************
0
0          .other identification and sizes of library.
0           data set name:  ft15f001
0         2/16/1996    date library was produced
0             1697    total number of nuclides in library
               689    number of light-element nuclides
               129    number of actinide nuclides
               879    number of fission product nuclides
0             7985    number of nonzero off-diagonal matrix elements
0     ***************************************************************
1
   sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp                    actinides        page    1
    power= 8.466E-05mw, burnup=2.0518E-02mwd, flux= 1.61E+13n/cm**2-sec
0                                  nuclide concentrations, gram atoms
                                   basis = converted to atoms/(barn-cm)
         charge   680.1 d  720.1 d  760.1 d  800.1 d  800.1 d  840.1 d  880.1 d
 he  4 1.27E-08 1.60E-08 2.00E-08 2.48E-08 3.05E-08 3.05E-08 3.70E-08 4.47E-08
u230   4.38E-21 5.21E-21 6.05E-21 6.96E-21 7.96E-21 7.96E-21 9.06E-21 1.03E-20
u231   9.04E-20 1.07E-19 1.23E-19 1.40E-19 1.59E-19 1.58E-19 1.79E-19 2.02E-19
u232   1.21E-12 1.40E-12 1.61E-12 1.84E-12 2.10E-12 2.10E-12 2.38E-12 2.68E-12
u233   3.07E-11 3.22E-11 3.36E-11 3.49E-11 3.62E-11 3.62E-11 3.75E-11 3.86E-11
u234   4.75E-06 4.70E-06 4.65E-06 4.61E-06 4.56E-06 4.56E-06 4.51E-06 4.47E-06
u235   4.67E-04 4.56E-04 4.44E-04 4.34E-04 4.23E-04 4.23E-04 4.13E-04 4.03E-04
u236   4.40E-05 4.60E-05 4.79E-05 4.98E-05 5.16E-05 5.16E-05 5.34E-05 5.51E-05
u237   6.02E-08 6.25E-08 6.49E-08 6.68E-08 6.87E-08 6.85E-08 7.06E-08 7.24E-08
u238   2.19E-02 2.19E-02 2.19E-02 2.19E-02 2.19E-02 2.19E-02 2.18E-02 2.18E-02
u239   1.97E-09 5.98E-09 5.97E-09 5.97E-09 5.98E-09 1.53E-09 5.99E-09 6.00E-09
u240    .00E+00 1.34E-33 2.46E-33 4.35E-33 7.46E-33 7.46E-33 1.24E-32 2.02E-32
u241    .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00  .00E+00
np235  3.45E-14 3.97E-14 4.51E-14 5.09E-14 5.69E-14 5.69E-14 6.33E-14 6.99E-14
```

np236m	4.59E-14	5.28E-14	5.79E-14	6.19E-14	6.66E-14	6.50E-14	7.14E-14	7.63E-14
np236	3.15E-12	3.68E-12	4.25E-12	4.86E-12	5.53E-12	5.53E-12	6.25E-12	7.01E-12
np237	2.39E-06	2.60E-06	2.82E-06	3.04E-06	3.27E-06	3.27E-06	3.50E-06	3.73E-06
np238	2.94E-09	3.26E-09	3.54E-09	3.82E-09	4.11E-09	4.07E-09	4.41E-09	4.71E-09
np239	8.42E-07	8.61E-07	8.62E-07	8.62E-07	8.63E-07	8.60E-07	8.64E-07	8.66E-07
np240m	.00E+00	1.14E-35	2.10E-35	3.71E-35	6.36E-35	6.36E-35	1.06E-34	1.72E-34
np240	9.84E-12	1.55E-11	1.55E-11	1.56E-11	1.56E-11	9.30E-12	1.56E-11	1.57E-11
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	3.75E-12	4.34E-12	4.98E-12	5.66E-12	6.38E-12	6.38E-12	7.15E-12	7.96E-12
pu237	1.95E-13	2.13E-13	2.30E-13	2.46E-13	2.62E-13	2.62E-13	2.79E-13	2.96E-13
pu238	2.46E-07	2.86E-07	3.27E-07	3.73E-07	4.23E-07	4.23E-07	4.77E-07	5.35E-07
pu239	9.04E-05	9.38E-05	9.70E-05	1.00E-04	1.03E-04	1.03E-04	1.05E-04	1.08E-04
pu240	1.40E-05	1.52E-05	1.64E-05	1.78E-05	1.87E-05	1.87E-05	1.99E-05	2.10E-05
pu241	6.40E-06	7.13E-06	7.90E-06	8.72E-06	9.57E-06	9.57E-06	1.05E-05	1.14E-05
pu242	5.07E-07	6.08E-07	7.19E-07	8.41E-07	9.75E-07	9.75E-07	1.12E-06	1.28E-06
pu243	6.18E-11	8.22E-11	9.73E-11	1.14E-10	1.32E-10	1.19E-10	1.53E-10	1.75E-10
pu244	3.51E-23	6.67E-23	1.22E-22	2.16E-22	3.71E-22	3.72E-22	6.19E-22	1.01E-21
pu245	2.41E-29	4.78E-29	8.73E-29	1.55E-28	2.66E-28	2.53E-28	4.44E-28	7.23E-28
pu246	.00E+00	1.66E-31	3.21E-31	5.78E-31	1.00E-30	1.00E-30	1.70E-30	2.79E-30
am239	2.19E-18	2.78E-18	3.27E-18	3.80E-18	4.37E-18	4.18E-18	4.99E-18	5.65E-18
am240	9.75E-16	1.20E-15	1.41E-15	1.64E-15	1.89E-15	1.87E-15	2.16E-15	2.45E-15
am241	1.42E-07	1.69E-07	1.98E-07	2.30E-07	2.64E-07	2.64E-07	3.01E-07	3.41E-07
am242m	2.61E-09	3.21E-09	3.88E-09	4.64E-09	5.47E-09	5.47E-09	6.39E-09	7.39E-09
am242	1.56E-10	1.91E-10	2.24E-10	2.60E-10	2.99E-10	2.90E-10	3.42E-10	3.87E-10
am243	3.26E-08	4.20E-08	5.31E-08	6.60E-08	8.11E-08	8.11E-08	9.84E-08	1.18E-07
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	1.07E-11	1.46E-11	1.85E-11	2.31E-11	2.84E-11	2.69E-11	3.45E-11	4.15E-11
am245	2.21E-27	4.21E-27	7.68E-27	1.35E-26	2.29E-26	2.25E-26	3.78E-26	6.09E-26
am246	.00E+00	4.15E-34	8.03E-34	1.44E-33	2.51E-33	2.51E-33	4.24E-33	6.97E-33
cm241	1.19E-18	1.65E-18	2.20E-18	2.87E-18	3.66E-18	3.66E-18	4.60E-18	5.69E-18
cm242	1.37E-08	1.70E-08	2.08E-08	2.51E-08	2.99E-08	2.99E-08	3.52E-08	4.10E-08
cm243	1.55E-10	2.06E-10	2.67E-10	3.41E-10	4.28E-10	4.28E-10	5.29E-10	6.45E-10
cm244	2.16E-09	2.98E-09	4.03E-09	5.34E-09	6.95E-09	6.95E-09	8.92E-09	1.13E-08
cm245	3.35E-11	4.98E-11	7.11E-11	9.92E-11	1.36E-10	1.36E-10	1.82E-10	2.41E-10
cm246	1.00E-12	1.57E-12	2.38E-12	3.53E-12	5.12E-12	5.12E-12	7.27E-12	1.01E-11
cm247	5.06E-15	8.48E-15	1.37E-14	2.15E-14	3.30E-14	3.30E-14	4.93E-14	7.22E-14

1

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 2

power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.61E+13n/cm**2-sec

0 nuclide concentrations, gram atoms

basis = converted to atoms/(barn-cm)

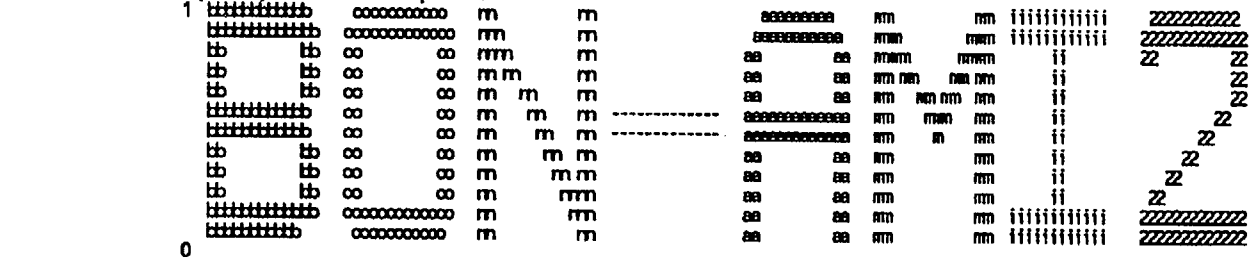
	charge	680.1 d	720.1 d	760.1 d	800.1 d	800.1 d	840.1 d	880.1 d
cm248	1.13E-16	2.03E-16	3.51E-16	5.87E-16	9.52E-16	9.52E-16	1.50E-15	2.32E-15
cm249	4.96E-22	1.36E-21	2.35E-21	3.95E-21	6.39E-21	3.88E-21	1.01E-20	1.56E-20
cm250	8.84E-26	1.70E-25	3.13E-25	5.58E-25	9.60E-25	9.60E-25	1.61E-24	2.62E-24
cm251	.00E+00	4.04E-33	7.46E-33	1.33E-32	2.29E-32	3.42E-33	3.84E-32	6.28E-32
totals	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.25E-02	2.24E-02
0 flux		1.60E+13	1.60E+13	1.60E+13	1.61E+13	.00E+00	1.61E+13	1.61E+13

0 .results on logical unit no. 71, position 1, for time step 7, subcase 1. (run position 1, case position 1)
title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 .results on logical unit no. 71, position 2, for time step 5, subcase 1. (run position 1, case position 1)
title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 .results on logical unit no. 71, position 3, for time step 4, subcase 1. (run position 1, case position 1)
title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 .terminated logical unit no. 71 with zero flag record.
1 * normal termination of execution *
0 table of contents for material tables
0 case or subcase printed page

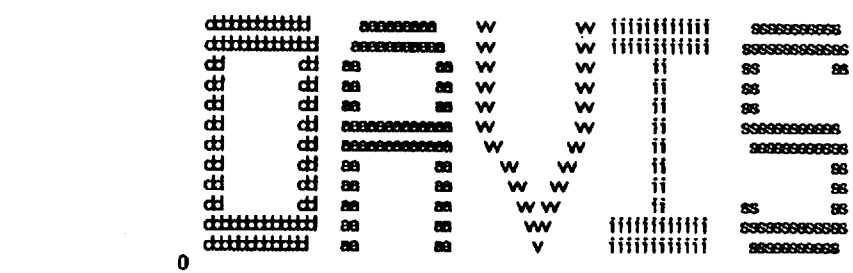
1 1

```
Ondset          33
          15          4          1         27          6          0          0          0          0          0
           0          0          0          0          0          0         -1       1698        690        130
         880       7935          0          5         99          2         16         96         18         18
          18          0         71
0       56q array has       2 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       57q array has       3 entries.
0        1q array has      20 entries.
0        1q array has      10 entries.
     l90  97376
     l116  60826
     l32  33663 nudata (library) storage size
     l44  33734
     l103  75953
0       58q array has       4 entries.
0       60q array has       7 entries.
0       58q array has       7 entries.
0       66q array has       1 entries.
0       73q array has    1697 entries.
0       74q array has    1697 entries.
0       75q array has    1697 entries.
     l140  66991
     used  101044 in size  200000
0jqpt          12
           0          0          0          0          0          0          0          0          0          0
           0          0
Otherm          4
  5.109686E-01 4.317659E-01 3.331461E+00 1.000000E-31
Onon            5
        7935         20          6         18       1697
Onm            19
           7          7          0          0          1          1          0          0          0          0
          21        100       1697          4          3         74          4          1          0
Otconst         5
  8.640000E+04 6.400641E+02  .000000E+00  .000000E+00 1.000000E-08
Onzero          4
           0        689        129        879
Opow            3
   .000000E+00  .000000E+00  .000000E+00
0 lirp          9
           6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total mev/fission =          6.6274E+00 1.9620E+02 2.0288E+02
 start of interval flux =       1.59777E+13
 n-gamma, fission and total mev/fission =          6.7144E+00 1.9629E+02 2.0300E+02
 start of interval flux =       1.59963E+13
 n-gamma, fission and total mev/fission =          6.8126E+00 1.9637E+02 2.0319E+02
 start of interval flux =       1.60171E+13
 n-gamma, fission and total mev/fission =          6.9104E+00 1.9646E+02 2.0337E+02
 start of interval flux =       1.60416E+13
 start of interval flux =        .00000E+00
 n-gamma, fission and total mev/fission =          7.0227E+00 1.9654E+02 2.0356E+02
 start of interval flux =       1.60681E+13
 n-gamma, fission and total mev/fission =          7.1041E+00 1.9662E+02 2.0372E+02
 start of interval flux =       1.61008E+13
```

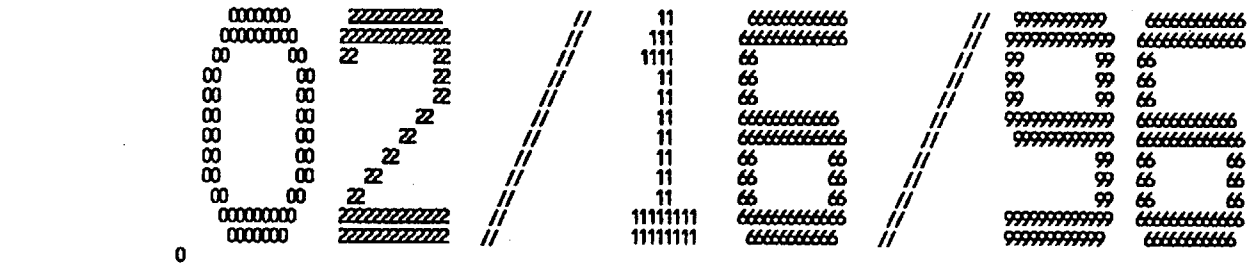
```
 0 case or subcase     1  ses2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
 0       56q array has      20 entries.
 0       56q array has       1 entries.
 0       56q array has       1 entries.
 0       56q array has      20 entries.
 0       56q array has       1 entries.
 0       56q array has       1 entries.
 0       56q array has      20 entries.
 0       56q array has      20 entries.
 0requested parm=halt8,skipcellwt,skipshipdata
   pass= 6, exec halts after pass   8
```



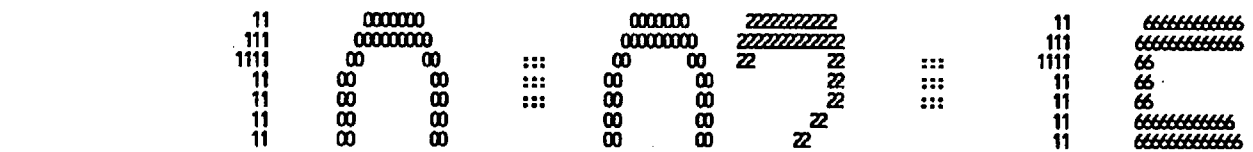
```
 0
```

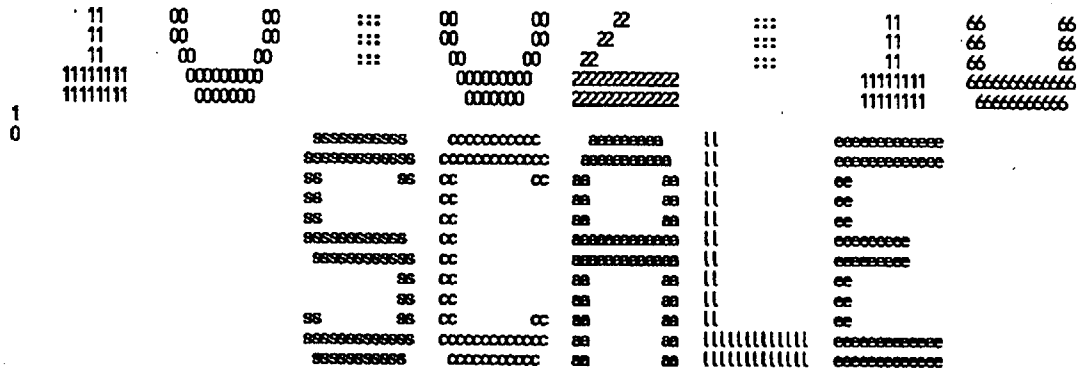


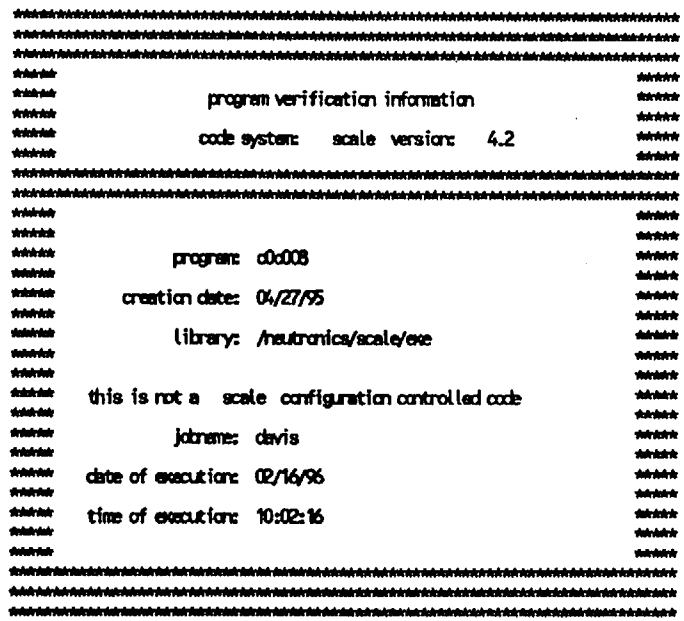
```
 0
```



```
 0
```








```
1
0      -1q array has     1 entries.
0       0q array has     4 entries.
0       1q array has     6 entries.
0       2q array has     2 entries.
1logical assignments
```

```
0master library   12
 working library   0
 scratch file      18
 new library       1
0problem description
0ig--geometry (0/1/2/3--inf med/slab/cyl/sphere                    2
0izm--number of zones or material regions                          4
0ms--mixing table length                                          66
0ibl--shielded cross section edit option (0/1--no/yes)             0
0ibr--bondarenko factor edit option (0/1--no/yes)                  0
0isscpt--dancoff factor option                                     0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0       3q array has      66 entries.
0       4q array has      66 entries.
0       5q array has      66 entries.
0       6q array has       4 entries.
0       7q array has       4 entries.
0       8q array has       4 entries.
0       9q array has       4 entries.
0      10q array has      66 entries.
0      11q array has       4 entries.
0mixing table
0entry  mixture  isotope  number density  new identifier
    1        1    92235    4.02698E-04           92235
    2        1    92234    4.46803E-06           92234
    3        1    92236    5.51142E-06           92236
    4        1    92238    2.18274E-02           92238
    5        1     8016    4.55359E-02            8016
    6        3     8016    2.09710E-02               6
    7        1    36083    1.42718E-06           36083
    8        1    36085    6.86405E-07           36085
    9        1    38090    1.56266E-05           38090
   10        1    39089    1.23885E-05           39089
   11        1    42095    1.46579E-05           42095
   12        1    40093    1.24628E-05           40093
   13        1    40094    1.95879E-05           40094
   14        1    40095    1.99661E-06           40095
   15        1    41094    9.70965E-12           41094
   16        1    43099    1.91603E-05           43099
   17        1    45103    1.06084E-05           45103
   18        1    45105    2.23564E-08           45105
   19        1    44101    1.73887E-05           44101
   20        1    44106    2.62773E-06           44106
   21        1    46105    6.86049E-06           46105
   22        1    46108    1.92544E-06           46108
   23        1    47109    1.34572E-06           47109
   24        1    51124    3.04849E-10           51124
   25        1    54131    8.77608E-06           54131
   26        1    54132    1.64947E-05           54132
   27        1    54135    6.67715E-09           54135
   28        1    54136    3.30816E-05           54136
   29        1    55134    9.57401E-07           55134
   30        1    55135    1.05022E-05           55135
   31        1    55137    2.05235E-05           55137
   32        1    56136    1.95125E-07           56136
   33        1    57139    2.03240E-05           57139
   34        1    59141    1.75987E-05           59141
   35        1    59143    3.71186E-07           59143
   36        1    58144    6.70562E-06           58144
```

37	1	60143	1.59150E-05	60143
38	1	60145	1.17342E-05	60145
39	1	61147	4.02235E-06	61147
40	1	61148	1.17777E-08	61148
41	1	60147	1.29916E-07	60147
42	1	62147	1.40155E-06	62147
43	1	62149	8.69582E-08	62149
44	1	62150	4.18068E-06	62150
45	1	62151	4.01901E-07	62151
46	1	62152	2.00466E-06	62152
47	1	64155	2.18270E-09	64155
48	1	63153	1.20542E-06	63153
49	1	63154	2.52168E-07	63154
50	1	63155	1.30440E-07	63155
51	2	40802	4.25156E-02	40802
52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	2.10206E-05	55133
56	1	95257	3.73057E-06	95257
57	1	94238	5.34530E-07	94238
58	1	94239	1.07741E-04	94239
59	1	94240	2.09730E-05	94240
60	1	94241	1.13808E-05	94241
61	1	94242	1.27952E-06	94242
62	1	95241	3.40567E-07	95241
63	1	95243	1.18128E-07	95243
64	1	96244	1.12999E-08	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05814E-01	0
2	4	4.78790E-01	2.93000E+02	5.49010E-01	0
3	2	5.46100E-01	6.50000E+02	.00000E+00	0
4	3	8.13968E-01	6.07600E+02	.00000E+00	0

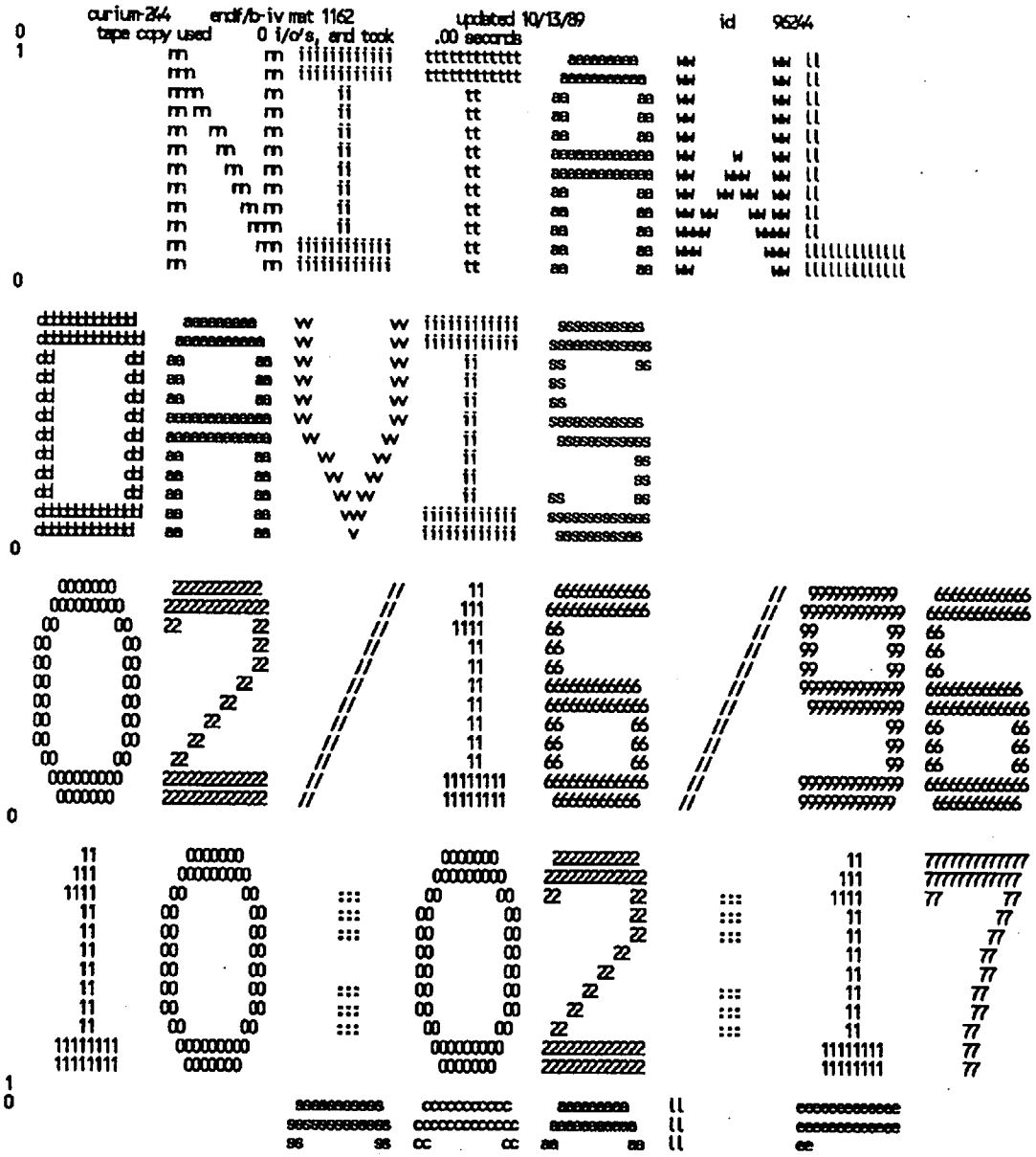
7711 locations of 200000 available are required to make a new master containing the self-shielded values

Ono nuclides in your problem have bondarenko factor data**bondi will copy from logical 12 to logical 1

Ocopy 999 1/v cross sectio from lag 12 to lag 18 bondarenko trigger 0
Ocopy 999 1/v cross sectio from lag 18 to lag 1 bondarenko trigger 0
Ocopy 999 1/v cross sectio from lag 18 to lag 1 bondarenko trigger 0
Ocopy 1001 hydrogen from lag 12 to lag 1 bondarenko trigger 0
Ocopy 5010 b-10 1273 218mp from lag 12 to lag 1 bondarenko trigger 0
Ocopy 5011 boron-11 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from lag 12 to lag 18 bondarenko trigger 0
Ocopy 8016 oxygen-16 from lag 18 to lag 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from lag 18 to lag 1 bondarenko trigger 0
Ocopy 36083 kr-83 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 36085 kr-85 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 38090 sr-90 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 39089 y-89 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 40093 zr-93 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 40094 zr-94 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 40095 zr-95 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 40802 zircalloy from lag 12 to lag 1 bondarenko trigger 0
Ocopy 41094 rb-94 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 42095 mo-95 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 43099 tc-99 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 44101 ru-101 from lag 12 to lag 1 bondarenko trigger 0
Ocopy 44106 ru-106 from lag 12 to lag 1 bondarenko trigger 0

```
0copy    45103  rh-103          from lag 12 to lag  1   bondarenko trigger 0
0copy    45105  rh-105          from lag 12 to lag  1   bondarenko trigger 0
0copy    46105  pd-105          from lag 12 to lag  1   bondarenko trigger 0
0copy    46108  pd-108          from lag 12 to lag  1   bondarenko trigger 0
0copy    47109  silver-109      from lag 12 to lag  1   bondarenko trigger 0
0copy    51124  sb-124          from lag 12 to lag  1   bondarenko trigger 0
0copy    54131  xe-131          from lag 12 to lag  1   bondarenko trigger 0
0copy    54132  xe-132          from lag 12 to lag  1   bondarenko trigger 0
0copy    54135  xenon-135       from lag 12 to lag  1   bondarenko trigger 0
0copy    54136  xe-136          from lag 12 to lag  1   bondarenko trigger 0
0copy    55133  cesium-133      from lag 12 to lag  1   bondarenko trigger 0
0copy    55134  cs-134          from lag 12 to lag  1   bondarenko trigger 0
0copy    55135  cs-135          from lag 12 to lag  1   bondarenko trigger 0
0copy    55137  cs-137          from lag 12 to lag  1   bondarenko trigger 0
0copy    56136  ba-136          from lag 12 to lag  1   bondarenko trigger 0
0copy    57139  la-139          from lag 12 to lag  1   bondarenko trigger 0
0copy    58144  ce-144          from lag 12 to lag  1   bondarenko trigger 0
0copy    59141  pr-141          from lag 12 to lag  1   bondarenko trigger 0
0copy    59143  pr-143          from lag 12 to lag  1   bondarenko trigger 0
0copy    60143  nd-143          from lag 12 to lag  1   bondarenko trigger 0
0copy    60145  nd-145          from lag 12 to lag  1   bondarenko trigger 0
0copy    60147  nd-147          from lag 12 to lag  1   bondarenko trigger 0
0copy    61147  pm-147          from lag 12 to lag  1   bondarenko trigger 0
0copy    61148  pm-148          from lag 12 to lag  1   bondarenko trigger 0
0copy    62147  sm-147          from lag 12 to lag  1   bondarenko trigger 0
0copy    62149  sm-149          from lag 12 to lag  1   bondarenko trigger 0
0copy    62150  sm-150          from lag 12 to lag  1   bondarenko trigger 0
0copy    62151  sm-151          from lag 12 to lag  1   bondarenko trigger 0
0copy    62152  sm-152          from lag 12 to lag  1   bondarenko trigger 0
0copy    63153  eu-153          from lag 12 to lag  1   bondarenko trigger 0
0copy    63154  eu-154          from lag 12 to lag  1   bondarenko trigger 0
0copy    63155  eu-155          from lag 12 to lag  1   bondarenko trigger 0
0copy    64155  gd-155          from lag 12 to lag  1   bondarenko trigger 0
0copy    92234  u-234 1043 sigc from lag 12 to lag  1   bondarenko trigger 0
0copy    92235  uranium-235     from lag 12 to lag  1   bondarenko trigger 0
0copy    92236  u-236 1163 sigc from lag 12 to lag  1   bondarenko trigger 0
0copy    92238  uranium-238     from lag 12 to lag  1   bondarenko trigger 0
0copy    93237  neptunium-237   from lag 12 to lag  1   bondarenko trigger 0
0copy    94238  pu-238 1050 sigc from lag 12 to lag  1   bondarenko trigger 0
0copy    94239  plutonium-239   from lag 12 to lag  1   bondarenko trigger 0
0copy    94240  plutonium-240   from lag 12 to lag  1   bondarenko trigger 0
0copy    94241  plutonium-241   from lag 12 to lag  1   bondarenko trigger 0
0copy    94242  plutonium-242   from lag 12 to lag  1   bondarenko trigger 0
0copy    95241  am-241 1056 sigc from lag 12 to lag  1   bondarenko trigger 0
0copy    95243  am-243 1057 218 from lag 12 to lag  1   bondarenko trigger 0
0copy    96244  curium-244      from lag 12 to lag  1   bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
      based on endf-b version 4 data with endf-b version 5 fission products
         compiled for nrc     1/27/89
           last updated       9/16/93
              l.m.petrie  -   ornl
      tape id                          4321      number of nuclides          66
      number of neutron groups           27      number of gamma groups       0
      first thermal group                15      logical unit                 1
                              table of contents
    1/v cross sections normalized to 1.0 at 0.0253 ev                    id   999
    1/v cross sections normalized to 1.0 at 0.0253 ev                    id    66
     hydrogen       endf/b-iv mat 1269/thrmf002   updated 10/13/89      id  1001
    b-10 1273 218ngp 04295 p-3 293k                                      id  5010
     boron-11       endf/b-iv mat 1160            updated 10/13/89      id  5011
```

oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	6
kr-83	mt=102,103,103,105,106,107	updated 10/13/89	id	36083
kr-85	mt= 102		id	36085
sr-90	mt=102	updated 10/13/89	id	38090
y-89	mt=102	updated 10/13/89	id	39089
zr-93	mt= 102		id	40093
zr-94	mt=102	updated 10/13/89	id	40094
zr-95	mt=102	updated 10/13/89	id	40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	40802
rb-94	mt=102	updated 10/13/89	id	41094
mo-95	mt=102	updated 10/13/89	id	42095
tc-99	mt=102	updated 10/13/89	id	43099
ru-101	mt=102	updated 10/13/89	id	44101
ru-106	mt=102	updated 10/13/89	id	44106
rh-103	mt=102	updated 10/13/89	id	45103
rh-105	mt= 102		id	45105
pd-105	mt=102	updated 10/13/89	id	46105
pd-108	mt=102	updated 10/13/89	id	46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id	47109
sb-124	mt=102	updated 10/13/89	id	51124
xe-131	mt=102,103,104,105,106	updated 10/13/89	id	54131
xe-132	mt=102,103,104,105,106	updated 10/13/89	id	54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id	54135
xe-136	mt= 102, 103, 104, 105, 107		id	54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id	55133
cs-134	mt=102	updated 10/13/89	id	55134
cs-135	mt= 102		id	55135
cs-137	mt=102	updated 10/13/89	id	55137
ba-136	mt=102	updated 10/13/89	id	56136
la-139	mt=102	updated 10/13/89	id	57139
ce-144	mt= 102		id	58144
pr-141	mt=102,103,104,105,106,107	updated 10/13/89	id	59141
pr-143	mt=102	updated 10/13/89	id	59143
nd-143	mt=102	updated 10/13/89	id	60143
nd-145	mt=102	updated 10/13/89	id	60145
nd-147	mt=102	updated 10/13/89	id	60147
pm-147	mt=102	updated 10/13/89	id	61147
pm-148	mt= 102		id	61148
sm-147	endf/b-v fission product	updated 10/13/89	id	62147
sm-149	mt=102,103,107	updated 10/13/89	id	62149
sm-150	mt=102	updated 10/13/89	id	62150
sm-151	mt=102,103,104,105,106,107	updated 10/13/89	id	62151
sm-152	mt=102,103,104,105,106,107	updated 10/13/89	id	62152
eu-153	mt=102,103,104,105,106,107	updated 10/13/89	id	63153
eu-154	mt=102,103,104,105,106,107	updated 10/13/89	id	63154
eu-155	mt=102,103,104,105,106,107	updated 10/13/89	id	63155
gd-155	mt=102	updated 10/13/89	id	64155
u-234 1043 sigo=5+4 nsx=lacs p-3 293k f-1/e-m(1.+5)			id	92234
uranium-235	endf/b-iv mat 1261	updated 10/13/89	id	92235
u-236 1163 sigo=5+4 nsx=lacs p-3 293k f-1/e-m(1.+5)			id	92236
uranium-238	endf/b-iv mat 1262	updated 10/13/89	id	92238
neptunium-237	endf/b-iv mat 1263	updated 10/13/89	id	93237
pu-238 1050 sigo=5+4 nsx=lacs p-3 293k f-1/e-m(1.+5)			id	94238
plutonium-239	endf/b-iv mat 1264	updated 10/13/89	id	94239
plutonium-240	endf/b-iv mat 1265	updated 10/13/89	id	94240
plutonium-241	endf/b-iv mat 1266	updated 10/13/89	id	94241
plutonium-242	endf/b-iv mat 1161	updated 10/13/89	id	94242
am-241 1056 sigo=5+4 nsx=lacs 218gp p-3 293k			id	95241
am-243 1057 218 gp wt f-1/e-m 090576 p3 293k			id	95243



```
  ss          cc          aa      aa  ll          ee
  ss          cc          aa      aa  ll          ee
  sssssssssss cc          aaaaaaaaaaa ll          eeeeeeee
   sssssssssss cc         aaaaaaaaaaa ll          eeeeeeee
         ss    cc         aa      aa  ll          ee
         ss    cc         aa      aa  ll          ee
  ss     ss    cc    cc   aa      aa  ll          ee
  sssssssssss  ccccccccccc aa      aa  lllllllllll eeeeeeeeeee
   sssssssss    ccccccccc  aa      aa  lllllllllll eeeeeeeeeee
```

```
*****************************************************************
*****************************************************************
*****************************************************************
*****                                                       *****
*****                                                       *****
*****            program verification information            *****
*****                                                       *****
*****            code system:  scale  version:  4.2         *****
*****                                                       *****
*****************************************************************
*****************************************************************
*****                                                       *****
*****                                                       *****
*****                                                       *****
*****                 program:  c0c002                      *****
*****                                                       *****
*****              creation date:  04/27/95                 *****
*****                                                       *****
*****                 library:  /neutronics/scale/exe       *****
*****                                                       *****
*****                                                       *****
*****  this is not a  scale  configuration controlled code  *****
*****                                                       *****
*****                 jobname:  davis                       *****
*****                                                       *****
*****  date of execution:  02/16/96                         *****
*****                                                       *****
*****  time of execution:  10:02:17                         *****
*****                                                       *****
*****                                                       *****
*****************************************************************
*****************************************************************
*****************************************************************
```

```
1
0      -1q array has      1 entries.
0       0q array has      9 entries.
0       1q array has     12 entries.
0select 65 nuclides from the master  library on logical  1
        0 nuclides from the working library on logical  2
        0 nuclides from the working library on logical  3
          to create the new working library on logical  4

       61 resonance calculations have been requested
        0 output option for anpx formatted cross section data
0the storage allocated for this case is 200000 words
0       2q array has     65 entries.
0       3q array has    915 entries.
0       4q array has     65 entries.
```

```
0 general information concerning cross section library
    tape identification number                4321
    number of nuclides on tape                  66
    number of neutron energy groups             27
    first thermal neutron energy group          15
    number of gamma energy groups                0
0   direct access unit number  9 requires 117 blocks of length  1484 words
- xsdrn tape  4321
                        scale 4.2 - 27 group neutron burnup library
                          based on endf-b version 4 data with endf-b version 5 fission products
                            compiled for nrc      1/27/89
                              last updated        9/16/93
                                l.m.petrie  -  ornl
0 nuclides from xsdrn tape
     1    1/v cross sections normalized to 1.0 at 0.0253 ev                                  999
     2    hydrogen        endf/b-iv mat 1269/thnm1002     updated 10/13/89                  1001
     3    b-10 1273 218ngp 042375 p-3 293k                                                  5010
     4    boron-11        endf/b-iv mat 1160              updated 10/13/89                  5011
     5    oxygen-16       endf/b-iv mat 1276              updated 10/13/89                  8016
     6    oxygen-16       endf/b-iv mat 1276              updated 10/13/89                     6
     7    kr-83           mt=102,103,108,105,106,107      updated 10/13/89                 36083
     8    kr-85             mt=  102                                                       36085
     9    sr-90           mt=102                          updated 10/13/89                 38090
    10     y-89           mt=102                          updated 10/13/89                 39089
    11    zr-93             mt=  102                                                       40093
    12    zr-94           mt=102                          updated 10/13/89                 40094
    13    zr-95           mt=102                          updated 10/13/89                 40095
    14    zircalloy       endf/b-iv mat 1284              updated 10/13/89                 40802
    15    nb-94           mt=102                          updated 10/13/89                 41094
    16    mo-95           mt=102                          updated 10/13/89                 42095
    17    tc-99           mt=102                          updated 10/13/89                 43099
    18    ru-101          mt=102                          updated 10/13/89                 44101
    19    ru-106          mt=102                          updated 10/13/89                 44106
    20    rh-103          mt=102                          updated 10/13/89                 45103
    21    rh-105            mt=  102                                                       45105
    22    pd-105          mt=102                          updated 10/13/89                 46105
    23    pd-108          mt=102                          updated 10/13/89                 46108
    24    silver-109      endf/b-iv mat 1139              updated 10/13/89                 47109
    25    sb-124          mt=102                          updated 10/13/89                 51124
    26    xe-131          mt=102,103,104,105,106          updated 10/13/89                 54131
    27    xe-132          mt=102,103,104,105,106          updated 10/13/89                 54132
    28    xenon-135       endf/b-iv mat 1294              updated 10/13/89                 54135
    29    xe-136            mt=  102,  103,  104,  105,  107                               54136
    30    cesium-133      endf/b-iv mat 1141              updated 10/13/89                 55133
    31    cs-134          mt=102                          updated 10/13/89                 55134
    32    cs-135            mt=  102                                                       55135
    33    cs-137          mt=102                          updated 10/13/89                 55137
    34    ba-136          mt=102                          updated 10/13/89                 56136
    35    la-139          mt=102                          updated 10/13/89                 57139
    36    ce-144            mt=  102                                                       58144
    37    pr-141          mt=102,103,104,105,106,107      updated 10/13/89                 59141
    38    pr-143          mt=102                          updated 10/13/89                 59143
    39    nd-143          mt=102                          updated 10/13/89                 60143
    40    nd-145          mt=102                          updated 10/13/89                 60145
    41    nd-147          mt=102                          updated 10/13/89                 60147
    42    pm-147          mt=102                          updated 10/13/89                 61147
    43    pm-148            mt=  102                                                       61148
    44    sm-147          endf/b-v fission product        updated 10/13/89                 62147
    45    sm-149          mt=102,103,107                  updated 10/13/89                 62149
    46    sm-150          mt=102                          updated 10/13/89                 62150
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    47    sm-151          mt=102,103,104,105,106,107    updated 10/13/89              62151
    48    sm-152          mt=102,103,104,105,106,107    updated 10/13/89              62152
    49    eu-153          mt=102,103,104,105,106,107    updated 10/13/89              63153
    50    eu-154          mt=102,103,104,105,106,107    updated 10/13/89              63154
    51    eu-155          mt=102,103,104,105,106,107    updated 10/13/89              63155
    52    gd-155          mt=102                        updated 10/13/89              64155
    53   u-234 1043 sigp=5+4 newxlacs p-3 295k f-1/e-m(1.+5)                          92234
    54    uranium-235     endf/b-iv mat 1261            updated 10/13/89              92235
    55   u-236 1163 sigp=5+4 newxlacs p-3 295k f-1/e-m(1.+5)                          92236
    56    uranium-238     endf/b-iv mat 1262            updated 10/13/89              92238
    57    neptunium-237   endf/b-iv mat 1263            updated 10/13/89              93237
    58   pu-238 1050 sigp=5+4 newxlacs p-3 295k f-1/e-m(1.+5)                          94238
    59    plutonium-239   endf/b-iv mat 1264            updated 10/13/89              94239
    60    plutonium-240   endf/b-iv mat 1265            updated 10/13/89              94240
    61    plutonium-241   endf/b-iv mat 1266            updated 10/13/89              94241
    62    plutonium-242   endf/b-iv mat 1161            updated 10/13/89              94242
    63   am-241 1056 sigp=5+4 newxlacs 218ngp p-3 295k                                 95241
    64   am-243 1057 218 gp wt f-1/e-m 090376 p3 295k                                  95243
    65    curium-244      endf/b-iv mat 1162            updated 10/13/89              96244
01/v cross sections normalized to 1.0 at 0.0253 ev                          999    temperature=  975.00
0 hydrogen      endf/b-iv mat 1269/thrm1002   updated 10/13/89             1001    temperature=  607.60
                thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042575 p-3 295k                                          5010    temperature=  607.60
                thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 boron-11      endf/b-iv mat 1160            updated 10/13/89             5011    temperature=  607.60
                thermal scattering matrix number  2 at a temperature of   550.00 was selected.
0 oxygen-16     endf/b-iv mat 1276            updated 10/13/89             8016    temperature=  975.00
0 oxygen-16     endf/b-iv mat 1276            updated 10/13/89                6    temperature=  607.60
0 kr-83         mt=102,103,103,105,106,107    updated 10/13/89            36083    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   82.202          temperature(kelvin)     =  975.000
0potential scatter sigma =    7.004         lumped nuclear density  = 1.4271768E-06
0spin factor (g)        =  4988.190         lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =   15.995          sigma(per absorber atom)= 1.1964859E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =  237.983          sigma(per absorber atom)= 1.3349052E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group      res abs       res fiss      res scat
  11    -2.10745E-03   .000000E+00  -2.665955E-03
  12     2.16545E-02   .000000E+00   9.892334E-03
  13    -4.67078E-01   .000000E+00  -1.406421E-01
  14     4.78296E-05   .000000E+00  -1.722596E-05
0excess resonance integrals
0               resolved
0absorption    1.4473E+02
 fission       .0000E+00
-  elapsed time    .00 min.
0 kr-85         mt=  102                                    36085    temperature=  975.00
0 sr-90         mt=102                updated 10/13/89      38090    temperature=  975.00
0  y-89         mt=102                updated 10/13/89      39089    temperature=  975.00
0resonance data for this nuclide
0mass number (a)        =   88.142          temperature(kelvin)     =  975.000
0potential scatter sigma =    3.644         lumped nuclear density  = 1.2988544E-05
0spin factor (g)        =   78.664          lump dimension (a-bar)  = 4.6812201E-01
0inner radius           = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
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0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.3783677E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.5378286E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   9      -3.386356E-06     .000000E+00    -2.525315E-04
  10      -7.546894E-05     .000000E+00    -2.128284E-04
0excess resonance integrals
0                resolved
0absorption      1.46396E-01
 fission          .00000E+00
- elapsed time    .00 min.
0 zr-93          mt= 102                                        40093    temperature=  975.00
0 zr-94          mt=102                  updated 10/13/89       40094    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   93.100          temperature(kelvin)      =   975.000
0potential scatter sigma =    3.779          lumped nuclear density   = 1.9589926E-05
0spin factor (g)         =  180.853          lump dimension (a-bar)   = 4.6812201E-01
0inner radius            = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 8.7175996E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.953              sigma(per absorber atom)= 9.7261230E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   8      -1.205871E-06     .000000E+00    -1.136245E-03
   9      -3.808849E-05     .000000E+00    -3.369180E-03
0excess resonance integrals
0                resolved
0absorption      3.43698E-02
 fission          .00000E+00
- elapsed time    .00 min.
0 zr-95          mt=102                  updated 10/13/89       40095    temperature=  975.00
0 zircalloy      endf/b-iv mat 1284      updated 10/13/89       40302    temperature=  650.00
0resonance data for this nuclide
0mass number (a)         =   90.436          temperature(kelvin)      =   650.000
0potential scatter sigma =    6.355          lumped nuclear density   = 4.2515602E-02
0spin factor (g)         =    1.079          lump dimension (a-bar)   = 5.4610002E-01
0inner radius            = 4.7878999E-01     dancoff correction (c)   = 5.0364637E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
   8      -1.780596E-03     .000000E+00    -1.286907E+00
   9      -5.855373E-02     .000000E+00    -2.695297E+00
  10      -6.959985E-02     .000000E+00    -1.601321E+00
  11      -1.883987E-01     .000000E+00    -7.920912E-01
0excess resonance integrals
0                resolved
0absorption      2.28539E-01
 fission          .00000E+00
- elapsed time    .02 min.
0 nb-94          mt=102                  updated 10/13/89       41094    temperature=  975.00
0resonance data for this nuclide
0mass number (a)         =   93.101          temperature(kelvin)      =   975.000
0potential scatter sigma =    3.779          lumped nuclear density   = 9.7086508E-12
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Ospin factor (g)          = 43808.801              lump dimension (a-bar)    = 4.6812201E-01
Oinner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1    =    15.995              sigma(per absorber atom)= 1.7586594E+10
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2    =   237.953              sigma(per absorber atom)= 1.9621155E+10
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup       res abs         res fiss        res scat
  13      1.043254E-02     .000000E+00    9.253223E-04
  14      9.836713E-03     .000000E+00   -4.064852E-04
Oexcess resonance integrals
0                  resolved
Oabsorption       9.15001E+01
 fission           .00000E+00
- elapsed time     .02 min.
0 mo-95          mt=102                    updated 10/13/89          42095     temperature=   975.00
Oresonance data for this nuclide
Omass number (a)          =    94.091              temperature(kelvin)       =   975.000
Opotential scatter sigma  =     3.806              lumped nuclear density    = 1.6657906E-05
Ospin factor (g)          =   607.724              lump dimension (a-bar)    = 4.6812201E-01
Oinner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1    =    15.995              sigma(per absorber atom)= 1.0512880E+04
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2    =   237.953              sigma(per absorber atom)= 1.1509958E+04
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup       res abs         res fiss        res scat
  10     -3.530957E-03     .000000E+00   -2.099522E-02
  11     -6.524231E-03     .000000E+00   -1.080905E-02
  12     -4.589763E+00     .000000E+00   -5.280679E+00
  13      1.575622E-04     .000000E+00   -2.129488E-05
Oexcess resonance integrals
0                  resolved
Oabsorption       9.75400E+01
 fission           .00000E+00
- elapsed time     .02 min.
0 tc-99          mt=102                    updated 10/13/89          43099     temperature=   975.00
Oresonance data for this nuclide
Omass number (a)          =    98.150              temperature(kelvin)       =   975.000
Opotential scatter sigma  =     6.000              lumped nuclear density    = 1.9160281E-05
Ospin factor (g)          =  4527.940              lump dimension (a-bar)    = 4.6812201E-01
Oinner radius             = .0000000E+00           dancoff correction (c)    = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1    =    15.995              sigma(per absorber atom)= 8.9121709E+03
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2    =   237.953              sigma(per absorber atom)= 9.9432041E+03
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup       res abs         res fiss        res scat
  11     -2.469531E-02     .000000E+00   -1.165742E-02
  12     -6.508102E-03     .000000E+00   -2.280359E-04
  13     -4.011463E-01     .000000E+00   -2.111810E-02
  14     -8.569925E+00     .000000E+00   -2.732188E-01
  15      1.070115E-02     .000000E+00   -5.387696E-04
  16      4.836025E-03     .000000E+00   -2.802101E-04
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  17      2.077464E-04     .000000E+00   -1.192373E-05
0excess resonance integrals
0                resolved
0absorption      3.234.60E+02
 fission          .00000E+00
- elapsed time    .03 min.
0 ru-101        mt=102                    updated 10/13/89          44101     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   100.089          temperature(kelvin)      =   975.000
0potential scatter sigma  =     3.965          lumped nuclear density   = 1.7388691E-05
0spin factor (g)          =  8785.290          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 9.8201582E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.0956234E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
  11      -3.647653E-02     .000000E+00   -3.684222E-03
  12      -1.412914E-01     .000000E+00   -3.547577E-02
  13      -4.671092E-01     .000000E+00   -1.257778E-02
  14       2.371029E-04     .000000E+00   -4.152284E-05
0excess resonance integrals
0                resolved
0absorption      7.923.85E+01
 fission          .00000E+00
- elapsed time    .03 min.
0 ru-106        mt=102                    updated 10/13/89          44106     temperature=  975.00
0 rh-103        mt=102                    updated 10/13/89          45103     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   102.021          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.408          lumped nuclear density   = 1.0503389E-05
0spin factor (g)          =      .500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.6249846E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.933          sigma(per absorber atom)= 1.8129760E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs          res fiss         res scat
   9       1.236941E-03     .000000E+00    1.880577E-03
  10      -4.028342E-03     .000000E+00   -5.558081E-03
  11      -2.105917E-02     .000000E+00   -1.854124E-02
  12      -3.399178E-04     .000000E+00   -2.380681E-05
  13       .000000E+00      .000000E+00    .000000E+00
  14       .000000E+00      .000000E+00    .000000E+00
  15       2.268889E-01     .000000E+00    3.244993E-03
  16       3.156197E+01     .000000E+00   -7.005092E-02
  17      -1.862040E+02     .000000E+00   -1.642171E-01
  18       8.690983E+01     .000000E+00    2.607519E-01
  19       1.145288E+01     .000000E+00   -1.386590E-03
  20       1.086406E+00     .000000E+00   -2.447915E-03
  21       2.165818E-01     .000000E+00    1.925102E-03
  22       2.583956E-01     .000000E+00    2.928526E-03
  23      -9.879520E-02     .000000E+00    1.798871E-03
0excess resonance integrals
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0                resolved
Oabsorption      1.14205E+03
 fission          .00000E+00
- elapsed time    .07 min.
0 rh-105          mf=  102                                                  45105    temperature=  975.00
0 pd-105       mt=102                          updated 10/13/89           46105    temperature=  975.00
Oresonance data for this nuclide
Omass number (a)          =   104.004          temperature(kelvin)      =  975.000
Opotential scatter sigma  =     4.069          lumped nuclear density   = 6.8504922E-06
Ospin factor (g)          = 15210.000          lump dimension (a-bar)   = 4.6812201E-01
Oinner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =    15.995          sigma(per absorber atom)= 2.4890299E+04
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2      =   237.953          sigma(per absorber atom)= 2.7769813E+04
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup       res abs          res fiss         res scat
  12      -5.988775E-02     .000000E+00   -1.660568E-03
  13      -3.455140E-02     .000000E+00   -1.063048E-03
  14       7.764513E-04     .000000E+00   -8.132564E-05
Oexcess resonance integrals
0                resolved
Oabsorption      6.12143E+01
 fission          .00000E+00
- elapsed time    .07 min.
0 pd-108       mt=102                          updated 10/13/89           46108    temperature=  975.00
Oresonance data for this nuclide
Omass number (a)          =   106.977          temperature(kelvin)      =  975.000
Opotential scatter sigma  =     4.146          lumped nuclear density   = 1.9254598E-06
Ospin factor (g)          = 21175.100          lump dimension (a-bar)   = 4.6812201E-01
Oinner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =    15.995          sigma(per absorber atom)= 8.8665180E+04
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2      =   237.953          sigma(per absorber atom)= 9.8945008E+04
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup       res abs          res fiss         res scat
  11       1.170138E-04     .000000E+00    3.531506E-04
  12      -1.744531E+00     .000000E+00   -1.284438E+00
  13       6.788671E-03     .000000E+00    1.857198E-03
  14       8.561140E-02     .000000E+00   -3.208624E-05
  15      -1.840957E-01     .000000E+00    8.083612E-05
  16       2.946577E-04     .000000E+00   -9.255992E-06
Oexcess resonance integrals
0                resolved
Oabsorption      2.11967E+02
 fission          .00000E+00
- elapsed time    .07 min.
0 silver-109   endf/b-iv mat 1139          updated 10/13/89           47109    temperature=  975.00
Oresonance data for this nuclide
Omass number (a)          =   107.969          temperature(kelvin)      =  975.000
Opotential scatter sigma  =     4.988          lumped nuclear density   = 1.3457269E-06
Ospin factor (g)          =  1441.870          lump dimension (a-bar)   = 4.6812201E-01
Oinner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =    15.995          sigma(per absorber atom)= 1.2689049E+05
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Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2    =   237.953              sigma(per absorber atom)= 1.4157022E+05
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup      res abs        res fiss       res scat
  10     -1.472962E-04    .000000E+00   -1.567339E-04
  11     -6.107400E-03    .000000E+00   -4.491020E-03
  12     -7.277893E-01    .000000E+00   -3.450912E-02
  13      7.669553E-01    .000000E+00    3.380737E-02
  14     -1.278652E+01    .000000E+00   -1.192197E+00
Oexcess resonance integrals
0              resolved
Oabsorption    1.38632E+03
 fission       .00000E+00
- elapsed time   .07 min.
0 sb-124      mt=102                    updated 10/13/89          51124    temperature=   975.00
0 xe-131      mt=102,103,104,105,106    updated 10/13/89          54131    temperature=   975.00
Oresonance data for this nuclide
Omass number (a)          =   129.781          temperature(kelvin)      =   975.000
Opotential scatter sigma  =     4.301          lumped nuclear density   = 8.7760827E-06
Ospin factor (g)          =   246.825          lump dimension (a-bar)   = 4.6812201E-01
Oinner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1    =    15.995              sigma(per absorber atom)= 1.9457393E+04
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2    =   237.953              sigma(per absorber atom)= 2.1708383E+04
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup      res abs        res fiss       res scat
   9     -2.868403E-06    .000000E+00   -2.640883E-05
  10     -1.938772E-04    .000000E+00   -1.666874E-04
  11     -2.365111E-03    .000000E+00   -1.785685E-03
  12     -4.517101E-02    .000000E+00   -4.207256E-03
  13     -7.038969E+01    .000000E+00   -1.650056E+02
  14      1.061624E-02    .000000E+00    1.486984E-02
Oexcess resonance integrals
0              resolved
Oabsorption    7.58385E+02
 fission       .00000E+00
- elapsed time   .08 min.
0 xe-132      mt=102,103,104,105,106    updated 10/13/89          54132    temperature=   975.00
Oresonance data for this nuclide
Omass number (a)          =   130.771          temperature(kelvin)      =   975.000
Opotential scatter sigma  =     4.301          lumped nuclear density   = 1.6494707E-05
Ospin factor (g)          =   675.899          lump dimension (a-bar)   = 4.6812201E-01
Oinner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1    =    15.995              sigma(per absorber atom)= 1.0852393E+04
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2    =   237.953              sigma(per absorber atom)= 1.1550043E+04
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup      res abs        res fiss       res scat
   9     -2.544256E-05    .000000E+00   -1.172795E-04
  10     -7.780082E-03    .000000E+00   -9.905657E-02
  11      3.338821E-08    .000000E+00   -9.229524E-07
Oexcess resonance integrals
```

```
0                resolved
0absorption      9.71131E-01
 fission          .00000E+00
- elapsed time    .08 min.
0 xenon-135      endf/b-iv mat 1254          updated 10/13/89          54135    temperature=  975.00
0 xe-136           mt=  102, 103, 104, 105, 107                       54136    temperature=  975.00
0 cesium-133     endf/b-iv mat 1141          updated 10/13/89          55133    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  131.764          temperature(kelvin)      =  975.000
0potential scatter sigma  =    7.100          lumped nuclear density   = 2.102062E-05
0spin factor (g)          =  374.437          lump dimension (a-bar)   = 4.681220E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 8.123436E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  238.051             sigma(per absorber atom)= 8.713451E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
   9     -5.815313E-05    .000000E+00   -3.912479E-04
  10     -2.895950E-03    .000000E+00   -5.542378E-03
  11     -1.080677E-01    .000000E+00   -1.890162E-01
  12     -1.675589E-01    .000000E+00   -2.331297E-02
  13     -2.787342E-01    .000000E+00   -1.516813E-02
  14     -1.213135E+01    .000000E+00   -5.310487E-01
  15      5.621247E-03    .000000E+00   -4.047216E-04
  16      2.777834E-03    .000000E+00   -2.215200E-04
  17      2.352213E-03    .000000E+00   -1.830883E-04
  18      2.215043E-03    .000000E+00   -1.679531E-04
  19      1.317405E-03    .000000E+00   -9.678893E-05
0excess resonance integrals
0                resolved
0absorption      3.51131E+02
 fission          .00000E+00
- elapsed time    .10 min.
0 cs-134         mt=102                      updated 10/13/89          55134    temperature=  975.00
0 cs-135           mt=  102                                           55135    temperature=  975.00
0 cs-137         mt=102                      updated 10/13/89          55137    temperature=  975.00
0 ba-136         mt=102                      updated 10/13/89          56136    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  134.737          temperature(kelvin)      =  975.000
0potential scatter sigma  =    4.835          lumped nuclear density   = 1.951250E-07
0spin factor (g)          = 1247.690          lump dimension (a-bar)   = 4.681220E-01
0inner radius             = .0000000E+00      dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 8.841925E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  237.953             sigma(per absorber atom)= 9.864831E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  10      1.097034E-06    .000000E+00    4.642062E-07
  11     -1.204376E-05    .000000E+00   -9.815700E-06
0excess resonance integrals
0                resolved
0absorption      1.38471E+00
 fission          .00000E+00
- elapsed time    .10 min.
```

```
0 la-139        mt=102                    updated 10/13/89          57139    temperature=  975.00
Oresonance data for this nuclide
Omass number (a)          =   137.713          temperature(kelvin)     =   975.000
Opotential scatter sigma  =     4.906          lumped nuclear density  = 2.0324025E-05
Ospin factor (g)          =   145.855          lump dimension (a-bar)  = 4.6812201E-01
Oinner radius             =  .0000000E+00      dancoff correction (c)  = 3.4269861E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =    15.995          sigma(per absorber atom)= 8.4018643E+03
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2      =   237.953          sigma(per absorber atom)= 9.3738604E+03
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup       res abs        res fiss       res scat
   9     -1.254866E-05    .000000E+00   -2.225172E-04
  10     -3.955710E-04    .000000E+00   -2.243895E-02
  11      .000000E+00     .000000E+00    .000000E+00
  12     -6.961611E-02    .000000E+00   -4.203025E-02
Oexcess resonance integrals
0                resolved
Oabsorption     8.05569E+00
 fission         .00000E+00
- elapsed time    .12 min.
0 ce-144         mt=  102                                                58144    temperature=  975.00
0 pr-141        mt=102,103,104,105,106,107   updated 10/13/89          59141    temperature=  975.00
Oresonance data for this nuclide
Omass number (a)          =   139.697          temperature(kelvin)     =   975.000
Opotential scatter sigma  =     4.953          lumped nuclear density  = 1.7598717E-05
Ospin factor (g)          =  1026.500          lump dimension (a-bar)  = 4.6812201E-01
Oinner radius             =  .0000000E+00      dancoff correction (c)  = 3.4269861E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =    15.995          sigma(per absorber atom)= 9.7029629E+03
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2      =   237.953          sigma(per absorber atom)= 1.0825481E+04
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup       res abs        res fiss       res scat
  10     -6.883339E-03    .000000E+00   -2.337946E-01
  11     -1.126897E-01    .000000E+00   -1.498327E+00
  12     -2.585426E-03    .000000E+00   -2.528515E-04
Oexcess resonance integrals
0                resolved
Oabsorption     1.20978E+01
 fission         .00000E+00
- elapsed time    .12 min.
0 pr-143        mt=102                    updated 10/13/89          59143    temperature=  975.00
0 nd-143        mt=102                    updated 10/13/89          60143    temperature=  975.00
Oresonance data for this nuclide
Omass number (a)          =   141.682          temperature(kelvin)     =   975.000
Opotential scatter sigma  =     5.000          lumped nuclear density  = 1.5975050E-05
Ospin factor (g)          =  1964.860          lump dimension (a-bar)  = 4.6812201E-01
Oinner radius             =  .0000000E+00      dancoff correction (c)  = 3.4269861E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =    15.995          sigma(per absorber atom)= 1.0729448E+04
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2      =   237.953          sigma(per absorber atom)= 1.1970719E+04
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
```

```
0group       res abs        res fiss       res scat
  10      -1.574946E-04    .000000E+00   -8.825005E-05
  11      -3.695361E-01    .000000E+00   -4.298528E+00
  12      -2.444570E-01    .000000E+00   -1.202315E-01
0excess resonance integrals
0                 resolved
0absorption       5.07642E+01
 fission           .00000E+00
- elapsed time     .12 min.
0 nd-145        mt=102                    updated 10/13/89          60145    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   143.668          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.047          lumped nuclear density   = 1.1734181E-05
0spin factor (g)          =  1007.250          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269861E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 1.4552352E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.983          sigma(per absorber atom)= 1.6235865E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  10      -4.781522E-03    .000000E+00   -7.507609E-02
  11      -7.203245E-02    .000000E+00   -2.180945E-01
  12      -1.733671E+00    .000000E+00   -1.090953E+01
  13       9.577878E-05    .000000E+00    2.044857E-04
  14      -1.591639E+00    .000000E+00   -4.185234E-02
  15       5.898307E-03    .000000E+00   -4.609054E-04
  16       1.326662E-03    .000000E+00   -1.451343E-04
  17       9.642444E-04    .000000E+00   -1.063907E-04
  18       8.539835E-04    .000000E+00   -9.314132E-05
  19       7.634269E-04    .000000E+00   -8.070523E-05
  20       2.839224E-05    .000000E+00   -2.919392E-06
0excess resonance integrals
0                 resolved
0absorption       2.05973E+02
 fission           .00000E+00
- elapsed time     .13 min.
0 nd-147        mt=102                    updated 10/13/89          60147    temperature=  975.00
0 pm-147        mt=102                    updated 10/13/89          61147    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 4.0223504E-06
0spin factor (g)          = 21589.500          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269861E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 4.2652715E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.983          sigma(per absorber atom)= 4.7369992E+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  12      -2.019285E-01    .000000E+00   -6.472971E-02
  13      -5.178917E-02    .000000E+00   -2.944189E-03
  14      -9.048184E+01    .000000E+00   -3.888611E+01
  15       4.127173E-02    .000000E+00    6.976340E-03
  16       1.697912E-02    .000000E+00    1.746667E-03
  17       1.369759E-02    .000000E+00    1.150427E-03
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  18      1.253775E-02     .000000E+00    9.649080E-04
  19      6.999401E-04     .000000E+00    5.068677E-05
0excess resonance integrals
0                resolved
0absorption      2.00495E+03
 fission          .00000E+00
- elapsed time    .13 min.
0 pm-148          mt=  102                                          61148    temperature=  975.00
0 sm-147        endf/b-v fission product      updated 10/13/89        62147    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   145.653          temperature(kelvin)      =  975.000
0potential scatter sigma  =     5.093          lumped nuclear density   = 1.4015466E-06
0spin factor (g)          =      .000          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995              sigma(per absorber atom)= 1.2183662E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  257.933              sigma(per absorber atom)= 1.3595167E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      2.691080E-01     .000000E+00    1.071708E+00
  12      8.990461E-01     .000000E+00   -1.596820E+00
  13     -3.912558E+00     .000000E+00   -2.295034E+00
  14     -4.358768E-01     .000000E+00   -5.141891E-03
  15      3.113323E-01     .000000E+00   -1.904650E-03
  16      7.287706E-03     .000000E+00   -3.738560E-04
  17      4.281466E-03     .000000E+00   -2.401682E-04
  18      3.510456E-03     .000000E+00   -1.997178E-04
  19      2.910619E-03     .000000E+00   -1.649500E-04
  20      8.435568E-04     .000000E+00   -4.628077E-05
0excess resonance integrals
0                resolved
0absorption      7.21750E+02
 fission          .00000E+00
- elapsed time    .15 min.
                          thermal scattering matrix number  3 at a temperature of    900.03 was selected.
0 sm-149        mt=102,103,107          updated 10/13/89          62149    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   147.638          temperature(kelvin)      =  975.000
0potential scatter sigma  =     3.250          lumped nuclear density   = 8.6958181E-08
0spin factor (g)          = 10407.900          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             = .0000000E+00       dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995              sigma(per absorber atom)= 1.9536990E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  257.933              sigma(per absorber atom)= 2.1908758E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  11      8.546890E-03     .000000E+00    3.071759E-02
  12     -5.533529E-02     .000000E+00   -1.820874E-01
  13      2.289289E-02     .000000E+00    2.796631E-03
  14      2.746277E-03     .000000E+00   -7.935149E-03
0excess resonance integrals
0                resolved
0absorption      8.04332E+02
 fission          .00000E+00
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```
- elapsed time    .15 min.
0 sm-150        mt=102                    updated 10/13/89          62150    temperature=  975.00
Oresonance data for this nuclide
Omass number (a)          =  148.629          temperature(kelvin)     =  975.000
Opotential scatter sigma  =    5.162          lumped nuclear density  = 4.1806816E-06
Ospin factor (g)          = 4376.420          lump dimension (a-bar)  = 4.6812201E-01
Oinner radius             = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =   15.995          sigma(per absorber atom)= 4.0844941E+04
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2      =  237.953          sigma(per absorber atom)= 4.5570219E+04
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup      res abs        res fiss       res scat
  10    -1.398363E-03   .000000E+00   -1.341212E-02
  11    -3.151566E-02   .000000E+00   -3.565074E-01
  12    -1.026808E-01   .000000E+00   -3.108027E-02
  13    -7.244654E+00   .000000E+00   -5.702447E+00
  14     1.065287E-04   .000000E+00   -6.390289E-05
Oexcess resonance integrals
0              resolved
Oabsorption   2.8664.9E+02
 fission       .00000E+00
- elapsed time    .15 min.
0 sm-151        mt=102,103,104,105,106,107    updated 10/13/89          62151    temperature=  975.00
Oresonance data for this nuclide
Omass number (a)          =  149.623          temperature(kelvin)     =  975.000
Opotential scatter sigma  =    5.185          lumped nuclear density  = 4.0190145E-07
Ospin factor (g)          = 75574.703         lump dimension (a-bar)  = 4.6812201E-01
Oinner radius             = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =   15.995          sigma(per absorber atom)= 4.2487953E+05
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2      =  237.953          sigma(per absorber atom)= 4.7403309E+05
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup      res abs        res fiss       res scat
  14    -2.313706E-01   .000000E+00   -2.198228E-02
  15     1.485611E+01   .000000E+00    7.515553E-02
  16    -2.182088E+01   .000000E+00   -6.201120E-02
  17     1.735828E+02   .000000E+00    8.269866E-01
  18    -3.207103E+02   .000000E+00   -1.784223E+00
  19     6.253944E+01   .000000E+00    3.867666E-01
  20     1.141187E+00   .000000E+00   -1.359821E-04
  21    -7.117673E-02   .000000E+00    1.244103E-02
  22     6.952596E-02   .000000E+00    3.838923E-03
  23    -1.091910E-02   .000000E+00    3.374031E-04
Oexcess resonance integrals
0              resolved
Oabsorption   2.0561.6E+03
 fission       .00000E+00
- elapsed time    .15 min.
0 sm-152        mt=102,103,104,105,106,107    updated 10/13/89          62152    temperature=  975.00
Oresonance data for this nuclide
Omass number (a)          =  150.615          temperature(kelvin)     =  975.000
Opotential scatter sigma  =    5.208          lumped nuclear density  = 2.0046550E-06
Ospin factor (g)          =  863.594          lump dimension (a-bar)  = 4.6812201E-01
Oinner radius             = .0000000E+00      dancoff correction (c)  = 3.4269261E-01
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 0the absorber will be treated by the nordheim integral method.
 0mass of moderator-1    =    15.995              sigma(per absorber atom)= 8.5181586E+04
 0moderator-1 will be treated by the nordheim integral method.
 0mass of moderator-2    =   237.953              sigma(per absorber atom)= 9.5036094E+04
 0moderator-2 will be treated by the nordheim integral method.
 0this resonance material will be treated as a 2-dimensional object.
 0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 0group        res abs         res fiss        res scat
    9       2.402706E-06     .000000E+00     1.158603E-04
   10      -1.613120E-03     .000000E+00    -2.505739E-02
   11      -2.328084E-02     .000000E+00    -8.863147E-02
   12      -1.561992E-01     .000000E+00    -4.954254E-01
   13       4.184015E-02     .000000E+00     1.017387E-01
   14      -1.368911E+02     .000000E+00    -2.642978E+02
 0excess resonance integrals
 0                 resolved
 0absorption      2.73423E+03
  fission          .00000E+00
 -  elapsed time    .17 min.
 0 eu-153        mt=102,103,104,105,106,107     updated 10/13/89              63153     temperature=   975.00
 0resonance data for this nuclide
 0mass number (a)          =   151.607              temperature(kelvin)       =   975.000
 0potential scatter sigma  =     9.731              lumped nuclear density    = 1.2054246E-06
 0spin factor (g)          =  12265.900             lump dimension (a-bar)    = 4.6812201E-01
 0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
 0the absorber will be treated by the nordheim integral method.
 0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.4165956E+05
 0moderator-1 will be treated by the nordheim integral method.
 0mass of moderator-2    =   237.953              sigma(per absorber atom)= 1.5804769E+05
 0moderator-2 will be treated by the nordheim integral method.
 0this resonance material will be treated as a 2-dimensional object.
 0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
 0group        res abs         res fiss        res scat
   12      -2.948301E-01     .000000E+00    -5.761086E-02
   13      -1.746831E-01     .000000E+00    -6.441064E-03
   14      -9.135323E-01     .000000E+00    -1.894943E-03
   15       1.268074E+00     .000000E+00    -4.252725E-02
   16      -3.300676E+00     .000000E+00     8.155593E-03
   17       1.505586E-01     .000000E+00    -3.437673E-03
   18       7.726851E-02     .000000E+00    -2.231214E-03
   19       5.055454E-02     .000000E+00    -1.541080E-03
   20      -1.253804E-01     .000000E+00    -1.274997E-03
 0excess resonance integrals
 0                 resolved
 0absorption      1.35389E+03
  fission          .00000E+00
 -  elapsed time    .17 min.
 0 eu-154        mt=102,103,104,105,106,107     updated 10/13/89              63154     temperature=   975.00
 0resonance data for this nuclide
 0mass number (a)          =   152.601              temperature(kelvin)       =   975.000
 0potential scatter sigma  =     9.731              lumped nuclear density    = 2.5216809E-07
 0spin factor (g)          =  19135.801             lump dimension (a-bar)    = 4.6812201E-01
 0inner radius             =  .0000000E+00          dancoff correction (c)    = 3.4269261E-01
 0the absorber will be treated by the nordheim integral method.
 0mass of moderator-1    =    15.995              sigma(per absorber atom)= 6.7716613E+05
 0moderator-1 will be treated by the nordheim integral method.
 0mass of moderator-2    =   237.953              sigma(per absorber atom)= 7.5550625E+05
 0moderator-2 will be treated by the nordheim integral method.
 0this resonance material will be treated as a 2-dimensional object.
 0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
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```
0group       res abs         res fiss        res scat
  12      -3.935354E-01     .000000E+00   -6.141107E-02
  13      -3.243814E-01     .000000E+00   -2.535959E-02
  14       3.137239E-01     .000000E+00    1.434408E-02
  15       1.216527E-01     .000000E+00    2.082218E-02
  16       7.156821E+00     .000000E+00    9.208896E-02
  17      -1.443276E+02     .000000E+00   -1.897852E+00
  18       1.134462E+02     .000000E+00    1.857145E+00
  19      -1.014757E+02     .000000E+00    1.187369E+00
0excess resonance integrals
0                  resolved
0absorption       2.136261E+03
 fission           .00000E+00
- elapsed time     .18 min.
0 u-235          mt=102,103,104,105,106,107    updated 10/13/89          63155    temperature=  975.00
0 gd-155         mt=102                        updated 10/13/89          64155    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   153.592          temperature(kelvin)      =   975.000
0potential scatter sigma  =     5.277          lumped nuclear density   = 2.182704E-09
0spin factor (g)          = 12700.100          lump dimension (a-bar)   = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 7.825307E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.953          sigma(per absorber atom)= 8.728371E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs         res fiss        res scat
  12      -1.439525E+00     .000000E+00   -1.839493E-01
  13       1.541064E+00     .000000E+00    1.984967E-01
  14       2.189140E-01     .000000E+00    9.804462E-03
  15      -3.353145E-01     .000000E+00   -1.141159E-04
  16       1.477358E+00     .000000E+00   -4.148867E-03
  17       1.568660E-01     .000000E+00   -1.479133E-03
  18       9.605134E-02     .000000E+00   -1.078060E-03
  19       6.295293E-02     .000000E+00   -8.026360E-04
  20       1.670897E-02     .000000E+00    1.627049E-04
  21        .000000E+00     .000000E+00     .000000E+00
  22        .000000E+00     .000000E+00     .000000E+00
  23        .000000E+00     .000000E+00     .000000E+00
  24        .000000E+00     .000000E+00     .000000E+00
  25      -2.127871E+03     .000000E+00   -1.622070E+00
  26      -5.205742E+03     .000000E+00    1.961503E+00
  27      -1.660003E+03     .000000E+00    7.392749E-01
0excess resonance integrals
0                  resolved
0absorption       3.970332E+04
 fission           .00000E+00
- elapsed time     .18 min.
0u-234 1043 sig=5+4 newlacs p-3 293k f-1/e-n(1.+5)                          92234    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   232.029          temperature(kelvin)      =   975.000
0potential scatter sigma  =    10.021          lumped nuclear density   = 4.468028E-06
0spin factor (g)          =  6948.450          lump dimension (a-bar)   = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =    15.995          sigma(per absorber atom)= 3.821812E+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =   237.985          sigma(per absorber atom)= 4.262546E+04
```

```
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -2.135940E-02     .000000E+00   -6.230421E-02
  12      -1.742367E-01     .000000E+00   -7.295490E-02
  13       7.760282E-04     .000000E+00   -6.472778E-04
  14      -1.712841E+01     .000000E+00   -2.805241E+00
0excess resonance integrals
0                 resolved
0absorption       5.83639E+02
 fission           .00000E+00
- elapsed time     .20 min.
0 uranium-235   endf/b-iv mat 1261          updated 10/13/89              92235    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   233.025          temperature(kelvin)      =  975.000
0potential scatter sigma  =    11.500          lumped nuclear density   = 4.0269271E-04
0spin factor (g)          = 15171.100          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 4.2404468E+02
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.049              sigma(per absorber atom)= 4.5507092E+02
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  12      -1.700832E+00   -1.059361E+00   -3.985436E-02
  13      -6.016437E+00   -2.996659E+00   -1.303385E-01
  14      -4.839319E+00   -2.977209E+00   -3.309245E-02
0excess resonance integrals
0                 resolved
0absorption       2.13451E+02
 fission          1.27037E+02
- elapsed time     .22 min.
0u-236 1163 sigo=544 newklacs p-3 293k f-1/e-m(1.+5)                            92236    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =   234.017          temperature(kelvin)      =  975.000
0potential scatter sigma  =    10.995          lumped nuclear density   = 5.5114171E-05
0spin factor (g)          =  6328.490          lump dimension (a-bar)   = 4.6812201E-01
0inner radius             =  .0000000E+00      dancoff correction (c)   = 3.4269261E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 3.0982900E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   237.954              sigma(per absorber atom)= 3.4561223E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs         res fiss        res scat
  11      -2.665879E-01     .000000E+00   -6.672736E-01
  12      -1.435917E+00     .000000E+00   -9.749925E-01
  13      -6.729545E-02     .000000E+00   -3.511906E-03
  14      -4.638329E+01     .000000E+00   -4.057908E+00
0excess resonance integrals
0                 resolved
0absorption       2.73775E+02
 fission           .00000E+00
- elapsed time     .22 min.
0 uranium-238   endf/b-iv mat 1262          updated 10/13/89              92238    temperature=  975.00
0resonance data for this nuclide
```

```
Omass number (a)          =  236.006          temperature(kelvin)      =  975.000
Opotential scatter sigma  =   10.599          lumped nuclear density   = 2.1827353E-02
Ospin factor (g)          =  666.527          lump dimension (a-bar)   = 4.6812201E-01
Oinner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =   15.995          sigma(per absorber atom)= 7.8231969E+00
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2      =  235.041          sigma(per absorber atom)= 3.3684471E-01
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup       res abs         res fiss        res scat
   9     -3.951561E-02    .000000E+00   -4.039221E-01
  10     -1.024608E+00   -1.744971E-05  -6.475117E+00
  11     -9.704499E+00    .000000E+00   -2.689068E+01
  12     -4.304145E+01    .000000E+00   -4.998128E+01
  13     -5.400749E+01    .000000E+00   -1.768951E+01
  14     -1.044879E+02    .000000E+00   -6.059095E+00
Oexcess resonance integrals
0                 resolved
Oabsorption      1.8046/E+01
 fission         5.0405E-04
- elapsed time     .23 min.
0 neptunium-237  endf/b-iv mat 1263          updated 10/13/89          93237    temperature=   975.00
Oresonance data for this nuclide
Omass number (a)          =  235.012          temperature(kelvin)      =  975.000
Opotential scatter sigma  =   10.500          lumped nuclear density   = 3.7305724E-06
Ospin factor (g)          = 10100.800         lump dimension (a-bar)   = 4.6812201E-01
Oinner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =   15.995          sigma(per absorber atom)= 4.5773051E+04
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2      =  238.051          sigma(per absorber atom)= 4.9097598E+04
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup       res abs         res fiss        res scat
  11     -6.374864E-02   -2.167091E-06  -7.428924E-03
  12      1.778590E-02   -1.164552E-04   6.408805E-03
  13     -5.210491E-02    8.608940E-05  -2.513370E-03
  14     -1.046165E-01   -1.266708E-05  -1.750064E-03
Oexcess resonance integrals
0                 resolved
Oabsorption      2.9295/E+02
 fission         1.3853/E-01
- elapsed time     .27 min.
Opu-238 1050 sigo=5+4 newklacs p-3 293k f-1/e-w(1.+5)                        94238    temperature=   975.00
Oresonance data for this nuclide
Omass number (a)          =  236.167          temperature(kelvin)      =  975.000
Opotential scatter sigma  =   10.890          lumped nuclear density   = 5.3452993E-07
Ospin factor (g)          = 13130.600         lump dimension (a-bar)   = 4.6812201E-01
Oinner radius             = .0000000E+00      dancoff correction (c)   = 3.4269261E-01
Othe absorber will be treated by the nordheim integral method.
Omass of moderator-1      =   15.995          sigma(per absorber atom)= 3.1945766E+05
Omoderator-1 will be treated by the nordheim integral method.
Omass of moderator-2      =  238.051          sigma(per absorber atom)= 3.4266022E+05
Omoderator-2 will be treated by the nordheim integral method.
Othis resonance material will be treated as a 2-dimensional object.
Ovolume fraction of lump in cell used to account for spatial self-shielding=1.00000
Ogroup       res abs         res fiss        res scat
```

```
  11      -3.282632E-03  -5.090203E-04  -3.151380E-03
  12      -2.240102E-03  -2.553125E-04  -1.062740E-03
  13       3.933082E-01   7.479770E-02  -1.106841E-02
  14      -3.827046E-01  -6.996343E-02   8.539104E-03
0excess resonance integrals
0                resolved
0absorption      8.25191E+01
 fission         9.08318E+00
- elapsed time    .27 min.
0 plutonium-239  endf/b-iv mat 1264          updated 10/13/89          9423g    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  236.999          temperature(kelvin)     =  975.000
0potential scatter sigma  =   10.200          lumped nuclear density  = 1.077408E-04
0spin factor (g)          =  6435.710         lump dimension (a-bar)  = 4.681220E-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995          sigma(per absorber atom)= 1.584911OE+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  238.051          sigma(per absorber atom)= 1.700026E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss       res scat
  11      -2.247174E-01  -9.051856E-02  -6.875905E-02
  12      -1.989344E+00  -7.468539E-01  -2.615587E-01
  13      -6.506670E+00  -3.828007E+00  -9.953720E-02
  14      -2.074125E+00  -1.108918E+00  -1.838425E-02
0excess resonance integrals
0                resolved
0absorption      3.06743E+02
 fission         1.72348E+02
- elapsed time    .28 min.
0 plutonium-240  endf/b-iv mat 1265          updated 10/13/89          9424O    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  237.992          temperature(kelvin)     =  975.000
0potential scatter sigma  =   10.599          lumped nuclear density  = 2.097302E-05
0spin factor (g)          =  669.244          lump dimension (a-bar)  = 4.681220E-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.426926E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1      =   15.995          sigma(per absorber atom)= 8.141872E+03
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2      =  238.051          sigma(per absorber atom)= 8.733256E+03
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group        res abs        res fiss       res scat
   9      -5.648960E-05  -1.690455E-06  -2.566680E-04
  10      -5.007082E-05  -3.095440E-04  -2.286355E-02
  11      -1.592344E-01  -9.211631E-04  -2.116978E-01
  12      -2.199089E+00  -1.200747E-02  -2.108182E+00
  13      -2.726513E-01  -1.671806E-03  -1.987130E-02
  14       .000000E+00    .000000E+00    .000000E+00
  15       1.752440E-02   3.306638E-06   3.407707E-03
  16       2.825561E+00   5.392708E-04   3.514705E-01
  17       4.313114E+02   8.231768E-02   3.839495E+01
  18      -8.231488E+03  -1.571016E+00  -6.492285E+02
  19       5.877919E+02   1.121827E-01   4.667348E+01
  20      -9.384860E+01  -1.791142E-02   1.798124E+00
0excess resonance integrals
0                resolved
```

```
0absorption      4.49037E+03
 fission         1.86623E+00
- elapsed time    .30 min.
0 plutonium-241  endf/b-iv mat 1266          updated 10/13/89          9241     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  238.978          temperature(kelvin)     =  975.000
0potential scatter sigma  =   10.959          lumped nuclear density  = 1.138080E-05
0spin factor (g)          = 16402.100         lump dimension (a-bar)  = 4.681220IE-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.426926IE-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 1.500418SE+04
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  238.051             sigma(per absorber atom)= 1.609896IE+04
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group      res abs        res fiss       res scat
  12     -3.737381E-03   -3.810023E-03   5.682180E-04
  13     -7.564958E-01   -5.802743E-01   -2.221067E-02
  14     -7.322109E-01   -5.134649E-01   -1.796259E-03
  15      1.786078E-02    1.600555E-02   -4.640525E-04
0excess resonance integrals
0                resolved
0absorption      5.07453E+02
 fission         4.25525E+02
- elapsed time    .32 min.
0 plutonium-242  endf/b-iv mat 1161          updated 10/13/89          9242     temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  240.145          temperature(kelvin)     =  975.000
0potential scatter sigma  =   10.694          lumped nuclear density  = 1.279521QE-06
0spin factor (g)          = 6606.710          lump dimension (a-bar)  = 4.681220IE-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.426926IE-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1   =   15.995             sigma(per absorber atom)= 1.334558BE+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2   =  238.051             sigma(per absorber atom)= 1.431489BE+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group      res abs        res fiss       res scat
  11     -3.405954E-03    .000000E+00   -9.325526E-03
  12     -7.254744E-02    .000000E+00   -1.407043E-01
  13     -1.297766E-04    .000000E+00    2.430201E-06
  14      8.128826E-02    .000000E+00    1.520301E-02
  15     -2.541045E+01    .000000E+00   -2.064759E+00
  16      4.029600E-02    .000000E+00   -3.450822E-03
  17      1.550384E-02    .000000E+00   -1.848193E-03
  18      1.112556E-02    .000000E+00   -1.430695E-03
0excess resonance integrals
0                resolved
0absorption      1.09547E+03
 fission          .0000E+00
- elapsed time    .32 min.
0am-241 1056 sigp=5+4 res=klacs 218ngp p-3 298k                            95241    temperature=  975.00
0resonance data for this nuclide
0mass number (a)          =  258.950          temperature(kelvin)     =  975.000
0potential scatter sigma  =    9.511          lumped nuclear density  = 3.405669QE-07
0spin factor (g)          = 82058.203         lump dimension (a-bar)  = 4.681220IE-01
0inner radius             = .0000000E+00      dancoff correction (c)  = 3.426926IE-01
0the absorber will be treated by the nordheim integral method.
```

```
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 5.013982E+05
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 5.378153E+05
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  13      4.867330E-01    1.209541E-02    4.627123E-03
  14     -4.587215E-01   -1.130258E-02   -5.073809E-03
0excess resonance integrals
0                resolved
0absorption     1.95433E+02
 fission        1.07581E+00
-  elapsed time    .32 min.
0am-243 1057 218 gp wt f-1/e-m 090376 pi 295k                          95243     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   240.940          temperature(kelvin)     =   975.000
0potential scatter sigma  =     9.511          lumped nuclear density  = 1.181276E-07
0spin factor (g)          =  8052.602          lump dimension (a-bar)  = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)  = 3.426986E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.445521E+06
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.550443E+06
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  13     -7.920427E-03    .000000E+00    4.008657E-04
  14      1.597974E-02    .000000E+00    1.415215E-04
0excess resonance integrals
0                resolved
0absorption     1.60142E+02
 fission         .00000E+00
-  elapsed time    .32 min.
0 curium-244     endf/b-iv mat 1162          updated 10/13/89          95244     temperature=   975.00
0resonance data for this nuclide
0mass number (a)          =   242.133          temperature(kelvin)     =   975.000
0potential scatter sigma  =    10.320          lumped nuclear density  = 1.129928E-08
0spin factor (g)          =  5251.150          lump dimension (a-bar)  = 4.681220E-01
0inner radius             =  .0000000E+00      dancoff correction (c)  = 3.426986E-01
0the absorber will be treated by the nordheim integral method.
0mass of moderator-1    =    15.995              sigma(per absorber atom)= 1.511156E+07
0moderator-1 will be treated by the nordheim integral method.
0mass of moderator-2    =   238.051              sigma(per absorber atom)= 1.620914E+07
0moderator-2 will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group       res abs        res fiss       res scat
  11      2.241775E-04    6.144474E-06    2.592307E-04
  12      5.799049E-04    2.804284E-05    9.876156E-05
  13      2.536457E-03    1.259993E-04    7.055791E-04
  14      2.975255E-02    1.780067E-03    5.875189E-04
0excess resonance integrals
0                resolved
0absorption     6.13835E+02
 fission        3.54181E+01
-  elapsed time    .33 min.
-  elapsed time    .33 min.
1     this xsdrn working tape was created 02/16/96 at 10:02:17
```

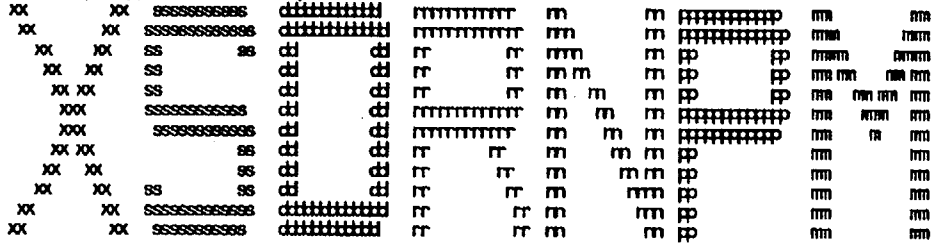
the title of the parent case is as follows
scale 4.2 - 27 group neutron burnup library
based on endf-b version 4 data with endf-b version 5 fission products
compiled for nrc 1/27/89

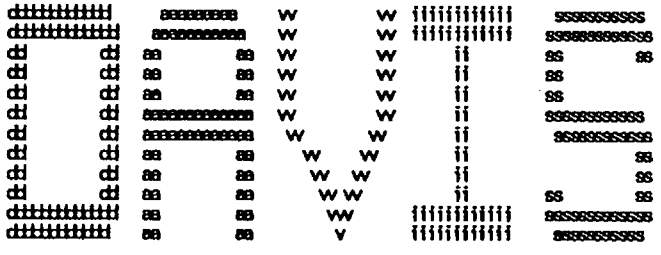
tape id	4321	number of nuclides	65
number of neutron groups	27	number of gamma groups	0
first thermal group	15	logical unit	4

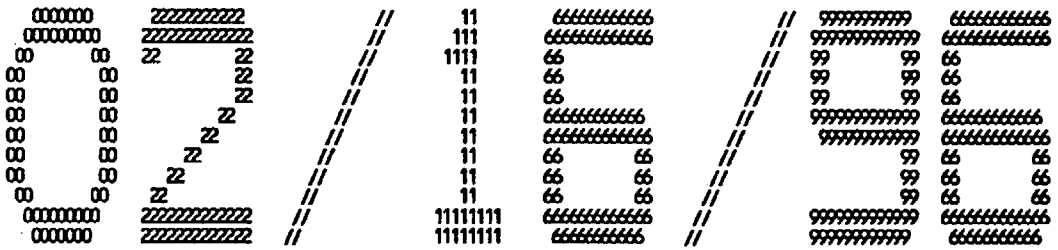
table of contents

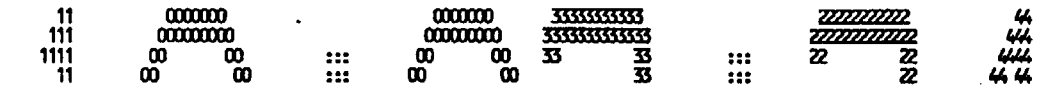
1/v cross sections normalized to 1.0 at 0.0253 ev			id	999
hydrogen	endf/b-iv mat 1269/thrml002	updated 10/13/89	id	1001
b-10 1273 218ngp 042375 p-3 293k			id	5010
boron-11	endf/b-iv mat 1160	updated 10/13/89	id	5011
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	8016
oxygen-16	endf/b-iv mat 1276	updated 10/13/89	id	6
kr-83	mt=102,103,103,105,106,107	updated 10/13/89	id	36083
kr-85	mt= 102		id	36085
sr-90	mt=102	updated 10/13/89	id	38090
y-89	mt=102	updated 10/13/89	id	39089
zr-93	mt= 102		id	40093
zr-94	mt=102	updated 10/13/89	id	40094
zr-95	mt=102	updated 10/13/89	id	40095
zircalloy	endf/b-iv mat 1284	updated 10/13/89	id	40302
nb-94	mt=102	updated 10/13/89	id	41094
mo-95	mt=102	updated 10/13/89	id	42095
tc-99	mt=102	updated 10/13/89	id	43099
ru-101	mt=102	updated 10/13/89	id	44101
ru-106	mt=102	updated 10/13/89	id	44106
rh-103	mt=102	updated 10/13/89	id	45103
rh-105	mt= 102		id	45105
pd-105	mt=102	updated 10/13/89	id	46105
pd-108	mt=102	updated 10/13/89	id	46108
silver-109	endf/b-iv mat 1139	updated 10/13/89	id	47109
sb-124	mt=102	updated 10/13/89	id	51124
xe-131	mt=102,103,104,105,106	updated 10/13/89	id	54131
xe-132	mt=102,103,104,105,106	updated 10/13/89	id	54132
xenon-135	endf/b-iv mat 1294	updated 10/13/89	id	54135
xe-136	mt= 102, 103, 104, 105, 107		id	54136
cesium-133	endf/b-iv mat 1141	updated 10/13/89	id	55133
cs-134	mt=102	updated 10/13/89	id	55134
cs-135	mt= 102		id	55135
cs-137	mt=102	updated 10/13/89	id	55137
ba-136	mt=102	updated 10/13/89	id	56136
la-139	mt=102	updated 10/13/89	id	57139
ce-144	mt= 102		id	58144
pr-141	mt=102,103,104,105,106,107	updated 10/13/89	id	59141
pr-143	mt=102	updated 10/13/89	id	59143
nd-143	mt=102	updated 10/13/89	id	60143
nd-145	mt=102	updated 10/13/89	id	60145
nd-147	mt=102	updated 10/13/89	id	60147
pm-147	mt=102	updated 10/13/89	id	61147
pm-148	mt= 102		id	61148
sm-147	endf/b-v fission product	updated 10/13/89	id	62147
sm-149	mt=102,105,107	updated 10/13/89	id	62149
sm-150	mt=102	updated 10/13/89	id	62150
sm-151	mt=102,103,104,105,106,107	updated 10/13/89	id	62151
sm-152	mt=102,103,104,105,106,107	updated 10/13/89	id	62152
eu-153	mt=102,103,104,105,106,107	updated 10/13/89	id	63153
eu-154	mt=102,103,104,105,106,107	updated 10/13/89	id	63154
eu-155	mt=102,103,104,105,106,107	updated 10/13/89	id	63155
gd-155	mt=102	updated 10/13/89	id	64155

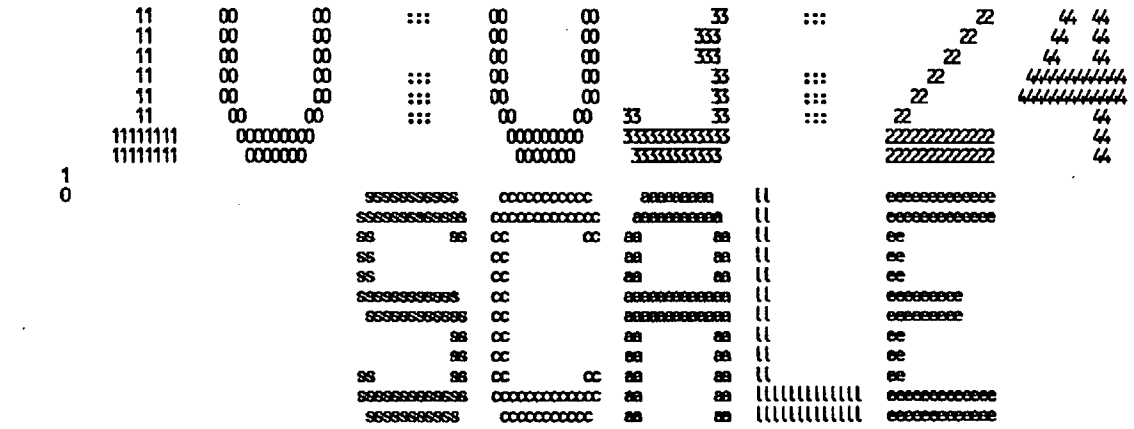
```
      u-234 1043 sigp=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id   9234
       uranium-235   endf/b-iv mat 1261          updated 10/13/89            id   9235
      u-236 1163 sigp=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    id   9236
       uranium-238   endf/b-iv mat 1262          updated 10/13/89            id   9238
       neptunium-237 endf/b-iv mat 1263          updated 10/13/89            id   9237
      pu-238 1050 sigp=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                   id   9238
       plutonium-239 endf/b-iv mat 1264          updated 10/13/89            id   9239
       plutonium-240 endf/b-iv mat 1265          updated 10/13/89            id   9240
       plutonium-241 endf/b-iv mat 1266          updated 10/13/89            id   9241
       plutonium-242 endf/b-iv mat 1161          updated 10/13/89            id   9242
      am-241 1056 sigp=5+4 newxlacs 218ngp p-3 293k                          id   9241
      am-243 1057 218 gp wt f-1/e-m 090876 p3 293k                           id   9243
       curium-244    endf/b-iv mat 1162          updated 10/13/89            id   9244
0      tape copy used      0 i/o's, and took     .00 seconds
```



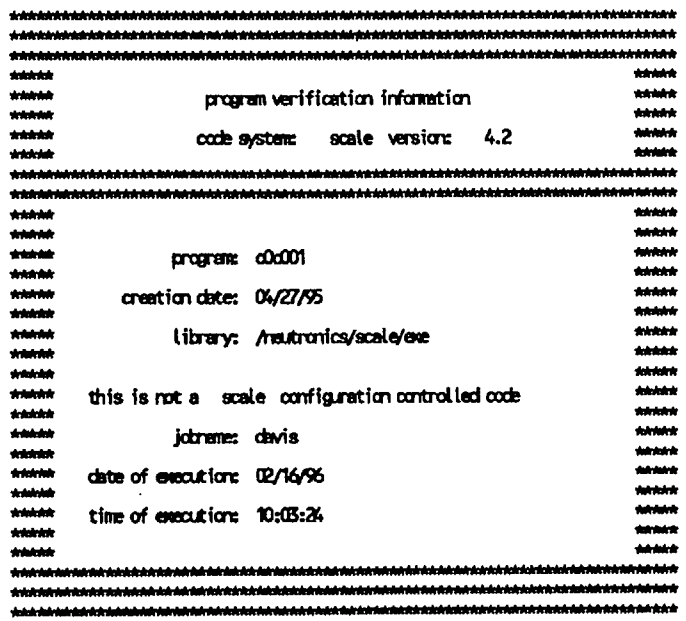








INFORMATION ONLY



880 d, sas2h: babcock wilcox 15x15, 3.00w%, 20gd/mtu burn high temp

-1q array has 1 entries.

```
0         1q array has      15 entries.
0         2q array has      10 entries.
0         3q array has      12 entries.
0         4q array has       9 entries.
0         5q array has      12 entries.
0direct access unit   9 requires    12 blocks of length  704 for cross section mixing.
1                          880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0general problem description data block
0                                       general problem data

  ige  1/2/3 = plane/cylinder/sphere       2       isn  quadrature order                   8
  izm  number of zones                     4       isct order of scattering                3
  im   number of spacial intervals        24       ievt 0/1/2/3/4/5/6=q/k/alpha/c/z/r/h    1
  ibl  0/1/2/3 = vacuum/refl/per/white     1       iim  inner iteration maximum           20
  ibr  right boundary condition            3       iom  outer iteration maximum           25
  mxx  number of mixtures                  3       iclc -1/0/n--flat res/sn/opt            0
  ms   mixing table length                65       ith  0/1 = forward/adjoint              0
  igm  number of energy groups            27       iflu not used(always wgtd)              0
  mng  number of neutron groups           27       iprt -2/-1/0/n=mixture xsec print      -2
  ngg  number of gamma groups              0       idl  0/1/2/3=no/prt nd/pch n/both      53
  iftg number of first thermal group      15       ipbt -1/0/1=none/fine/all bal. prt      0
0                                        special options

  ifg  0/1 = none/weighting calculation    1       ipn  0/1/2 diff. coef. param            0
  iqm  volumetric sources (0/n=no/yes)     0       idfm 0/1 = none/density factors 38*     1
  ipm  boundary sources (0/n=no/yes)       0       iaz  0/n = none/n activities by zone    0
  ifn  0/1/2 = input 33*/34*/use last     53       iai  0/1=none/activities by interval    0
  itmx maximum time (minutes)             10       ifct 0/1=no/yes upscatter scaling       0
  idt1 0/1/2/3=no/xsect/srce/flux--out     0       ipvt 0/1/2=no/k/alpha parametric srch   0
  isx  broad group fluxes                  0       isen outer iteration acceleration       0
  ibln activity data unit                  0       rbnd band rebaln parameter              0
  jbkl 0/1/2 buckling geometry             0
0                                         weighting data (ifg=1)

  icon -1/0/1=cell/zone/region weight     -1       ihtf total xsect psn in brd gp tables   3
  igmf number of broad groups             27       ndsf psn g-g or file number             4
  itp  0/10/20/30/40 0/c/e/ac/a            0       nusf table length or max order          4
  ipp  -2/-1/0/n=wgted xsect print        -2       mscm extra 1-d x-sect positions         0
  iap  -1/n anisn xsect print             -1
0                                         floating point parameters

  eps  overall convergence          1.00000E-04    dy   cyl/pla ht for buckling     .00000E+00
  ptc  point convergence            1.00000E-04    dz   plane depth for buckling    .00000E+00
  xnf  normalization factor         1.00000E+00    vsc  void streaming correction   .00000E+00
  ev   eigenvalue guess              .00000E+00    pv   ipvt=1/2--k/alpha          1.00000E+00
  evm  eigenvalue modifier           .00000E+00    eql  ev change eps for search   1.00000E-03
  bf   buckling factor=1.420892     1.42089E+00    xnpm new param mod for search   7.50000E-01
      this case will require        2535 locations for mixing
      this case has been allocated 200000 locations
1                           880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0         13q array has     65 entries.
0         14q array has     65 entries.
0         15q array has     65 entries.
0                                         data block 2 (mixing table, etc.)
0     nuclides       cccc                                    mixing table                              extra
       on tape   identification                      mixture   component    atom density              xsect id's
     1     999                                           1        92235      4.02698E-04
     2    1001                                           1        92234      4.46808E-06
     3    5010                                           1        92236      5.51142E-05
     4    5011                                           1        92238      2.18274E-02
```

5	8016	1	8016	4.55359E-02
6	6	3	6	2.09710E-02
7	36083	1	36083	1.42718E-06
8	36085	1	36085	6.86405E-07
9	38090	1	38090	1.56266E-05
10	39089	1	39089	1.23886E-05
11	40093	1	42095	1.65579E-05
12	40094	1	40093	1.24626E-05
13	40095	1	40094	1.95879E-05
14	40802	1	40095	1.99661E-06
15	41094	1	41094	9.70966E-12
16	42095	1	43099	1.91603E-05
17	43099	1	45105	1.05084E-05
18	44101	1	45105	2.23664E-08
19	44106	1	44101	1.73887E-05
20	45105	1	44106	2.62773E-06
21	45106	1	46105	6.86049E-06
22	46106	1	46108	1.92546E-06
23	46108	1	47109	1.34572E-06
24	47109	1	51124	3.04849E-10
25	51124	1	54131	8.77608E-06
26	54131	1	54132	1.64947E-05
27	54132	1	54135	6.67715E-09
28	54135	1	54136	3.30816E-05
29	54136	1	55134	9.57401E-07
30	55133	1	55135	1.05022E-05
31	55134	1	55137	2.05235E-05
32	55135	1	56136	1.93125E-07
33	55137	1	57139	2.03240E-05
34	56136	1	59141	1.75987E-05
35	57139	1	59143	3.71186E-07
36	58144	1	58144	6.70562E-06
37	59141	1	60143	1.59150E-05
38	59143	1	60145	1.17342E-05
39	60143	1	61147	4.02235E-06
40	60145	1	61148	1.17777E-08
41	60147	1	60147	1.29916E-07
42	61147	1	62147	1.40155E-06
43	61148	1	62149	8.69582E-08
44	62147	1	62150	4.18068E-06
45	62149	1	62151	4.01901E-07
46	62150	1	62152	2.00466E-06
47	62151	1	64155	2.18270E-09
48	62152	1	63153	1.20542E-06
49	63153	1	63154	2.52168E-07
50	63154	1	63155	1.30440E-07
51	63155	2	40802	4.25156E-02
52	64155	3	1001	4.19420E-02
53	92234	3	5010	3.81515E-06
54	92235	3	5011	1.54884E-05
55	92236	1	55133	2.10206E-05
56	92238	1	95237	3.73057E-06
57	95237	1	94238	5.34530E-07
58	94238	1	94239	1.07741E-04
59	94239	1	94240	2.09730E-05
60	94240	1	94241	1.13808E-05
61	94241	1	94242	1.27952E-06
62	94242	1	95241	3.40567E-07
63	95241	1	95243	1.18128E-07
64	95243	1	95244	1.12999E-08

65 96244 1 999 1.00000E-20
- elapsed time .00 min.
0 21649 locations will be used
0 35q array has 25 entries.
0 36q array has 24 entries.
0 38q array has 24 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gad/mtu burn high temp
neutron group parameters

0 gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.93147E-01	4.60581E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.89737E+09	2	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	3	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	4	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	5	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	6	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	7	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	8	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	9	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	10	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	11	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	12	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	13	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	14	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	15	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	16	0	16	1.00000E+00	
17	1.29999E+00	1.58557E+01	1.52545E+06	17	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	18	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	19	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	20	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17977E+05	21	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	22	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86653E+05	23	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	24	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	25	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	26	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	27	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gad/mtu burn high temp

0	mixture by zone	order p(l) by zone	activity table matl no.	reaction	quadrature constants weights	directions	refl direc	wt x cos
1	1	3			0	-2.79004E-01	3	0
2	1	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	2	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	3	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28659E-02
7					5.55953E-02	2.31301E-01	6	1.28659E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22844E-02	-8.21784E-01	15	-4.29665E-02
11					5.22844E-02	-6.01588E-01	14	-3.14537E-02
12					5.22844E-02	-2.20196E-01	13	-1.15128E-02
13					5.22844E-02	2.20196E-01	12	1.15128E-02
14					5.22844E-02	6.01588E-01	11	3.14537E-02
15					5.22844E-02	8.21784E-01	10	4.29665E-02

16				0	-9.83052E-01	24	0
17				4.53365E-02	-9.64143E-01	24	-4.37099E-02
18				4.53365E-02	-8.17361E-01	23	-3.70655E-02
19				4.53365E-02	-5.46143E-01	22	-2.47597E-02
20				4.53365E-02	-1.91780E-01	21	-8.69444E-03
21				4.53365E-02	1.91780E-01	20	8.69444E-03
22				4.53365E-02	5.46143E-01	19	2.47597E-02
23				4.53365E-02	8.17361E-01	18	3.70655E-02
24				4.53365E-02	9.64143E-01	17	4.37099E-02

Oconstants for p(3) scattering

Oangl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83236E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83236E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83236E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.25714E-01	-7.43201E-01	-6.68028E-02
6	-2.31301E-01	4.52016E-01	-2.25713E-01	-3.07844E-01	1.61276E-01
7	2.31301E-01	4.52016E-01	-2.25713E-01	3.07844E-01	-1.61276E-01
8	5.58410E-01	4.52016E-01	2.25713E-01	7.43201E-01	6.68028E-02
9	-8.50774E-01	-8.57235E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57235E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57235E-02	.00000E+00	-1.40830E-01	3.44244E-01
12	-2.20196E-01	-8.57235E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57235E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57235E-02	.00000E+00	1.40830E-01	-3.44245E-01
15	8.21784E-01	-8.57235E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.83052E-01	-4.49528E-01	8.36885E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20262E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20262E-01	2.78178E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76824E-02	4.17234E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76824E-02	-4.17234E-01
22	5.46143E-01	-4.49528E-01	-3.20262E-01	-2.78178E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20262E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.29551E-02	1	0	2.10906E-03	1.00000E+00	0	
2	2.59102E-02	4.33406E-02	1	1.62798E-01	9.49518E-03	1.00000E+00	0	
3	6.07710E-02	8.75100E-02	1	3.81835E-01	2.94045E-02	1.00000E+00	0	
4	1.14249E-01	1.74155E-01	1	7.17848E-01	1.31104E-01	1.00000E+00	0	
5	2.34061E-01	2.93967E-01	1	1.47065E+00	2.21259E-01	1.00000E+00		
6	3.53873E-01	3.80612E-01	1	2.22545E+00	1.27890E-01	1.00000E+00		
7	4.07351E-01	4.24781E-01	1	2.55946E+00	9.30429E-02	1.00000E+00		
8	4.42212E-01	4.55167E-01	1	2.77850E+00	7.41004E-02	1.00000E+00		
9	4.68122E-01	4.68814E-01	2	2.94130E+00	4.07946E-03	0		
10	4.69507E-01	4.71481E-01	2	2.95000E+00	1.16988E-02	0		
11	4.73456E-01	4.75431E-01	2	2.97481E+00	1.17968E-02	0		
12	4.77406E-01	4.78098E-01	2	2.99962E+00	4.16023E-03	0		
13	4.78790E-01	4.83159E-01	3	3.00833E+00	2.65268E-02	1.00000E+00		
14	4.87528E-01	4.99987E-01	3	3.06325E+00	7.82768E-02	1.00000E+00		
15	5.12445E-01	5.24908E-01	3	3.21977E+00	8.21777E-02	1.00000E+00		
16	5.37362E-01	5.41751E-01	3	3.37634E+00	2.97427E-02	1.00000E+00		
17	5.46100E-01	5.53613E-01	4	3.43125E+00	5.15631E-02	1.00000E+00		
18	5.60926E-01	5.70900E-01	4	3.52440E+00	7.15548E-02	1.00000E+00		
19	5.80874E-01	5.96175E-01	4	3.64974E+00	1.14628E-01	1.00000E+00		
20	6.11475E-01	6.45755E-01	4	3.84201E+00	2.78169E-01	1.00000E+00		
21	6.80036E-01	7.14313E-01	4	4.27278E+00	3.07702E-01	1.00000E+00		
22	7.48590E-01	7.63898E-01	4	4.70354E+00	1.46875E-01	1.00000E+00		
23	7.79193E-01	7.89167E-01	4	4.89582E+00	9.89116E-02	1.00000E+00		
24	7.99141E-01	8.06554E-01	4	5.02115E+00	7.51357E-02	1.00000E+00		

25 8.13968E-01 5.11431E+00
- elapsed time .00 min.

1 outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	124	-4.56957E-06	1.03027E+00	-3.30817E-02	1.00000E+00	-1.13682E-02	.00000E+00	.0000
2	190	1.53565E-05	1.03327E+00	-8.04118E-04	-3.40286E-03	-1.82550E-03	.00000E+00	.0000
3	243	-1.66574E-05	1.03412E+00	-1.36843E-04	-5.07636E-04	-4.35670E-04	.00000E+00	.0000
4	282	1.94148E-05	1.03385E+00	-3.16278E-05	-1.22508E-04	-1.00950E-04	.00000E+00	.0000

grp	to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	1	1	7.38255E-08	24	1.00000E+00	1
2	2	1	1	8.32965E-08	24	1.00000E+00	1
3	3	1	1	7.61077E-08	24	1.00000E+00	1
4	4	1	1	7.19577E-08	24	1.00000E+00	1
5	5	1	1	6.73921E-08	24	1.00000E+00	1
6	6	1	1	4.05286E-08	24	1.00000E+00	1
7	7	1	1	2.43421E-08	24	1.00000E+00	1
8	8	1	1	5.59101E-09	24	1.00000E+00	1
9	9	1	2	5.01341E-09	24	1.00000E+00	1
10	10	1	2	4.61203E-09	24	1.00000E+00	1
11	11	1	24	5.02188E-09	24	1.00000E+00	1
12	12	1	24	1.19703E-08	24	1.00000E+00	1
13	13	1	24	1.49805E-08	24	1.00000E+00	1
14	14	1	24	1.43680E-08	24	1.00000E+00	1
15	15	1	19	2.97082E-05	24	9.99879E-01	1
16	16	1	19	3.59892E-05	24	9.99880E-01	1
17	17	1	20	5.24040E-05	24	9.99896E-01	1
18	18	1	20	7.00924E-05	24	9.99904E-01	1
19	19	1	20	5.16881E-05	24	9.99885E-01	1
20	20	1	19	3.66304E-05	24	9.99851E-01	1
21	21	1	19	7.05320E-05	24	9.99868E-01	1
22	22	1	19	3.68593E-05	24	9.99913E-01	1
23	23	1	24	7.99269E-06	24	1.00000E+00	1
24	24	1	24	3.68089E-05	24	1.00002E+00	1
25	25	1	24	3.99912E-05	24	1.00002E+00	1
26	26	1	21	4.11299E-05	24	9.99979E-01	2
27	27	1	24	2.27592E-05	19	1.00001E+00	2

5 309 -1.45963E-05 1.03425E+00 -7.58119E-06 -2.82615E-05 -2.13481E-05 .00000E+00 .0167
final monitor
lambda 1.03409E+00 production/absorption 1.03409E+00 angular flux on 16
- elapsed time .02 min.
1 880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 int. zone number

int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.29551E-02	.00000E+00	2.10906E-03	3.02061E-03
2	1	2.59100E-02	4.33406E-02	1.62798E-01	9.49518E-03	1.35900E-02
3	1	6.07710E-02	8.75100E-02	3.81835E-01	2.94045E-02	4.21756E-02
4	1	1.14269E-01	1.74155E-01	7.17848E-01	1.31104E-01	1.89916E-01
5	1	2.34061E-01	2.93967E-01	1.47065E+00	2.21299E-01	3.28655E-01
6	1	3.53873E-01	3.80612E-01	2.22345E+00	1.27890E-01	1.94941E-01
7	1	4.07351E-01	4.24781E-01	2.55946E+00	9.30429E-02	1.44661E-01
8	1	4.42212E-01	4.55167E-01	2.77860E+00	7.41004E-02	1.17336E-01
9	2	4.68122E-01	4.68814E-01	2.94130E+00	4.07946E-03	.00000E+00
10	2	4.69507E-01	4.71481E-01	2.95000E+00	1.16988E-02	.00000E+00
11	2	4.73456E-01	4.75431E-01	2.97481E+00	1.17968E-02	.00000E+00
12	2	4.77405E-01	4.78098E-01	2.99962E+00	4.16023E-03	.00000E+00
13	3	4.78790E-01	4.83159E-01	3.00833E+00	2.65268E-02	.00000E+00
14	3	4.87528E-01	4.99387E-01	3.06323E+00	7.82768E-02	.00000E+00
15	3	5.12445E-01	5.24603E-01	3.21979E+00	8.21777E-02	.00000E+00
16	3	5.37362E-01	5.41731E-01	3.37634E+00	2.97427E-02	.00000E+00
17	4	5.46100E-01	5.53613E-01	3.43125E+00	5.15631E-02	.00000E+00

18	4	5.60926E-01	5.70900E-01	3.52440E+00	7.15548E-02	.00000E+00
19	4	5.80874E-01	5.98175E-01	3.64774E+00	1.14628E-01	.00000E+00
20	4	6.11475E-01	6.45755E-01	3.84201E+00	2.78169E-01	.00000E+00
21	4	6.80034E-01	7.14313E-01	4.27278E+00	3.07702E-01	.00000E+00
22	4	7.48592E-01	7.63893E-01	4.70354E+00	1.46875E-01	.00000E+00
23	4	7.79193E-01	7.89167E-01	4.89582E+00	9.89116E-02	.00000E+00
24	4	7.99141E-01	8.06554E-01	5.02115E+00	7.51357E-02	.00000E+00
25		8.13968E-01		5.11431E+00		

1 880 d, sss2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.80843E-01	1.33944E+00	1.68610E+00	1.04357E+00	1.57719E+00	3.03165E+00	2.90595E+00	2.08175E+00
2	1.80908E-01	1.33908E+00	1.68694E+00	1.04407E+00	1.57789E+00	3.03295E+00	2.90660E+00	2.08182E+00
3	1.80851E-01	1.33846E+00	1.68617E+00	1.04360E+00	1.57711E+00	3.03135E+00	2.90558E+00	2.08162E+00
4	1.80448E-01	1.33419E+00	1.68073E+00	1.04029E+00	1.57185E+00	3.02090E+00	2.89928E+00	2.08057E+00
5	1.79401E-01	1.32321E+00	1.66691E+00	1.03194E+00	1.55864E+00	2.99499E+00	2.88378E+00	2.07795E+00
6	1.78192E-01	1.31068E+00	1.65133E+00	1.02258E+00	1.54395E+00	2.96660E+00	2.86688E+00	2.07506E+00
7	1.77228E-01	1.30084E+00	1.63980E+00	1.01544E+00	1.53288E+00	2.94563E+00	2.85450E+00	2.07288E+00
8	1.76266E-01	1.29124E+00	1.62774E+00	1.00869E+00	1.52256E+00	2.92548E+00	2.84330E+00	2.07083E+00
9	1.75740E-01	1.28604E+00	1.62153E+00	1.00510E+00	1.51713E+00	2.91650E+00	2.83751E+00	2.06974E+00
10	1.75630E-01	1.28499E+00	1.62029E+00	1.00441E+00	1.51613E+00	2.91471E+00	2.83652E+00	2.06955E+00
11	1.75470E-01	1.28347E+00	1.61850E+00	1.00342E+00	1.51472E+00	2.91218E+00	2.83513E+00	2.06926E+00
12	1.75364E-01	1.28247E+00	1.61732E+00	1.00278E+00	1.51380E+00	2.91055E+00	2.83424E+00	2.06907E+00
13	1.75167E-01	1.28060E+00	1.61510E+00	1.00154E+00	1.51199E+00	2.90712E+00	2.83231E+00	2.06869E+00
14	1.74631E-01	1.27532E+00	1.60867E+00	9.97701E-01	1.50619E+00	2.89586E+00	2.82590E+00	2.06764E+00
15	1.74031E-01	1.26950E+00	1.60146E+00	9.92381E-01	1.49780E+00	2.87924E+00	2.81652E+00	2.06650E+00
16	1.73737E-01	1.26536E+00	1.59513E+00	9.88909E-01	1.49208E+00	2.86770E+00	2.80961E+00	2.06598E+00
17	1.73594E-01	1.26333E+00	1.59201E+00	9.86578E-01	1.48810E+00	2.85975E+00	2.80495E+00	2.06584E+00
18	1.73411E-01	1.26069E+00	1.58801E+00	9.83604E-01	1.48304E+00	2.84978E+00	2.79909E+00	2.06570E+00
19	1.73179E-01	1.25757E+00	1.58339E+00	9.80238E-01	1.47736E+00	2.83864E+00	2.79253E+00	2.06546E+00
20	1.72869E-01	1.25352E+00	1.57750E+00	9.76020E-01	1.47029E+00	2.82480E+00	2.78439E+00	2.06512E+00
21	1.72657E-01	1.25070E+00	1.57335E+00	9.73034E-01	1.46526E+00	2.81499E+00	2.77871E+00	2.06502E+00
22	1.72658E-01	1.25057E+00	1.57305E+00	9.72751E-01	1.46474E+00	2.81398E+00	2.77826E+00	2.06524E+00
23	1.72736E-01	1.25143E+00	1.57418E+00	9.73480E-01	1.46591E+00	2.81627E+00	2.77974E+00	2.06553E+00
24	1.72826E-01	1.25245E+00	1.57554E+00	9.74378E-01	1.46737E+00	2.81912E+00	2.78154E+00	2.06580E+00

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.58851E+00	1.44832E+00	1.30795E+00	7.96783E-01	6.70888E-01	5.81640E-01	3.67597E-01	2.01547E-01
2	1.58844E+00	1.44822E+00	1.30775E+00	7.96652E-01	6.70177E-01	5.81351E-01	3.67564E-01	2.01521E-01
3	1.58862E+00	1.44843E+00	1.30821E+00	7.97102E-01	6.70644E-01	5.82072E-01	3.67645E-01	2.01572E-01
4	1.58968E+00	1.44964E+00	1.31083E+00	8.00192E-01	6.73259E-01	5.86083E-01	3.69052E-01	2.01889E-01
5	1.59221E+00	1.45259E+00	1.31729E+00	8.07825E-01	6.79853E-01	5.96038E-01	3.69171E-01	2.02598E-01
6	1.59507E+00	1.45582E+00	1.32436E+00	8.16225E-01	6.87061E-01	6.07065E-01	3.70333E-01	2.03389E-01
7	1.59723E+00	1.45818E+00	1.32956E+00	8.22454E-01	6.92398E-01	6.15301E-01	3.71170E-01	2.03970E-01
8	1.59929E+00	1.46033E+00	1.33430E+00	8.28173E-01	6.97295E-01	6.22900E-01	3.71917E-01	2.04499E-01
9	1.60038E+00	1.46144E+00	1.33675E+00	8.31145E-01	6.99836E-01	6.26852E-01	3.72300E-01	2.04774E-01
10	1.60057E+00	1.46162E+00	1.33714E+00	8.31622E-01	7.00251E-01	6.27480E-01	3.72365E-01	2.04821E-01
11	1.60086E+00	1.46187E+00	1.33771E+00	8.32304E-01	7.00843E-01	6.28377E-01	3.72457E-01	2.04888E-01
12	1.60104E+00	1.46204E+00	1.33807E+00	8.32745E-01	7.01227E-01	6.28959E-01	3.72517E-01	2.04931E-01
13	1.60141E+00	1.46238E+00	1.33882E+00	8.33645E-01	7.02010E-01	6.30146E-01	3.72640E-01	2.05020E-01
14	1.60242E+00	1.46347E+00	1.34119E+00	8.36462E-01	7.04461E-01	6.33860E-01	3.73034E-01	2.05298E-01
15	1.60355E+00	1.46508E+00	1.34453E+00	8.40347E-01	7.07842E-01	6.38978E-01	3.73591E-01	2.05683E-01
16	1.60408E+00	1.46606E+00	1.34674E+00	8.42853E-01	7.10022E-01	6.42269E-01	3.73961E-01	2.05931E-01
17	1.60436E+00	1.46684E+00	1.34839E+00	8.44696E-01	7.11592E-01	6.44669E-01	3.74162E-01	2.06092E-01
18	1.60479E+00	1.46789E+00	1.35054E+00	8.47215E-01	7.13719E-01	6.47940E-01	3.74387E-01	2.06303E-01
19	1.60533E+00	1.46909E+00	1.35320E+00	8.50114E-01	7.16173E-01	6.51711E-01	3.74651E-01	2.06548E-01
20	1.60607E+00	1.47060E+00	1.35646E+00	8.53808E-01	7.19295E-01	6.56514E-01	3.74974E-01	2.06856E-01
21	1.60664E+00	1.47169E+00	1.35879E+00	8.56441E-01	7.21500E-01	6.59914E-01	3.75137E-01	2.07052E-01
22	1.60669E+00	1.47179E+00	1.35901E+00	8.56675E-01	7.21647E-01	6.60181E-01	3.75047E-01	2.07034E-01
23	1.60654E+00	1.47152E+00	1.35842E+00	8.55989E-01	7.21026E-01	6.59263E-01	3.74894E-01	2.06946E-01
24	1.60638E+00	1.47118E+00	1.35770E+00	8.55145E-01	7.20276E-01	6.58142E-01	3.74740E-01	2.06850E-01

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.02422E-02	3.13534E-02	1.17498E-01	4.16060E-01	1.02345E-01	1.65894E-01	6.47045E-01	4.81091E-01
2	8.02111E-02	3.13567E-02	1.17447E-01	4.19954E-01	1.02378E-01	1.65780E-01	6.46664E-01	4.80752E-01
3	8.02756E-02	3.16152E-02	1.17563E-01	4.16166E-01	1.02584E-01	1.66430E-01	6.47674E-01	4.81681E-01
4	8.06466E-02	3.27844E-02	1.18221E-01	4.17935E-01	1.03696E-01	1.69681E-01	6.53408E-01	4.86708E-01
5	8.15678E-02	3.58212E-02	1.19831E-01	4.20408E-01	1.06478E-01	1.77883E-01	6.67628E-01	4.99208E-01
6	8.25864E-02	3.94368E-02	1.21587E-01	4.23699E-01	1.09591E-01	1.87234E-01	6.83373E-01	5.13091E-01
7	8.33457E-02	4.24008E-02	1.22869E-01	4.26114E-01	1.11949E-01	1.94434E-01	6.95126E-01	5.23508E-01
8	8.40464E-02	4.53694E-02	1.24028E-01	4.28513E-01	1.14146E-01	2.01280E-01	7.05968E-01	5.33172E-01
9	8.44114E-02	4.69621E-02	1.24625E-01	4.29452E-01	1.15298E-01	2.04878E-01	7.11600E-01	5.38204E-01
10	8.44710E-02	4.71529E-02	1.24721E-01	4.29641E-01	1.15472E-01	2.05381E-01	7.12466E-01	5.38959E-01
11	8.45562E-02	4.74265E-02	1.24858E-01	4.29911E-01	1.15720E-01	2.06101E-01	7.13700E-01	5.40034E-01
12	8.46113E-02	4.76041E-02	1.24944E-01	4.30085E-01	1.15881E-01	2.06566E-01	7.14496E-01	5.40726E-01
13	8.47239E-02	4.79645E-02	1.25129E-01	4.30442E-01	1.16209E-01	2.07514E-01	7.16124E-01	5.42140E-01
14	8.50759E-02	4.90748E-02	1.25706E-01	4.31559E-01	1.17253E-01	2.10455E-01	7.21188E-01	5.46502E-01
15	8.55597E-02	5.05685E-02	1.26519E-01	4.33028E-01	1.18636E-01	2.14442E-01	7.28061E-01	5.52533E-01
16	8.58700E-02	5.15061E-02	1.27045E-01	4.34075E-01	1.19533E-01	2.16961E-01	7.32395E-01	5.55942E-01
17	8.60982E-02	5.22101E-02	1.27426E-01	4.34760E-01	1.20222E-01	2.18922E-01	7.35961E-01	5.59244E-01
18	8.64112E-02	5.31899E-02	1.27940E-01	4.35682E-01	1.21194E-01	2.21720E-01	7.41271E-01	5.64445E-01
19	8.67721E-02	5.43152E-02	1.28533E-01	4.36760E-01	1.22320E-01	2.24974E-01	7.47610E-01	5.70736E-01
20	8.72320E-02	5.57433E-02	1.29289E-01	4.38141E-01	1.23763E-01	2.29163E-01	7.56034E-01	5.79223E-01
21	8.75593E-02	5.67633E-02	1.29821E-01	4.39089E-01	1.24804E-01	2.32197E-01	7.62391E-01	5.85846E-01
22	8.75877E-02	5.68544E-02	1.29855E-01	4.39110E-01	1.24914E-01	2.32526E-01	7.63527E-01	5.87108E-01
23	8.75029E-02	5.66151E-02	1.29705E-01	4.38797E-01	1.24662E-01	2.31802E-01	7.62041E-01	5.86052E-01
24	8.73988E-02	5.63034E-02	1.29525E-01	4.38431E-01	1.24347E-01	2.30885E-01	7.60348E-01	5.84555E-01

0 int.	grp. 25	grp. 26	grp. 27
1	2.00500E-01	1.22198E-01	1.61350E-02
2	2.00362E-01	1.22111E-01	1.61347E-02
3	2.00842E-01	1.22573E-01	1.62778E-02
4	2.03388E-01	1.24901E-01	1.69274E-02
5	2.09712E-01	1.30917E-01	1.85768E-02
6	2.16775E-01	1.37280E-01	2.05000E-02
7	2.22104E-01	1.42301E-01	2.20433E-02
8	2.27082E-01	1.47052E-01	2.35720E-02
9	2.29882E-01	1.49547E-01	2.43889E-02
10	2.30060E-01	1.49886E-01	2.44839E-02
11	2.30598E-01	1.50867E-01	2.46187E-02
12	2.30945E-01	1.50677E-01	2.47056E-02
13	2.31651E-01	1.51307E-01	2.48821E-02
14	2.33793E-01	1.53205E-01	2.54057E-02
15	2.36682E-01	1.55636E-01	2.60489E-02
16	2.38250E-01	1.57060E-01	2.64089E-02
17	2.39925E-01	1.58762E-01	2.69684E-02
18	2.42699E-01	1.61735E-01	2.79907E-02
19	2.46089E-01	1.65350E-01	2.91890E-02
20	2.50714E-01	1.70280E-01	3.07663E-02
21	2.54409E-01	1.74307E-01	3.20688E-02
22	2.55216E-01	1.75337E-01	3.24492E-02
23	2.54735E-01	1.74984E-01	3.24045E-02
24	2.53998E-01	1.74334E-01	3.22602E-02

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.29947E-02	.00000E+00	1.28935E-02	1.07384E-02	3.26098E-03	1.13208E-02	9.98838E-01
2	.00000E+00	1.99998E-01	2.37599E-03	1.67861E-01	6.68848E-02	1.36625E-02	1.15830E-01	1.00004E+00
3	.00000E+00	2.15874E-01	2.64680E-02	1.61415E-01	8.14253E-02	1.55286E-02	1.45389E-01	1.00000E+00
4	.00000E+00	1.23819E-01	3.91375E-02	1.05553E-01	6.79140E-02	7.39240E-03	8.76414E-02	1.00001E+00
5	.00000E+00	1.64144E-01	6.81677E-02	2.59866E-01	9.47590E-02	4.39442E-03	1.33160E-01	9.99998E-01
6	.00000E+00	1.77110E-01	1.34943E-01	6.53834E-01	5.43736E-02	6.89551E-03	2.50774E-01	1.00003E+00
7	.00000E+00	8.75260E-02	9.85133E-02	7.44613E-01	3.63352E-02	7.40472E-03	1.42298E-01	1.00001E+00

8	.00000E+00	1.34833E-02	4.25831E-02	6.30633E-01	2.15129E-02	1.37327E-02	2.08185E-02	1.00005E+00
9	.00000E+00	9.78514E-04	2.17359E-02	5.35740E-01	2.07052E-02	2.28072E-02	-2.07978E-02	9.99989E-01
10	.00000E+00	7.26789E-05	2.07272E-02	4.62262E-01	1.07205E-02	3.53954E-02	-2.53167E-02	1.00001E+00
11	.00000E+00	5.71782E-06	1.07219E-02	4.24562E-01	8.16514E-03	5.78533E-02	-5.52919E-02	1.00001E+00
12	.00000E+00	4.01667E-07	8.16519E-03	2.40330E-01	9.38697E-03	6.41184E-02	-6.53356E-02	9.99958E-01
13	.00000E+00	6.37810E-08	9.38592E-03	1.79474E-01	6.15265E-03	5.98478E-02	-5.66145E-02	1.00000E+00
14	.00000E+00	1.26397E-08	6.15266E-03	1.52049E-01	7.35414E-03	8.47368E-02	-8.59385E-02	1.00000E+00
15	.00000E+00	1.42843E-09	7.44018E-03	8.41441E-02	8.83603E-03	7.22145E-03	-8.69178E-03	1.00464E+00
16	.00000E+00	4.19435E-10	8.99353E-03	4.22699E-02	9.48904E-03	5.84705E-03	-6.39505E-03	1.00842E+00
17	.00000E+00	1.35078E-10	7.57841E-03	1.41545E-02	7.21129E-03	8.52735E-03	-8.18167E-03	1.00136E+00
18	.00000E+00	9.67122E-11	6.94410E-03	8.02218E-03	3.77596E-03	2.82583E-02	-2.50985E-02	1.00026E+00
19	.00000E+00	1.36730E-10	6.05006E-03	2.29525E-02	8.40648E-03	1.11651E-02	-1.35437E-02	1.00113E+00
20	.00000E+00	2.22538E-10	9.52579E-03	9.95966E-02	9.40809E-03	2.61904E-02	-2.61542E-02	1.00225E+00
21	.00000E+00	3.25431E-11	8.78140E-03	2.01075E-02	7.82425E-03	2.51524E-02	-2.42179E-02	1.00069E+00
22	.00000E+00	3.77574E-11	1.13959E-02	3.84634E-02	8.67412E-03	7.21888E-02	-6.95075E-02	1.00048E+00
23	.00000E+00	3.61002E-11	1.36216E-02	1.57540E-01	1.73339E-02	1.21121E-01	-1.24958E-01	1.00090E+00
24	.00000E+00	9.82602E-12	2.12274E-02	1.18300E-01	2.13618E-02	1.10601E-01	-1.10893E-01	1.00071E+00
25	.00000E+00	2.87641E-12	1.82966E-02	4.18787E-02	1.38470E-02	5.99759E-02	-5.55659E-02	1.00053E+00
26	.00000E+00	2.01696E-12	9.02276E-03	2.92122E-02	6.25720E-03	5.38593E-02	-5.10991E-02	1.00042E+00
27	.00000E+00	4.80652E-13	1.95433E-03	4.38097E-03	1.06862E-03	1.50777E-02	-1.41956E-02	1.00022E+00
28	.00000E+00	1.00000E+00	6.19898E-01	5.40888E+00	6.19898E-01	9.42216E-01	5.94982E-02	1.00057E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	nsn rate	fiss rate	flux*dV**2	total flux
1	1.75768E-01	1.13208E-02	1.80781E-01	.00000E+00	2.29600E-03	2.66921E-03	.00000E+00	1.23115E-01
2	1.28652E+00	1.15830E-01	1.33782E+00	.00000E+00	1.69692E-05	1.18841E-02	.00000E+00	1.14272E+00
3	1.62188E+00	1.45389E-01	1.68529E+00	.00000E+00	.00000E+00	1.45084E-02	.00000E+00	1.07554E+00
4	1.00529E+00	8.76414E-02	1.04308E+00	.00000E+00	.00000E+00	6.24689E-03	.00000E+00	1.06858E+00
5	1.51740E+00	1.33160E-01	1.57647E+00	.00000E+00	.00000E+00	1.79278E-03	.00000E+00	1.06548E+00
6	2.91698E+00	2.50774E-01	3.03080E+00	.00000E+00	.00000E+00	1.50139E-03	.00000E+00	2.05348E+00
7	2.85777E+00	1.42298E-01	2.90520E+00	.00000E+00	.00000E+00	1.42872E-03	.00000E+00	1.98037E+00
8	2.06979E+00	2.08185E-02	2.08166E+00	.00000E+00	.00000E+00	1.42930E-03	.00000E+00	1.42968E+00
9	1.60853E+00	-2.07978E-02	1.58861E+00	.00000E+00	.00000E+00	1.88946E-03	.00000E+00	1.09702E+00
10	1.46139E+00	-2.53167E-02	1.44844E+00	.00000E+00	.00000E+00	4.02264E-03	.00000E+00	1.00097E+00
11	1.33664E+00	-5.52919E-02	1.30820E+00	.00000E+00	.00000E+00	8.63481E-03	.00000E+00	9.08961E-01
12	8.31018E-01	-6.53356E-02	7.97077E-01	.00000E+00	.00000E+00	1.13917E-02	.00000E+00	5.58638E-01
13	6.99728E-01	-5.66145E-02	6.70649E-01	.00000E+00	.00000E+00	1.29779E-02	.00000E+00	4.70180E-01
14	6.26698E-01	-8.59385E-02	5.82013E-01	.00000E+00	.00000E+00	8.05307E-03	.00000E+00	4.13646E-01
15	3.72317E-01	-8.69178E-03	3.67673E-01	.00000E+00	.00000E+00	1.88096E-03	.00000E+00	2.54486E-01
16	2.04780E-01	-6.39505E-03	2.01597E-01	.00000E+00	.00000E+00	1.32236E-03	.00000E+00	1.39708E-01
17	8.44019E-02	-8.18167E-03	8.02864E-02	.00000E+00	.00000E+00	1.51080E-03	.00000E+00	5.64597E-02
18	4.69148E-02	-2.50985E-02	3.14037E-02	.00000E+00	.00000E+00	1.05257E-03	.00000E+00	2.58695E-02
19	1.24610E-01	-1.35437E-02	1.17572E-01	.00000E+00	.00000E+00	2.39214E-03	.00000E+00	8.30098E-02
20	4.29454E-01	-2.61542E-02	4.16236E-01	.00000E+00	.00000E+00	1.46907E-02	.00000E+00	2.90892E-01
21	1.15264E-01	-2.42179E-02	1.02549E-01	.00000E+00	.00000E+00	1.52027E-02	.00000E+00	7.42526E-02
22	2.04757E-01	-6.95075E-02	1.66122E-01	.00000E+00	.00000E+00	4.34857E-02	.00000E+00	1.25378E-01
23	7.11347E-01	-1.24958E-01	6.47548E-01	.00000E+00	.00000E+00	7.35685E-02	.00000E+00	4.66343E-01
24	5.37977E-01	-1.10830E-01	4.81509E-01	.00000E+00	.00000E+00	6.69850E-02	.00000E+00	3.47861E-01
25	2.29577E-01	-5.55659E-02	2.00695E-01	.00000E+00	.00000E+00	3.80096E-02	.00000E+00	1.46520E-01
26	1.49451E-01	-5.10991E-02	1.22354E-01	.00000E+00	.00000E+00	3.48944E-02	.00000E+00	9.20172E-02
27	2.43629E-02	-1.41956E-02	1.61634E-02	.00000E+00	.00000E+00	9.86634E-03	.00000E+00	1.34155E-02
28	2.32221E+01	5.94982E-02	2.31873E+01	.00000E+00	2.31297E-03	3.93569E-01	.00000E+00	1.59756E+01

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
2	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
3	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
4	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
5	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
6	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-2.98023E-08	1.00000E+00
7	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.49012E-07	9.99999E-01
8	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.60770E-08	9.99999E-01

9	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.98023E-08	9.99999E-01
10	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.63685E-08	1.00000E+00
11	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
12	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	1.00000E+00
13	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
14	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
15	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.79397E-09	1.00000E+00
16	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.86265E-09	1.00000E+00
17	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	4.65661E-09	9.99999E-01
18	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	3.72529E-09	1.00000E+00
19	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-4.65661E-09	1.00000E+00
20	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-5.5879E-09	1.00000E+00
21	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.45058E-09	1.00000E+00
22	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	1.00000E+00
23	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	2.23517E-08	1.00000E+00
24	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-3.72529E-08	1.00000E+00
25	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-7.45058E-09	1.00000E+00
26	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-1.49012E-08	1.00000E+00
27	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	-9.31323E-10	1.00000E+00
28	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	7.3574E-08	9.99998E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dv**2	total flux
1	1.75337E-01	1.1320E-02	1.75768E-01	1.1320E-02	.00000E+00	.00000E+00	.00000E+00	5.57112E-03
2	1.28222E+00	1.1583E-01	1.28652E+00	1.1583E-01	.00000E+00	.00000E+00	.00000E+00	4.07554E-02
3	1.61703E+00	1.4538E-01	1.62186E+00	1.4538E-01	.00000E+00	.00000E+00	.00000E+00	5.13918E-02
4	1.00262E+00	8.7614E-02	1.00529E+00	8.7614E-02	.00000E+00	.00000E+00	.00000E+00	3.18595E-02
5	1.51357E+00	1.3316E-01	1.5174E+00	1.3316E-01	.00000E+00	.00000E+00	.00000E+00	4.80925E-02
6	2.91015E+00	2.5077E-01	2.91698E+00	2.5077E-01	.00000E+00	.00000E+00	.00000E+00	9.26598E-02
7	2.83401E+00	1.4229E-01	2.83777E+00	1.4229E-01	.00000E+00	.00000E+00	.00000E+00	8.99958E-02
8	2.06503E+00	2.0818E-02	2.06979E+00	2.0818E-02	.00000E+00	.00000E+00	.00000E+00	6.56730E-02
9	1.60108E+00	-2.0797E-02	1.60503E+00	-2.0797E-02	.00000E+00	.00000E+00	.00000E+00	5.07989E-02
10	1.46208E+00	-2.5316E-02	1.4613E+00	-2.5316E-02	.00000E+00	.00000E+00	.00000E+00	4.63888E-02
11	1.33814E+00	-5.5291E-02	1.3366E+00	-5.5291E-02	.00000E+00	.00000E+00	.00000E+00	4.24436E-02
12	8.3265E-01	-6.5335E-02	8.31018E-01	-6.5335E-02	.00000E+00	.00000E+00	.00000E+00	2.64025E-02
13	7.0132E-01	-5.6614E-02	6.9972E-01	-5.6614E-02	.00000E+00	.00000E+00	.00000E+00	2.22520E-02
14	6.2910E-01	-8.5938E-02	6.2668E-01	-8.5938E-02	.00000E+00	.00000E+00	.00000E+00	1.99274E-02
15	3.7256E-01	-8.6917E-03	3.7251E-01	-8.6917E-03	.00000E+00	.00000E+00	.00000E+00	1.18185E-02
16	2.0496E-01	-6.3950E-03	2.0478E-01	-6.3950E-03	.00000E+00	.00000E+00	.00000E+00	6.50103E-03
17	8.4631E-02	-8.1816E-03	8.4401E-02	-8.1816E-03	.00000E+00	.00000E+00	.00000E+00	2.68205E-03
18	4.7651E-02	-2.5098E-02	4.6914E-02	-2.5098E-02	.00000E+00	.00000E+00	.00000E+00	1.50073E-03
19	1.2497E-01	-1.3543E-02	1.2461E-01	-1.3543E-02	.00000E+00	.00000E+00	.00000E+00	3.96020E-03
20	4.3018E-01	-2.6154E-02	4.2965E-01	-2.6154E-02	.00000E+00	.00000E+00	.00000E+00	1.36590E-02
21	1.1598E-01	-2.4217E-02	1.1526E-01	-2.4217E-02	.00000E+00	.00000E+00	.00000E+00	3.66846E-03
22	2.0669E-01	-6.9507E-02	2.0475E-01	-6.9507E-02	.00000E+00	.00000E+00	.00000E+00	6.52919E-03
23	7.1467E-01	-1.2495E-01	7.1134E-01	-1.2495E-01	.00000E+00	.00000E+00	.00000E+00	2.26258E-02
24	5.4087E-01	-1.1083E-01	5.3997E-01	-1.1083E-01	.00000E+00	.00000E+00	.00000E+00	1.71209E-02
25	2.3102E-01	-5.5669E-02	2.2957E-01	-5.5669E-02	.00000E+00	.00000E+00	.00000E+00	7.30950E-03
26	1.5074E-01	-5.1099E-02	1.4951E-01	-5.1099E-02	.00000E+00	.00000E+00	.00000E+00	4.76425E-03
27	2.4726E-02	-1.4195E-02	2.4362E-02	-1.4195E-02	.00000E+00	.00000E+00	.00000E+00	7.79127E-04
28	2.3218E+01	5.9488E-02	2.3222E+01	5.9488E-02	.00000E+00	.00000E+00	.00000E+00	7.36894E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	3.8644E-05	2.8969E-05	1.4845E-05	-2.8084E-05	1.00001E+00
2	.00000E+00	.00000E+00	5.0599E-04	2.6126E-02	1.8747E-02	5.1905E-05	-1.8298E-02	1.00000E+00
3	.00000E+00	.00000E+00	2.6747E-05	5.0298E-02	1.5904E-02	1.3757E-04	-1.3365E-02	9.99998E-01
4	.00000E+00	.00000E+00	5.1600E-03	4.2177E-02	5.4610E-03	1.0354E-04	-3.9918E-04	9.99996E-01
5	.00000E+00	.00000E+00	1.1126E-02	8.1708E-02	5.1674E-03	1.5222E-04	5.8066E-03	1.00000E+00
6	.00000E+00	.00000E+00	1.8559E-02	2.3509E-01	3.2119E-03	3.2012E-04	1.5027E-02	1.00000E+00
7	.00000E+00	.00000E+00	1.2395E-02	2.3522E-01	1.1825E-03	3.4481E-04	1.0812E-02	1.00000E+00
8	.00000E+00	.00000E+00	2.1696E-03	1.5864E-01	7.6857E-03	2.9502E-04	-5.7694E-03	1.00002E+00
9	.00000E+00	.00000E+00	7.6722E-03	1.0528E-01	8.7769E-04	1.1102E-03	5.6845E-03	9.99998E-01

10	.00000E+00	.00000E+00	8.78875E-04	8.57028E-02	8.50321E-04	8.36940E-04	-8.08248E-04	9.99995E-01
11	.00000E+00	.00000E+00	8.50382E-04	7.72166E-02	8.72047E-04	1.33983E-03	-1.36135E-03	9.99997E-01
12	.00000E+00	.00000E+00	8.72053E-04	4.68747E-02	8.72088E-04	4.17339E-05	-4.18350E-05	1.00000E+00
13	.00000E+00	.00000E+00	8.72090E-04	3.94980E-02	8.05731E-04	5.99695E-05	6.38142E-06	1.00000E+00
14	.00000E+00	.00000E+00	8.05752E-04	3.56886E-02	6.72655E-04	9.50579E-05	3.81470E-05	1.00000E+00
15	.00000E+00	.00000E+00	7.16053E-04	2.04992E-02	8.38967E-04	8.23225E-05	-2.04809E-04	9.99956E-01
16	.00000E+00	.00000E+00	9.35389E-04	1.08036E-02	9.35934E-04	5.09090E-05	-5.12244E-05	9.99968E-01
17	.00000E+00	.00000E+00	9.90854E-04	3.91159E-03	9.62848E-04	2.36808E-05	4.47780E-06	9.99986E-01
18	.00000E+00	.00000E+00	1.00839E-03	2.15224E-03	6.94950E-04	1.47384E-05	2.98787E-04	9.99997E-01
19	.00000E+00	.00000E+00	7.46270E-04	6.27890E-03	9.26395E-04	4.05786E-05	-2.20582E-04	9.99985E-01
20	.00000E+00	.00000E+00	1.10380E-03	2.36919E-02	1.00725E-03	1.76151E-04	-7.88795E-05	9.99974E-01
21	.00000E+00	.00000E+00	1.29914E-03	5.43926E-03	1.29924E-03	5.99840E-05	-1.19807E-04	9.99991E-01
22	.00000E+00	.00000E+00	1.63948E-03	1.07085E-02	1.43115E-03	1.24773E-04	8.37594E-05	9.99997E-01
23	.00000E+00	.00000E+00	2.13846E-03	3.85675E-02	2.83150E-03	5.84069E-04	-1.27713E-03	1.00000E+00
24	.00000E+00	.00000E+00	3.50208E-03	2.76051E-02	3.78858E-03	6.43050E-04	-9.29751E-04	1.00000E+00
25	.00000E+00	.00000E+00	3.42011E-03	1.06857E-02	2.75086E-03	3.63448E-04	3.06137E-04	1.00000E+00
26	.00000E+00	.00000E+00	1.43137E-03	7.79184E-03	1.02971E-03	3.40239E-04	6.12065E-05	1.00000E+00
27	.00000E+00	.00000E+00	2.98582E-04	1.46871E-03	7.56732E-07	1.07423E-04	1.90880E-04	1.00000E+00
28	.00000E+00	.00000E+00	8.36576E-02	1.39801E+00	8.36576E-02	7.51517E-03	-7.40968E-03	9.99986E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*db**2	total flux
1	1.73679E-01	8.51234E-03	1.75337E-01	1.13208E-02	1.08504E-04	.00000E+00	.00000E+00	3.77851E-02
2	1.26455E+00	9.75369E-02	1.28222E+00	1.15830E-01	.00000E+00	.00000E+00	.00000E+00	2.75709E-01
3	1.59390E+00	1.32023E-01	1.61703E+00	1.45389E-01	.00000E+00	.00000E+00	.00000E+00	3.47698E-01
4	9.87999E-01	8.72422E-02	1.00262E+00	8.76414E-02	.00000E+00	.00000E+00	.00000E+00	2.15625E-01
5	1.49053E+00	1.38966E-01	1.51357E+00	1.33160E-01	.00000E+00	.00000E+00	.00000E+00	3.25472E-01
6	2.86455E+00	2.65802E-01	2.91015E+00	2.50774E-01	.00000E+00	.00000E+00	.00000E+00	6.25698E-01
7	2.80777E+00	1.53110E-01	2.83401E+00	1.42258E-01	.00000E+00	.00000E+00	.00000E+00	6.11338E-01
8	2.06589E+00	1.50492E-02	2.06903E+00	2.08186E-02	.00000E+00	.00000E+00	.00000E+00	4.47998E-01
9	1.60418E+00	-1.51131E-02	1.60108E+00	-2.07975E-02	.00000E+00	.00000E+00	.00000E+00	3.47398E-01
10	1.46634E+00	-2.61250E-02	1.46208E+00	-2.53168E-02	.00000E+00	.00000E+00	.00000E+00	3.17346E-01
11	1.34732E+00	-5.66532E-02	1.33814E+00	-5.52919E-02	.00000E+00	.00000E+00	.00000E+00	2.91044E-01
12	8.43501E-01	-6.53775E-02	8.32856E-01	-6.53356E-02	.00000E+00	.00000E+00	.00000E+00	1.81716E-01
13	7.10585E-01	-5.66082E-02	7.01323E-01	-5.66145E-02	.00000E+00	.00000E+00	.00000E+00	1.53052E-01
14	6.43118E-01	-8.59004E-02	6.29104E-01	-8.59285E-02	.00000E+00	.00000E+00	.00000E+00	1.37945E-01
15	3.74092E-01	-8.89659E-03	3.72566E-01	-8.69178E-03	.00000E+00	.00000E+00	.00000E+00	8.09083E-02
16	2.06013E-01	-6.44628E-03	2.04980E-01	-6.39505E-03	.00000E+00	.00000E+00	.00000E+00	4.45361E-02
17	8.59562E-02	-8.17719E-03	8.46313E-02	-8.18167E-03	.00000E+00	.00000E+00	.00000E+00	1.84920E-02
18	5.17481E-02	-2.47997E-02	4.76518E-02	-2.50965E-02	.00000E+00	.00000E+00	.00000E+00	1.08013E-02
19	1.27194E-01	-1.37643E-02	1.24979E-01	-1.35437E-02	.00000E+00	.00000E+00	.00000E+00	2.73345E-02
20	4.34379E-01	-2.62331E-02	4.30180E-01	-2.61542E-02	.00000E+00	.00000E+00	.00000E+00	9.37004E-02
21	1.19775E-01	-2.43377E-02	1.15953E-01	-2.42179E-02	.00000E+00	.00000E+00	.00000E+00	2.55637E-02
22	2.17614E-01	-6.94237E-02	2.06694E-01	-6.95074E-02	.00000E+00	.00000E+00	.00000E+00	4.60538E-02
23	7.33468E-01	-1.26236E-01	7.14671E-01	-1.24958E-01	.00000E+00	.00000E+00	.00000E+00	1.57063E-01
24	5.56812E-01	-1.11760E-01	5.40872E-01	-1.10830E-01	.00000E+00	.00000E+00	.00000E+00	1.19084E-01
25	2.38642E-01	-5.52597E-02	2.31021E-01	-5.55659E-02	.00000E+00	.00000E+00	.00000E+00	5.09735E-02
26	1.57392E-01	-5.10879E-02	1.50749E-01	-5.10991E-02	.00000E+00	.00000E+00	.00000E+00	3.34673E-02
27	2.64896E-02	-1.40052E-02	2.47264E-02	-1.41956E-02	.00000E+00	.00000E+00	.00000E+00	5.57467E-03
28	2.31955E+01	5.20885E-02	2.32182E+01	5.94983E-02	1.08504E-04	.00000E+00	.00000E+00	5.02938E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	6.10617E-03	8.08208E-03	4.30736E-04	-8.51234E-03	9.99951E-01
2	.00000E+00	.00000E+00	4.65731E-03	7.69188E-02	1.01095E-01	1.08315E-03	-9.75370E-02	9.99962E-01
3	.00000E+00	.00000E+00	4.79783E-02	6.91827E-02	1.80000E-01	5.43767E-06	-1.32023E-01	9.99977E-01
4	.00000E+00	.00000E+00	7.05502E-02	4.59842E-02	1.57791E-01	3.23692E-06	-8.72422E-02	9.99987E-01
5	.00000E+00	.00000E+00	1.30270E-01	1.48609E-01	2.69255E-01	3.77797E-06	-1.38966E-01	9.99990E-01
6	.00000E+00	.00000E+00	2.75423E-01	4.55374E-01	5.41215E-01	1.14791E-05	-2.65801E-01	9.99988E-01
7	.00000E+00	.00000E+00	5.53092E-01	7.95321E-01	7.06186E-01	2.53662E-05	-1.53111E-01	9.99988E-01
8	.00000E+00	.00000E+00	7.35700E-01	1.00127E+00	7.50768E-01	4.70281E-05	-1.50491E-02	9.99911E-01
9	.00000E+00	.00000E+00	7.41080E-01	9.14651E-01	7.25902E-01	9.59687E-05	1.51130E-02	9.99889E-01
10	.00000E+00	.00000E+00	7.22582E-01	8.66449E-01	6.96320E-01	2.11712E-04	2.61250E-02	9.99896E-01

11	.00000E+00	.00000E+00	7.01225E-01	8.06847E-01	6.44155E-01	4.58187E-04	5.66533E-02	9.99340E-01
12	.00000E+00	.00000E+00	5.60698E-01	4.20470E-01	4.94735E-01	5.98279E-04	6.53774E-02	9.99779E-01
13	.00000E+00	.00000E+00	4.90687E-01	3.37958E-01	4.33197E-01	8.97254E-04	5.66081E-02	9.99969E-01
14	.00000E+00	.00000E+00	4.70437E-01	3.20692E-01	3.83091E-01	1.45136E-03	8.59003E-02	9.99985E-01
15	.00000E+00	.00000E+00	2.50396E-01	1.28251E-01	2.40229E-01	1.27767E-03	8.87064E-03	1.00007E+00
16	.00000E+00	.00000E+00	1.66003E-01	5.38644E-02	1.58689E-01	8.71922E-04	6.42820E-03	1.00008E+00
17	.00000E+00	.00000E+00	8.52359E-02	1.47529E-02	7.66513E-02	4.11508E-04	8.16897E-03	1.00007E+00
18	.00000E+00	.00000E+00	7.52768E-02	9.18684E-03	5.01988E-02	2.81082E-04	2.47950E-02	1.00005E+00
19	.00000E+00	.00000E+00	1.21976E-01	3.23915E-02	1.07505E-01	7.09988E-04	1.37523E-02	1.00008E+00
20	.00000E+00	.00000E+00	2.96567E-01	2.36429E-01	2.67314E-01	3.02475E-03	2.61975E-02	1.00010E+00
21	.00000E+00	.00000E+00	1.37852E-01	4.32250E-02	1.12648E-01	1.07102E-03	2.43225E-02	1.00008E+00
22	.00000E+00	.00000E+00	2.59266E-01	1.20520E-01	1.89556E-01	2.29087E-03	6.94045E-02	1.00006E+00
23	.00000E+00	.00000E+00	6.07051E-01	7.16451E-01	4.70474E-01	1.03289E-02	1.26234E-01	1.00002E+00
24	.00000E+00	.00000E+00	6.15921E-01	6.38136E-01	4.92582E-01	1.15689E-02	1.11756E-01	1.00002E+00
25	.00000E+00	.00000E+00	3.97665E-01	2.61008E-01	3.35781E-01	6.61997E-03	5.52596E-02	1.00001E+00
26	.00000E+00	.00000E+00	3.14313E-01	2.78086E-01	2.56849E-01	6.42434E-03	5.10286E-02	1.00003E+00
27	.00000E+00	.00000E+00	1.04722E-01	5.80978E-02	8.85057E-02	2.21064E-03	1.40051E-02	1.00000E+00
28	.00000E+00	.00000E+00	8.95656E+00	8.85795E+00	8.93655E+00	5.24145E-02	-5.22435E-02	9.99981E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rtn rate	fiss rate	flux*db**2	total flux
1	1.72873E-01	-5.88278E-09	1.73679E-01	8.51234E-03	4.46959E-10	.00000E+00	.00000E+00	1.97854E-01
2	1.25298E+00	-7.84505E-08	1.26455E+00	9.75369E-02	.00000E+00	.00000E+00	.00000E+00	1.43460E+00
3	1.57625E+00	4.51767E-08	1.59390E+00	1.32023E-01	.00000E+00	.00000E+00	.00000E+00	1.80528E+00
4	9.74847E-01	4.47741E-08	9.87999E-01	8.72422E-02	.00000E+00	.00000E+00	.00000E+00	1.11685E+00
5	1.46813E+00	3.21072E-08	1.49053E+00	1.38966E-01	.00000E+00	.00000E+00	.00000E+00	1.68243E+00
6	2.82061E+00	1.48563E-07	2.86455E+00	2.68802E-01	.00000E+00	.00000E+00	.00000E+00	3.25239E+00
7	2.78247E+00	-1.55781E-07	2.80777E+00	1.53110E-01	.00000E+00	.00000E+00	.00000E+00	3.18656E+00
8	2.06598E+00	2.50965E-08	2.06889E+00	1.50492E-02	.00000E+00	.00000E+00	.00000E+00	2.36381E+00
9	1.60625E+00	-3.31722E-08	1.60418E+00	-1.51131E-02	.00000E+00	.00000E+00	.00000E+00	1.83828E+00
10	1.47101E+00	2.56478E-08	1.46634E+00	-2.61250E-02	.00000E+00	.00000E+00	.00000E+00	1.68524E+00
11	1.35732E+00	3.41550E-08	1.34732E+00	-5.66532E-02	.00000E+00	.00000E+00	.00000E+00	1.55269E+00
12	8.54703E-01	-2.95514E-08	8.43501E-01	-6.53775E-02	.00000E+00	.00000E+00	.00000E+00	9.77359E-01
13	7.19884E-01	-1.49502E-08	7.10585E-01	-5.66082E-02	.00000E+00	.00000E+00	.00000E+00	8.23377E-01
14	6.57556E-01	-1.79083E-08	6.43118E-01	-8.59004E-02	.00000E+00	.00000E+00	.00000E+00	7.51611E-01
15	3.74697E-01	-2.59454E-08	3.74092E-01	-8.89689E-03	.00000E+00	.00000E+00	.00000E+00	4.29087E-01
16	2.06820E-01	-1.80713E-08	2.06013E-01	-6.44628E-03	.00000E+00	.00000E+00	.00000E+00	2.36736E-01
17	8.73508E-02	-8.21982E-09	8.59562E-02	-8.17719E-03	.00000E+00	.00000E+00	.00000E+00	9.98628E-02
18	5.61431E-02	-6.76165E-09	5.17481E-02	-2.47997E-02	.00000E+00	.00000E+00	.00000E+00	6.38785E-02
19	1.29439E-01	-1.19516E-08	1.27194E-01	-1.37643E-02	.00000E+00	.00000E+00	.00000E+00	1.48003E-01
20	4.38295E-01	-3.56484E-08	4.34379E-01	-2.62531E-02	.00000E+00	.00000E+00	.00000E+00	5.01482E-01
21	1.24194E-01	-1.51265E-08	1.19775E-01	-2.43377E-02	.00000E+00	.00000E+00	.00000E+00	1.41742E-01
22	2.30421E-01	-1.91628E-08	2.17614E-01	-6.94257E-02	.00000E+00	.00000E+00	.00000E+00	2.62563E-01
23	7.59424E-01	-1.40479E-08	7.33468E-01	-1.26256E-01	.00000E+00	.00000E+00	.00000E+00	8.66199E-01
24	5.85718E-01	-3.49594E-08	5.56812E-01	-1.11780E-01	.00000E+00	.00000E+00	.00000E+00	6.64155E-01
25	2.53578E-01	-1.09521E-07	2.38642E-01	-5.52597E-02	.00000E+00	.00000E+00	.00000E+00	2.87734E-01
26	1.73964E-01	-9.33473E-08	1.57592E-01	-5.10579E-02	.00000E+00	.00000E+00	.00000E+00	1.95874E-01
27	3.21713E-02	-1.21519E-07	2.64896E-02	-1.40052E-02	.00000E+00	.00000E+00	.00000E+00	3.55585E-02
28	2.32310E+01	-1.55436E-04	2.31955E+01	5.20865E-02	4.46959E-10	.00000E+00	.00000E+00	2.65793E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.29947E-02	.00000E+00	2.28642E-02	2.17173E-02	3.70656E-03	-5.88278E-09	9.98833E-01
2	.00000E+00	1.93998E-01	7.51923E-03	2.70906E-01	1.86727E-01	1.47973E-02	-7.84505E-08	1.00002E+00
3	.00000E+00	2.15874E-01	7.71209E-02	2.80897E-01	2.77527E-01	1.56716E-02	4.51767E-08	9.99985E-01
4	.00000E+00	1.23819E-01	1.14847E-01	1.93654E-01	2.31166E-01	7.49917E-03	4.47741E-08	1.00000E+00
5	.00000E+00	1.64144E-01	2.09563E-01	4.90174E-01	3.69161E-01	4.55042E-03	3.21072E-08	9.99989E-01
6	.00000E+00	1.77110E-01	4.28928E-01	1.34430E+00	5.98800E-01	7.22711E-03	1.48563E-07	1.00001E+00
7	.00000E+00	8.75260E-02	6.69945E-01	1.77514E+00	7.43704E-01	7.77489E-03	-1.55781E-07	9.99990E-01
8	.00000E+00	1.34833E-02	7.80448E-01	1.79054E+00	7.79920E-01	1.40748E-02	2.50965E-08	9.99920E-01
9	.00000E+00	9.78514E-04	7.70438E-01	1.55788E+00	7.47485E-01	2.40135E-02	-3.31722E-08	9.99898E-01
10	.00000E+00	7.26783E-05	7.44188E-01	1.41441E+00	7.07891E-01	3.64441E-02	2.56478E-08	9.99000E-01
11	.00000E+00	5.71782E-06	7.12797E-01	1.30862E+00	6.53192E-01	5.96513E-02	3.41550E-08	9.99942E-01

12	.00000E+00	4.01667E-07	5.69736E-01	7.07675E-01	5.04998E-01	6.47584E-02	-2.95514E-08	9.99974E-01
13	.00000E+00	6.37810E-08	5.00943E-01	5.56768E-01	4.40155E-01	6.08048E-02	-1.49502E-08	9.99970E-01
14	.00000E+00	1.26397E-08	4.77396E-01	5.08430E-01	3.91118E-01	8.62832E-02	-1.79083E-08	9.99965E-01
15	.00000E+00	1.42863E-09	2.58652E-01	2.32875E-01	2.49904E-01	8.58145E-03	-2.59454E-05	1.00036E+00
16	.00000E+00	4.19435E-10	1.75952E-01	1.06918E-01	1.69114E-01	6.76988E-03	-1.80713E-05	1.00038E+00
17	.00000E+00	1.35078E-10	9.38072E-02	3.27984E-02	8.48255E-02	8.96249E-03	-8.21982E-06	1.00029E+00
18	.00000E+00	9.67122E-11	8.32293E-02	1.95613E-02	5.46897E-02	2.85541E-02	-6.76165E-06	1.00015E+00
19	.00000E+00	1.36730E-10	1.28773E-01	6.16230E-02	1.16838E-01	1.19157E-02	-1.19516E-05	1.00024E+00
20	.00000E+00	2.22338E-10	3.07195E-01	3.59517E-01	2.77730E-01	2.93913E-02	-3.56484E-05	1.00036E+00
21	.00000E+00	3.25431E-11	1.47873E-01	6.87718E-02	1.21572E-01	2.62833E-02	-1.51265E-05	1.00022E+00
22	.00000E+00	3.77574E-11	2.72300E-01	1.69692E-01	1.97661E-01	7.46044E-02	-1.91628E-05	1.00020E+00
23	.00000E+00	3.61002E-11	6.22811E-01	9.12559E-01	4.90640E-01	1.32133E-01	-1.40479E-06	1.00022E+00
24	.00000E+00	9.82602E-12	6.40650E-01	7.76039E-01	5.17732E-01	1.22813E-01	-3.49594E-06	1.00017E+00
25	.00000E+00	2.87641E-12	4.19381E-01	3.13568E-01	3.52579E-01	6.69594E-02	-1.09521E-07	1.00010E+00
26	.00000E+00	2.01698E-12	3.24767E-01	3.15090E-01	2.64116E-01	6.06235E-02	-9.33473E-06	1.00011E+00
27	.00000E+00	4.80652E-13	1.06975E-01	6.39472E-02	8.95751E-02	1.73958E-02	-1.21519E-07	1.00004E+00
28	.00000E+00	1.00000E+00	9.64011E+00	1.56548E+01	9.64011E+00	1.00215E+00	-1.55334E-04	1.00004E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*df**2	total flux
1	1.72673E-01	-5.88278E-09	1.80781E-01	.00000E+00	2.39950E-03	2.66921E-05	.00000E+00	3.64326E-01
2	1.25298E+00	-7.86505E-08	1.33782E+00	.00000E+00	1.60692E-05	1.18841E-02	.00000E+00	2.65803E+00
3	1.57625E+00	4.51769E-08	1.68529E+00	.00000E+00	.00000E+00	1.45034E-02	.00000E+00	3.34709E+00
4	9.74847E-01	4.47741E-08	1.04308E+00	.00000E+00	.00000E+00	6.24659E-05	.00000E+00	2.07195E+00
5	1.46813E+00	3.21072E-08	1.57647E+00	.00000E+00	.00000E+00	1.79278E-03	.00000E+00	3.12658E+00
6	2.82061E+00	1.48563E-07	3.08080E+00	.00000E+00	.00000E+00	1.50139E-03	.00000E+00	6.00408E+00
7	2.78247E+00	-1.55781E-07	2.90520E+00	.00000E+00	.00000E+00	1.42872E-03	.00000E+00	5.86827E+00
8	2.06993E+00	2.50965E-08	2.08166E+00	.00000E+00	.00000E+00	1.42930E-03	.00000E+00	4.30715E+00
9	1.60625E+00	-3.31722E-08	1.58861E+00	.00000E+00	.00000E+00	1.88846E-03	.00000E+00	3.33349E+00
10	1.47101E+00	2.56478E-08	1.44844E+00	.00000E+00	.00000E+00	4.02264E-03	.00000E+00	3.04795E+00
11	1.35752E+00	3.41550E-08	1.30820E+00	.00000E+00	.00000E+00	8.63481E-03	.00000E+00	2.79514E+00
12	8.54703E-01	-2.95514E-08	7.97077E-01	.00000E+00	.00000E+00	1.13917E-02	.00000E+00	1.74416E+00
13	7.19884E-01	-1.49502E-08	6.70649E-01	.00000E+00	.00000E+00	1.29779E-02	.00000E+00	1.46884E+00
14	6.57556E-01	-1.79083E-08	5.82013E-01	.00000E+00	.00000E+00	8.03307E-03	.00000E+00	1.32313E+00
15	3.74697E-01	-2.59454E-05	3.67673E-01	.00000E+00	.00000E+00	1.88096E-05	.00000E+00	7.76300E-01
16	2.06820E-01	-1.80713E-05	2.01597E-01	.00000E+00	.00000E+00	1.32236E-03	.00000E+00	4.27481E-01
17	8.73505E-02	-8.21982E-06	8.02856E-02	.00000E+00	.00000E+00	1.51080E-03	.00000E+00	1.77497E-01
18	5.61431E-02	-6.76165E-06	3.14057E-02	.00000E+00	.00000E+00	1.05237E-03	.00000E+00	1.02050E-01
19	1.29439E-01	-1.19516E-05	1.17572E-01	.00000E+00	.00000E+00	2.39214E-03	.00000E+00	2.62307E-01
20	4.38295E-01	-3.56484E-05	4.16236E-01	.00000E+00	.00000E+00	1.49907E-02	.00000E+00	8.99214E-01
21	1.24194E-01	-1.51265E-05	1.02549E-01	.00000E+00	.00000E+00	1.52027E-02	.00000E+00	2.45227E-01
22	2.30421E-01	-1.91628E-05	1.66122E-01	.00000E+00	.00000E+00	4.34857E-02	.00000E+00	4.40525E-01
23	7.59424E-01	-1.40479E-06	6.47548E-01	.00000E+00	.00000E+00	7.35685E-02	.00000E+00	1.51029E+00
24	5.83718E-01	-3.49594E-06	4.81505E-01	.00000E+00	.00000E+00	6.69890E-02	.00000E+00	1.14822E+00
25	2.53578E-01	-1.09521E-07	2.00695E-01	.00000E+00	.00000E+00	3.80096E-02	.00000E+00	4.92537E-01
26	1.73964E-01	-9.33473E-06	1.22354E-01	.00000E+00	.00000E+00	3.48944E-02	.00000E+00	3.26122E-01
27	3.21713E-02	-1.21519E-07	1.61634E-02	.00000E+00	.00000E+00	9.86634E-03	.00000E+00	5.53279E-02
28	2.32510E+01	-1.55436E-04	2.31873E+01	.00000E+00	2.41647E-03	3.98568E-01	.00000E+00	4.85211E+01

- elapsed time .02 min.

Odirect access unit 9 requires 516 blocks of length 1456 for cross section weighting.

1 transport cross section weighting function

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	2.42234E-03	2.49847E-02	3.15362E-02	1.90531E-02	2.90892E-02	5.56074E-02	3.16623E-02	4.69054E-03
2	3.80559E-03	3.89576E-02	4.88739E-02	2.96615E-02	4.47680E-02	8.43003E-02	4.78342E-02	6.99834E-03
3	3.09226E-03	3.32185E-02	4.31495E-02	2.71715E-02	4.22564E-02	8.01985E-02	4.58641E-02	5.59651E-03
4	1.06741E-03	1.22231E-02	1.65398E-02	1.05845E-02	1.73966E-02	3.32783E-02	1.92438E-02	2.01088E-03
5	1.76814E-03	1.90574E-02	2.47636E-02	1.55875E-02	2.42875E-02	4.63270E-02	2.65579E-02	3.33334E-03

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	4.65498E-03	5.67328E-03	1.25578E-02	1.45458E-02	1.26081E-02	1.90154E-02	1.96888E-03	1.43062E-03
2	6.99132E-03	8.51047E-03	1.88869E-02	2.19632E-02	1.90514E-02	2.88891E-02	2.92157E-03	2.14957E-03
3	5.60218E-03	7.98864E-03	1.73860E-02	2.03074E-02	1.75904E-02	2.66971E-02	2.73171E-03	1.99466E-03
4	1.85889E-03	3.25174E-03	7.06161E-03	8.15620E-03	7.09909E-03	1.07334E-02	1.19044E-03	8.30491E-04

5	3.25144E-03	4.62607E-03	1.00640E-02	1.17448E-02	1.01955E-02	1.54116E-02	1.63379E-03	1.17031E-03

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.81256E-03	5.11151E-03	3.04944E-03	5.85532E-03	5.29493E-03	1.49579E-02	2.75943E-02	2.43594E-02
2	2.75015E-03	8.43657E-03	4.55244E-03	8.79097E-03	8.14025E-03	2.33643E-02	4.20072E-02	3.72584E-02
3	2.54130E-03	7.75198E-03	4.24208E-03	8.13793E-03	7.54199E-03	2.15829E-02	3.90215E-02	3.45789E-02
4	1.02016E-03	3.05944E-03	1.73356E-03	3.34197E-03	3.02967E-03	8.64030E-03	1.60191E-02	1.41650E-02
5	1.46701E-03	4.30875E-03	2.47297E-03	4.75571E-03	4.32667E-03	1.22955E-02	2.26389E-02	2.00145E-02

Ozone	grp. 25	grp. 26	grp. 27	grp. 28
1	1.21560E-02	1.10255E-02	2.59636E-03	3.85380E-01
2	1.86799E-02	1.71781E-02	4.77214E-03	5.89946E-01
3	1.72202E-02	1.58686E-02	4.38234E-03	5.43704E-01
4	6.98616E-03	6.33737E-03	1.60628E-03	2.18805E-01
5	9.94000E-03	9.04568E-03	2.38022E-03	3.13388E-01

1 880 cl, sas2h: babcock wilcox 15x15, 3.00w%, 20gwd/mtu burn high temp

Ocell averaged fluxes

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.78831E-01	1.31743E+00	1.65988E+00	1.02778E+00	1.55217E+00	2.98279E+00	2.87659E+00	2.07668E+00
2	1.75550E-01	1.28425E+00	1.61929E+00	1.00592E+00	1.51543E+00	2.91346E+00	2.85583E+00	2.06940E+00
3	1.74346E-01	1.27217E+00	1.60434E+00	9.94944E-01	1.50178E+00	2.88707E+00	2.82082E+00	2.06711E+00
4	1.72868E-01	1.25343E+00	1.57730E+00	9.75843E-01	1.46996E+00	2.82418E+00	2.78415E+00	2.06529E+00
5	1.75085E-01	1.27702E+00	1.60806E+00	9.95431E-01	1.50116E+00	2.88455E+00	2.81953E+00	2.06931E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.59348E+00	1.45397E+00	1.32081E+00	8.11451E-01	6.82961E-01	6.00842E-01	3.69655E-01	2.02954E-01
2	1.60071E+00	1.46175E+00	1.33742E+00	8.31961E-01	7.00545E-01	6.27927E-01	3.72410E-01	2.04854E-01
3	1.60295E+00	1.46428E+00	1.34295E+00	8.38667E-01	7.06208E-01	6.36499E-01	3.73324E-01	2.05497E-01
4	1.60613E+00	1.47067E+00	1.35661E+00	8.53967E-01	7.19396E-01	6.56695E-01	3.74859E-01	2.06835E-01
5	1.60153E+00	1.46435E+00	1.34289E+00	8.37955E-01	7.05684E-01	6.35679E-01	3.72963E-01	2.05377E-01

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	8.20107E-02	3.75765E-02	1.20578E-01	4.21811E-01	1.07856E-01	1.82119E-01	6.74483E-01	5.05287E-01
2	8.45134E-02	4.72892E-02	1.24788E-01	4.29775E-01	1.15596E-01	2.05739E-01	7.13080E-01	5.39495E-01
3	8.53252E-02	4.98389E-02	1.26126E-01	4.32349E-01	1.17955E-01	2.12500E-01	7.24712E-01	5.49475E-01
4	8.72515E-02	5.58117E-02	1.29512E-01	4.38152E-01	1.23842E-01	2.29405E-01	7.56810E-01	5.80281E-01
5	8.52758E-02	4.90285E-02	1.26022E-01	4.32015E-01	1.17816E-01	2.11644E-01	7.25572E-01	5.51647E-01

Ozone	grp. 25	grp. 26	grp. 27
1	2.12828E-01	1.33660E-01	1.94868E-02
2	2.30327E-01	1.50125E-01	2.45508E-02
3	2.35200E-01	1.54424E-01	2.57225E-02
4	2.51397E-01	1.71137E-01	3.10680E-02
5	2.36633E-01	1.56681E-01	2.65815E-02

Oflux disadvantage factors (zone average/cell average-flux)

Ozone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.02169E+00	1.03164E+00	1.05221E+00	1.03248E+00	1.05396E+00	1.03405E+00	1.02051E+00	1.00856E+00
2	1.00294E+00	1.00568E+00	1.00705E+00	1.00852E+00	1.00951E+00	1.01002E+00	1.00586E+00	1.00004E+00
3	9.96058E-01	9.96208E-01	9.97683E-01	9.99513E-01	1.00041E+00	1.00087E+00	1.00053E+00	9.98957E-01
4	9.87619E-01	9.81529E-01	9.80869E-01	9.80522E-01	9.79218E-01	9.79072E-01	9.87521E-01	9.98057E-01
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	9.94970E-01	9.92912E-01	9.83190E-01	9.68870E-01	9.67799E-01	9.45198E-01	9.91131E-01	9.88101E-01
2	9.99486E-01	9.98224E-01	9.95952E-01	9.92847E-01	9.92718E-01	9.87805E-01	9.98520E-01	9.97452E-01
3	1.00089E+00	9.99958E-01	1.00003E+00	1.00061E+00	1.00074E+00	1.00129E+00	1.00097E+00	1.00058E+00
4	1.00287E+00	1.00432E+00	1.01022E+00	1.01911E+00	1.01943E+00	1.03306E+00	1.00519E+00	1.00712E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

Ozone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	9.61711E-01	7.66422E-01	9.56787E-01	9.76881E-01	9.15461E-01	8.60496E-01	9.29589E-01	9.15960E-01
2	9.91050E-01	9.64525E-01	9.90215E-01	9.94816E-01	9.81155E-01	9.72101E-01	9.82783E-01	9.77968E-01
3	1.00058E+00	1.01653E+00	1.00083E+00	1.00077E+00	1.00118E+00	1.00404E+00	9.98816E-01	9.96062E-01
4	1.02317E+00	1.13835E+00	1.02611E+00	1.01420E+00	1.05115E+00	1.08392E+00	1.04305E+00	1.05191E+00
5	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00	1.00000E+00

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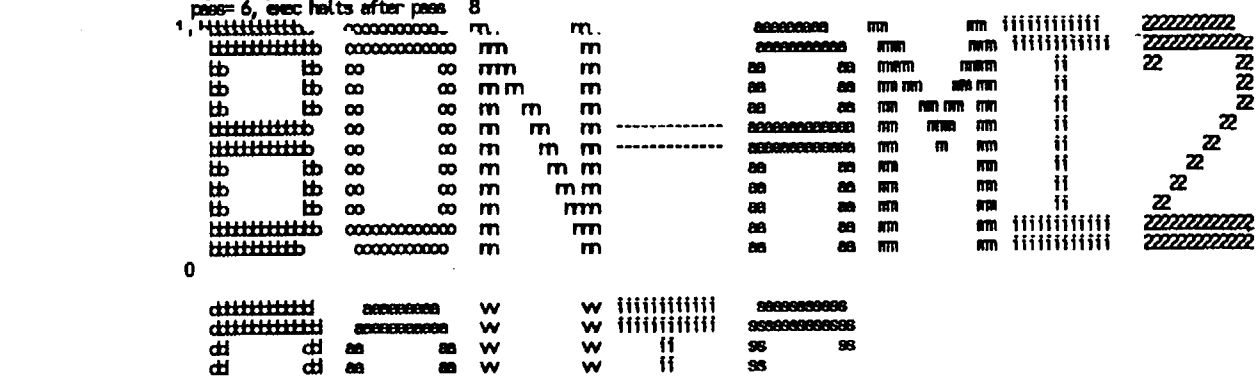
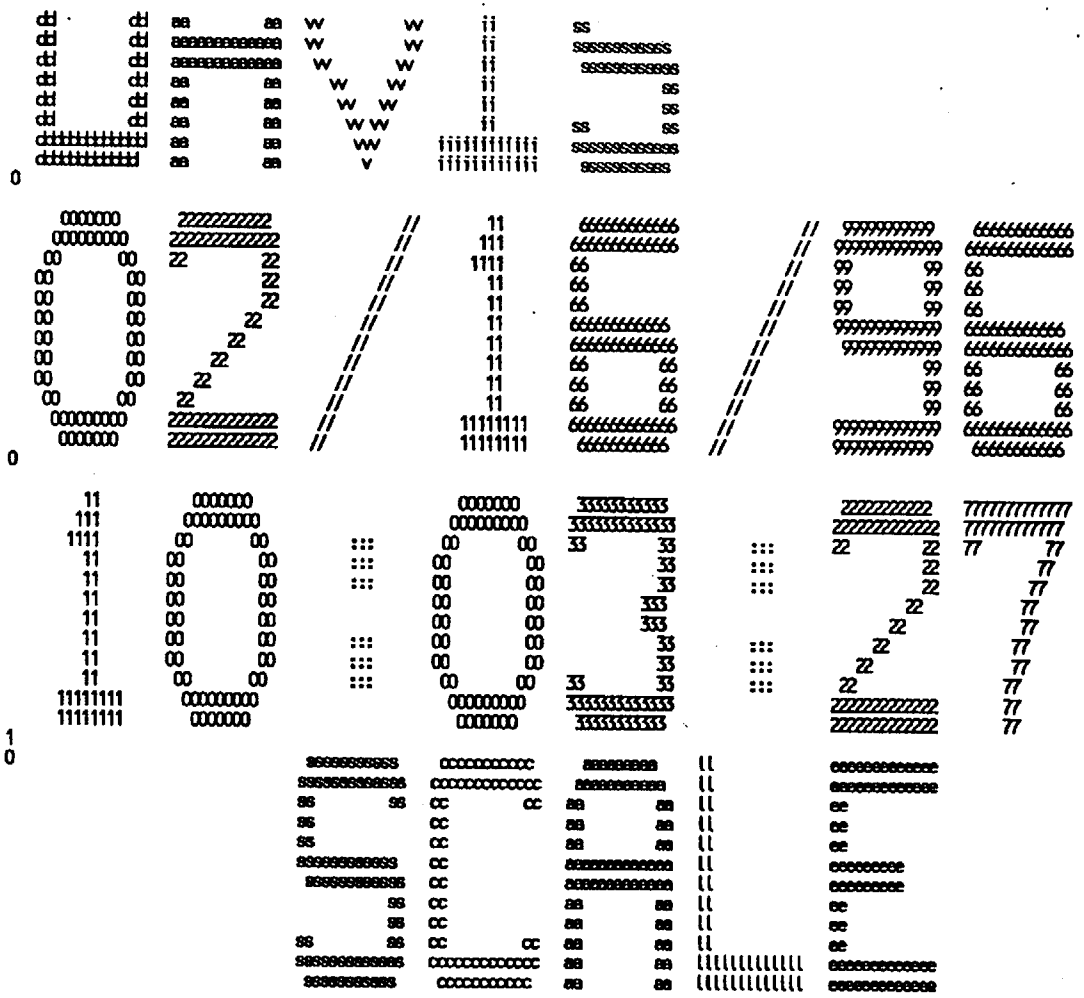
Ozone   grp. 25       grp. 26       grp. 27
    1  8.99401E-01   8.53071E-01   7.33094E-01
    2  9.73355E-01   9.58156E-01   9.23606E-01
    3  9.99947E-01   9.85592E-01   9.67682E-01
    4  1.06240E+00   1.09227E+00   1.16878E+00
    5  1.00000E+00   1.00000E+00   1.00000E+00
Ocell averaged currents

Ozone   grp. 1       grp. 2       grp. 3       grp. 4       grp. 5       grp. 6       grp. 7       grp. 8
    1  2.42234E-03  2.49847E-02  3.15362E-02  1.90531E-02  2.90892E-02  5.54074E-02  3.16623E-02  4.65054E-03
    2  3.80559E-03  3.89578E-02  4.88739E-02  2.94615E-02  4.47630E-02  8.43008E-02  4.78349E-02  6.99836E-03
    3  3.09226E-03  3.32185E-02  4.31495E-02  2.71715E-02  4.22554E-02  8.01985E-02  4.58541E-02  5.59651E-03
    4  1.06741E-03  1.22231E-02  1.65398E-02  1.09048E-02  1.73986E-02  3.32783E-02  1.92438E-02  2.01088E-03
    5  1.76814E-03  1.90574E-02  2.47636E-02  1.55875E-02  2.42695E-02  4.63270E-02  2.65579E-02  3.33334E-03
Ozone   grp. 9       grp. 10      grp. 11      grp. 12      grp. 13      grp. 14      grp. 15      grp. 16
    1  4.65498E-03  5.67528E-03  1.25578E-02  1.45458E-02  1.26081E-02  1.90154E-02  1.96588E-03  1.43062E-03
    2  6.99132E-03  8.51047E-03  1.85869E-02  2.19632E-02  1.90514E-02  2.88891E-02  2.92157E-03  2.14957E-03
    3  5.60218E-03  7.98864E-03  1.73950E-02  2.03074E-02  1.75904E-02  2.66971E-02  2.73171E-03  1.99465E-03
    4  1.85839E-03  3.25174E-03  7.05161E-03  8.15520E-03  7.09909E-03  1.07334E-02  1.19044E-03  8.30491E-04
    5  3.25144E-03  4.62607E-03  1.00640E-02  1.17448E-02  1.01955E-02  1.54116E-02  1.68379E-03  1.17031E-03
Ozone   grp. 17      grp. 18      grp. 19      grp. 20      grp. 21      grp. 22      grp. 23      grp. 24
    1  1.81256E-03  5.11151E-03  3.04944E-03  5.86532E-03  5.29495E-03  1.49573E-02  2.75943E-02  2.43594E-02
    2  2.75015E-03  8.43657E-03  4.55246E-03  8.79097E-03  8.14025E-03  2.33643E-02  4.20072E-02  3.72584E-02
    3  2.54130E-03  7.75198E-03  4.26208E-03  8.13795E-03  7.54199E-03  2.15829E-02  3.90215E-02  3.45789E-02
    4  1.02016E-03  3.05944E-03  1.73356E-03  3.34197E-03  3.02967E-03  8.64090E-03  1.60191E-02  1.41650E-02
    5  1.46701E-03  4.30875E-03  2.47297E-03  4.75571E-03  4.32667E-03  1.22955E-02  2.26389E-02  2.00145E-02
Ozone   grp. 25      grp. 26      grp. 27
    1  1.21560E-02  1.10255E-02  2.92636E-03
    2  1.86799E-02  1.71781E-02  4.77216E-03
    3  1.72202E-02  1.58686E-02  4.39236E-03
    4  6.98616E-03  6.33737E-03  1.60628E-03
    5  9.94000E-03  9.04568E-03  2.39022E-03
Ozone       volume      vol. fraction

    1     6.88443E-01     3.30753E-01
    2     3.17352E-02     1.52468E-02
    3     2.16724E-01     1.04122E-01
    4     1.14454E+00     5.49878E-01
    5     2.08144E+00     1.00000E+00
 - elapsed time    .02 min.
Orequested parm=halt8,skipcellut,skipshipdata
  pass= 6, exec halts after pass  8
```



```
 0
```



program verification information

```
*****                code system:   scale  version:   4.2                *****
*****                                                                    *****
**********************************************************************************
**********************************************************************************
*****                                                                    *****
*****                                                                    *****
*****                        program:  c0c008                            *****
*****                                                                    *****
*****                   creation date:  04/27/95                         *****
*****                                                                    *****
*****                        library:  /neutronics/scale/exe             *****
*****                                                                    *****
*****                                                                    *****
*****              this is not a  scale  configuration controlled code   *****
*****                                                                    *****
*****                        jobname:  davis                             *****
*****                                                                    *****
*****              date of execution:  02/16/96                          *****
*****                                                                    *****
*****              time of execution:  10:03:27                          *****
*****                                                                    *****
*****                                                                    *****
**********************************************************************************
**********************************************************************************
**********************************************************************************
```

```
1
0      -1q array has      1 entries.
0       0q array has      4 entries.
0       1q array has      6 entries.
0       2q array has      2 entries.
1logical assignments
0master library    12
 working library   17
 scratch file      18
 new library        1
0p r o b l e m   d e s c r i p t i o n
0igr--geometry (0/1/2/3--inf med/slab/cyl/sphere                2
0izm--number of zones or material regions                       4
0ms--mixing table length                                       70
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
0issqpt--dancoff factor option                                  0
0convergence criterion    1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0       3q array has     70 entries.
0       4q array has     70 entries.
0       5q array has     70 entries.
0       6q array has      4 entries.
0       7q array has      4 entries.
0       8q array has      4 entries.
0       9q array has      4 entries.
0      10q array has     70 entries.
0      11q array has      4 entries.
0m i x i n g   t a b l e
0entry  mixture  isotope   number density   new identifier
    1        3     8016     2.09710E-02              201
    2        3     1001     4.19420E-02              202
    3        3     5010     3.81515E-06              203
    4        3     5011     1.54884E-05              204
    5        2    40302     4.25156E-02              205
```

6	1	92235	1.33192E-04	200006
7	1	92234	1.47781E-06	200007
8	1	92236	1.82292E-05	200008
9	1	92238	7.21944E-03	200009
10	1	8016	1.50611E-02	200010
11	1	8016	1.15315E-02	200011
12	1	36083	4.72043E-07	200012
13	1	36085	2.27030E-07	200013
14	1	38090	5.16852E-06	200014
15	1	39089	4.09755E-06	200015
16	1	42095	5.47657E-06	200016
17	1	40093	4.12203E-06	200017
18	1	40094	6.47876E-06	200018
19	1	40095	6.60385E-07	200019
20	1	41094	3.21149E-12	200020
21	1	43099	6.33752E-06	200021
22	1	45103	3.47568E-06	200022
23	1	45105	7.39443E-09	200023
24	1	44101	5.75136E-06	200024
25	1	44106	8.69130E-07	200025
26	1	46105	2.26913E-06	200026
27	1	46108	6.34851E-07	200027
28	1	47109	4.45102E-07	200028
29	1	51124	1.00830E-10	200029
30	1	54131	2.90271E-06	200030
31	1	54132	5.45567E-06	200031
32	1	54135	2.20848E-09	200032
33	1	54136	1.09418E-05	200033
34	1	55134	3.16663E-07	200034
35	1	55135	3.47362E-06	200035
36	1	55137	6.78821E-06	200036
37	1	56136	6.38766E-08	200037
38	1	57139	6.72223E-06	200038
39	1	59141	5.83082E-06	200039
40	1	59143	1.22771E-07	200040
41	1	58144	2.21790E-06	200041
42	1	60143	5.26395E-06	200042
43	1	60145	3.88111E-06	200043
44	1	61147	1.33040E-06	200044
45	1	61148	3.87552E-09	200045
46	1	60147	4.29701E-08	200046
47	1	62147	4.63566E-07	200047
48	1	62149	2.87617E-08	200048
49	1	62150	1.38277E-06	200049
50	1	62151	1.32930E-07	200050
51	1	62152	6.63045E-07	200051
52	1	64155	7.21934E-10	200052
53	1	63153	3.98598E-07	200053
54	1	63154	8.34053E-08	200054
55	1	63155	4.31432E-08	200055
56	1	40302	4.42681E-08	200056
57	1	1001	2.30630E-02	200057
58	1	5010	2.09787E-06	200058
59	1	5011	8.51673E-06	200059
60	1	55133	6.95263E-06	200060
61	1	95237	1.23390E-06	200061
62	1	94238	1.76997E-07	200062
63	1	94239	3.56356E-06	200063
64	1	94240	6.95689E-06	200064
65	1	94241	3.76423E-06	200065

66	1	94242	4.25205E-07	200066
67	1	95241	1.12643E-07	200067
68	1	95243	3.90711E-08	200068
69	1	96244	3.73748E-09	200069
70	1	999	3.30753E-21	200070

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	3	6.32460E-01	6.07600E+02	7.90564E-01	0
2	2	6.73100E-01	6.50000E+02	1.29052E+01	0
3	3	8.14000E-01	6.07600E+02	3.54862E+00	0
4	1	2.96100E+00	9.75000E+02	2.32883E-01	0

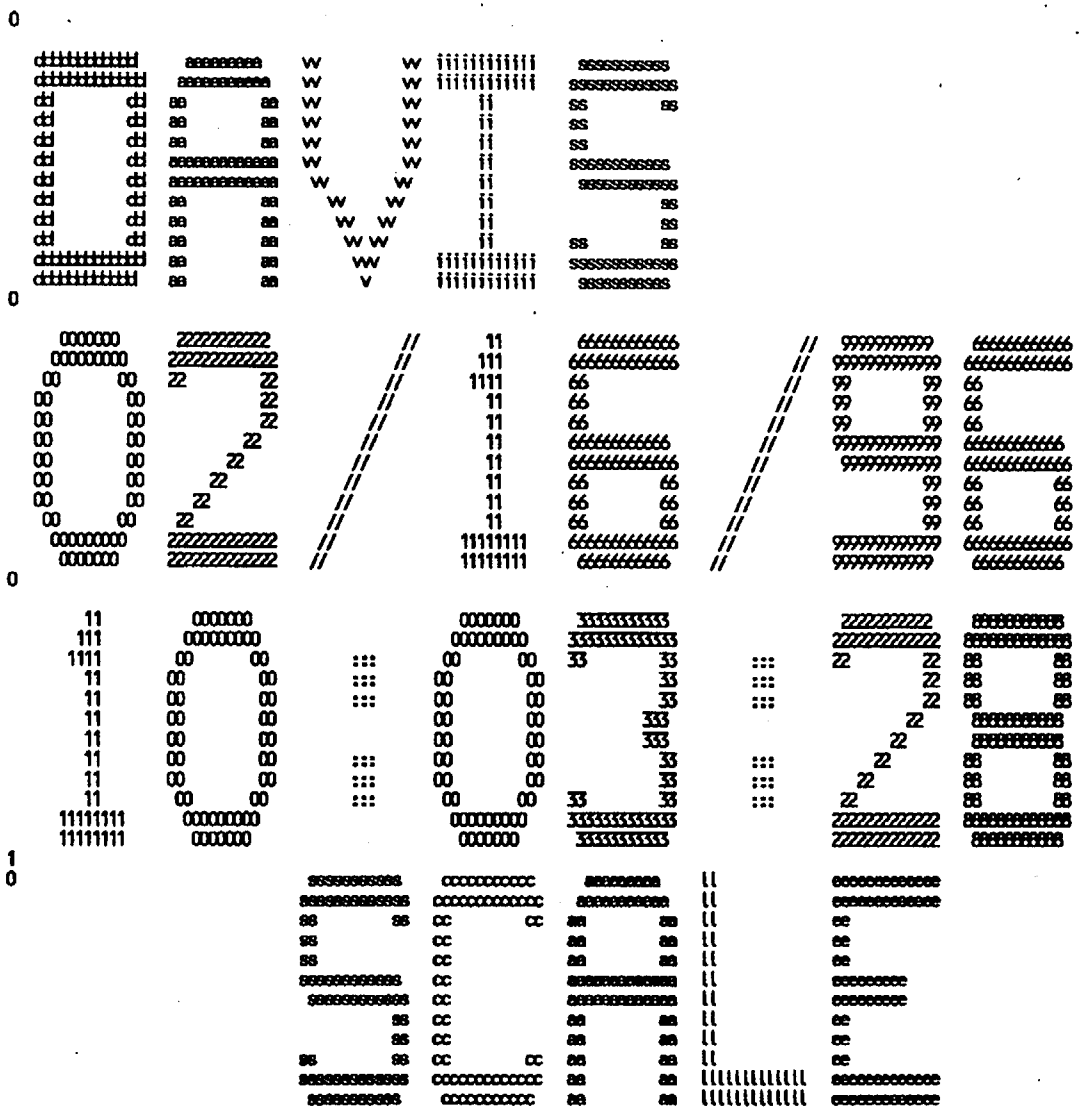
8067 locations of 200000 available are required to make a new master containing the self-shielded values

Ono nuclides in your problem have bondarenko factor data**bonami will copy from logical 12 to logical 1

Ocopy 999 1/v cross sectio from log 12 to log 1 bondarenko trigger 0
Ocopy 1001 hydrogen from log 12 to log 18 bondarenko trigger 0
Ocopy 1001 hydrogen from log 18 to log 1 bondarenko trigger 0
Ocopy 1001 hydrogen from log 18 to log 1 bondarenko trigger 0
Ocopy 5010 b-10 1273 218ngp from log 12 to log 18 bondarenko trigger 0
Ocopy 5010 b-10 1273 218ngp from log 18 to log 1 bondarenko trigger 0
Ocopy 5010 b-10 1273 218ngp from log 18 to log 1 bondarenko trigger 0
Ocopy 5011 boron-11 from log 12 to log 18 bondarenko trigger 0
Ocopy 5011 boron-11 from log 18 to log 1 bondarenko trigger 0
Ocopy 5011 boron-11 from log 18 to log 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 12 to log 18 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
Ocopy 8016 oxygen-16 from log 18 to log 1 bondarenko trigger 0
Ocopy 36083 kr-83 from log 12 to log 1 bondarenko trigger 0
Ocopy 36085 kr-85 from log 12 to log 1 bondarenko trigger 0
Ocopy 38090 sr-90 from log 12 to log 1 bondarenko trigger 0
Ocopy 39089 y-89 from log 12 to log 1 bondarenko trigger 0
Ocopy 40093 zr-93 from log 12 to log 1 bondarenko trigger 0
Ocopy 40094 zr-94 from log 12 to log 1 bondarenko trigger 0
Ocopy 40095 zr-95 from log 12 to log 1 bondarenko trigger 0
Ocopy 40302 zircalloy from log 12 to log 18 bondarenko trigger 0
Ocopy 40302 zircalloy from log 18 to log 1 bondarenko trigger 0
Ocopy 40302 zircalloy from log 18 to log 1 bondarenko trigger 0
Ocopy 41094 nb-94 from log 12 to log 1 bondarenko trigger 0
Ocopy 42095 mo-95 from log 12 to log 1 bondarenko trigger 0
Ocopy 43099 tc-99 from log 12 to log 1 bondarenko trigger 0
Ocopy 44101 ru-101 from log 12 to log 1 bondarenko trigger 0
Ocopy 44106 ru-106 from log 12 to log 1 bondarenko trigger 0
Ocopy 45103 rh-103 from log 12 to log 1 bondarenko trigger 0
Ocopy 45105 rh-105 from log 12 to log 1 bondarenko trigger 0
Ocopy 46105 pd-105 from log 12 to log 1 bondarenko trigger 0
Ocopy 46108 pd-108 from log 12 to log 1 bondarenko trigger 0
Ocopy 47109 silver-109 from log 12 to log 1 bondarenko trigger 0
Ocopy 51124 sb-124 from log 12 to log 1 bondarenko trigger 0
Ocopy 54131 xe-131 from log 12 to log 1 bondarenko trigger 0
Ocopy 54132 xe-132 from log 12 to log 1 bondarenko trigger 0
Ocopy 54135 xenon-135 from log 12 to log 1 bondarenko trigger 0
Ocopy 54136 xe-136 from log 12 to log 1 bondarenko trigger 0
Ocopy 55133 cesium-133 from log 12 to log 1 bondarenko trigger 0
Ocopy 55134 cs-134 from log 12 to log 1 bondarenko trigger 0
Ocopy 55135 cs-135 from log 12 to log 1 bondarenko trigger 0
Ocopy 55137 cs-137 from log 12 to log 1 bondarenko trigger 0
Ocopy 56136 ba-136 from log 12 to log 1 bondarenko trigger 0
Ocopy 57139 la-139 from log 12 to log 1 bondarenko trigger 0
Ocopy 58144 ce-144 from log 12 to log 1 bondarenko trigger 0
Ocopy 59141 pr-141 from log 12 to log 1 bondarenko trigger 0

```
0copy    59143  pr-143           from log 12 to log  1   bondarenko trigger 0
0copy    60143  nd-143           from log 12 to log  1   bondarenko trigger 0
0copy    60145  nd-145           from log 12 to log  1   bondarenko trigger 0
0copy    60147  nd-147           from log 12 to log  1   bondarenko trigger 0
0copy    61147  pm-147           from log 12 to log  1   bondarenko trigger 0
0copy    61148  pm-148           from log 12 to log  1   bondarenko trigger 0
0copy    62147  sm-147           from log 12 to log  1   bondarenko trigger 0
0copy    62149  sm-149           from log 12 to log  1   bondarenko trigger 0
0copy    62150  sm-150           from log 12 to log  1   bondarenko trigger 0
0copy    62151  sm-151           from log 12 to log  1   bondarenko trigger 0
0copy    62152  sm-152           from log 12 to log  1   bondarenko trigger 0
0copy    63153  eu-153           from log 12 to log  1   bondarenko trigger 0
0copy    63154  eu-154           from log 12 to log  1   bondarenko trigger 0
0copy    63155  eu-155           from log 12 to log  1   bondarenko trigger 0
0copy    64155  gd-155           from log 12 to log  1   bondarenko trigger 0
0copy    92234  u-234 1043 sigc= from log 12 to log  1   bondarenko trigger 0
0copy    92235  uranium-235      from log 12 to log  1   bondarenko trigger 0
0copy    92236  u-236 1163 sigc= from log 12 to log  1   bondarenko trigger 0
0copy    92238  uranium-238      from log 12 to log  1   bondarenko trigger 0
0copy    93237  neptunium-237    from log 12 to log  1   bondarenko trigger 0
0copy    94238  pu-238 1050 sigc from log 12 to log  1   bondarenko trigger 0
0copy    94239  plutonium-239    from log 12 to log  1   bondarenko trigger 0
0copy    94240  plutonium-240    from log 12 to log  1   bondarenko trigger 0
0copy    94241  plutonium-241    from log 12 to log  1   bondarenko trigger 0
0copy    94242  plutonium-242    from log 12 to log  1   bondarenko trigger 0
0copy    95241  am-241 1056 sigc from log 12 to log  1   bondarenko trigger 0
0copy    95243  am-243 1057 218  from log 12 to log  1   bondarenko trigger 0
0copy    96244  curium-244       from log 12 to log  1   bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
           compiled for nrc      1/27/89
             last updated       9/16/93
               l.m.petrie   -   ornl
        tape id                          4321        number of nuclides          70
        number of neutron groups           27        number of gamma groups       0
        first thermal group                15        logical unit                 1
                                table of contents
      1/v cross sections normalized to 1.0 at 0.0253 ev                    id   200070
       hydrogen       endf/b-iv mat 1269/thrmf1002  updated 10/13/89      id      202
       hydrogen       endf/b-iv mat 1269/thrmf1002  updated 10/13/89      id   200057
      b-10 1273 218grp 042395 p-3 293k                                     id      203
      b-10 1273 218grp 042395 p-3 293k                                     id   200058
       boron-11       endf/b-iv mat 1160            updated 10/13/89      id      204
       boron-11       endf/b-iv mat 1160            updated 10/13/89      id   200059
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89      id      201
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89      id   200010
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89      id   200011
       kr-83          mt=102,103,103,105,106,107    updated 10/13/89      id   200012
       kr-85            mt=  102                                           id   200013
       sr-90          mt=102                        updated 10/13/89      id   200014
        y-89          mt=102                        updated 10/13/89      id   200015
       zr-93            mt=  102                                           id   200017
       zr-94          mt=102                        updated 10/13/89      id   200018
       zr-95          mt=102                        updated 10/13/89      id   200019
       zircalloy      endf/b-iv mat 1284            updated 10/13/89      id      205
       zircalloy      endf/b-iv mat 1284            updated 10/13/89      id   200056
       nb-94          mt=102                        updated 10/13/89      id   200020
       mo-95          mt=102                        updated 10/13/89      id   200016
       tc-99          mt=102                        updated 10/13/89      id   200021
       ru-101         mt=102                        updated 10/13/89      id   200024
```

```
ru-106        mt=102                          updated 10/13/89              id   20025
rh-103        mt=102                          updated 10/13/89              id   20022
rh-105          mt=  102                                                    id   20023
pd-105        mt=102                          updated 10/13/89              id   20026
pd-108        mt=102                          updated 10/13/89              id   20027
silver-109    endf/b-iv mat 1139              updated 10/13/89              id   20028
sb-124        mt=102                          updated 10/13/89              id   20029
xe-131        mt=102,103,104,105,106          updated 10/13/89              id   20030
xe-132        mt=102,103,104,105,106          updated 10/13/89              id   20031
xenon-135     endf/b-iv mat 1294              updated 10/13/89              id   20032
xe-136          mt=  102, 103, 104, 105, 107                                id   20033
cesium-133    endf/b-iv mat 1141              updated 10/13/89              id   20060
cs-134        mt=102                          updated 10/13/89              id   20034
cs-135          mt=  102                                                    id   20035
cs-137        mt=102                          updated 10/13/89              id   20036
ba-136        mt=102                          updated 10/13/89              id   20037
la-139        mt=102                          updated 10/13/89              id   20038
ce-144          mt=  102                                                    id   20041
pr-141        mt=102,103,104,105,106,107      updated 10/13/89              id   20039
pr-143        mt=102                          updated 10/13/89              id   20040
nd-143        mt=102                          updated 10/13/89              id   20042
nd-145        mt=102                          updated 10/13/89              id   20043
nd-147        mt=102                          updated 10/13/89              id   20046
pm-147        mt=102                          updated 10/13/89              id   20044
pm-148          mt=  102                                                    id   20045
sm-147        endf/b-v fission product        updated 10/13/89              id   20047
sm-149        mt=102,103,107                  updated 10/13/89              id   20048
sm-150        mt=102                          updated 10/13/89              id   20049
sm-151        mt=102,103,104,105,106,107      updated 10/13/89              id   20050
sm-152        mt=102,103,104,105,106,107      updated 10/13/89              id   20051
eu-153        mt=102,103,104,105,106,107      updated 10/13/89              id   20053
eu-154        mt=102,103,104,105,106,107      updated 10/13/89              id   20054
eu-155        mt=102,103,104,105,106,107      updated 10/13/89              id   20055
gd-155        mt=102                          updated 10/13/89              id   20052
u-234 1043 sigo=5+4 newclacs p-3 293k f-1/e-m(1.+5)                         id   20007
uranium-235   endf/b-iv mat 1261              updated 10/13/89              id   20006
u-236 1163 sigo=5+4 newclacs p-3 293k f-1/e-m(1.+5)                         id   20008
uranium-238   endf/b-iv mat 1262              updated 10/13/89              id   20009
neptunium-237 endf/b-iv mat 1263              updated 10/13/89              id   20061
pu-238 1050 sigo=5+4 newclacs p-3 293k f-1/e-m(1.+5)                        id   20062
plutonium-239 endf/b-iv mat 1264              updated 10/13/89              id   20063
plutonium-240 endf/b-iv mat 1265              updated 10/13/89              id   20064
plutonium-241 endf/b-iv mat 1266              updated 10/13/89              id   20065
plutonium-242 endf/b-iv mat 1161              updated 10/13/89              id   20066
am-241 1056 sigo=5+4 newclacs 218grp p-3 293k                               id   20067
am-243 1057 218 gp wt f-1/e-m 09076 p3 293k                                 id   20068
curium-244    endf/b-iv mat 1162              updated 10/13/89              id   20069
0    tape copy used      0 i/o's, and took     .00 seconds
1           mm       mm  iiiiiiiiiiii   ttttttttttttt     aaaaaaaa    mm       mm  ll
            mm       mm  iiiiiiiiiiii   ttttttttttttt    aaaaaaaaaa   mm       mm  ll
            mmm      mm      ii            tt        aa       aa  mm       mm  ll
            mm m     mm      ii            tt        aa       aa  mm       mm  ll
            mm  m    mm      ii            tt        aa       aa  mm       mm  ll
            mm   m   mm      ii            tt        aaaaaaaaaaa  mm   m   mm  ll
            mm    m  mm      ii            tt        aaaaaaaaaaa  mm  mmm  mm  ll
            mm     mmm      ii            tt        aa       aa  mm mm mm mm  ll
            mm      mm      ii            tt        aa       aa  mmmm   mmmm  ll
            mm       m  iiiiiiiiiiii      tt        aa       aa  mmm      mmm  llllllllllll
            mm       m  iiiiiiiiiiii      tt        aa       aa  mm       mm  llllllllllll
```



```
                  ********************************************************************
                  ********************************************************************
                  ********************************************************************
                  *****                                                          *****
                  *****                program verification information          *****
                  *****                                                          *****
                  *****              code system:  scale  version:  4.2          *****
                  *****                                                          *****
                  ********************************************************************
                  ********************************************************************
                  *****                                                          *****
                  *****                                                          *****
                  *****                 program:  c0c002                         *****
                  *****                                                          *****
                  *****           creation date:  04/27/95                       *****
                  *****                                                          *****
                  *****                 library:  /neutronics/scale/exe          *****
                  *****                                                          *****
                  *****                                                          *****
                  *****       this is not a  scale  configuration controlled code*****
                  *****                                                          *****
                  *****                 jobname:  davis                          *****
                  *****                                                          *****
                  *****       date of execution:  02/16/96                       *****
                  *****                                                          *****
                  *****       time of execution:  10:08:28                       *****
                  *****                                                          *****
                  *****                                                          *****
                  ********************************************************************
                  ********************************************************************
                  ********************************************************************
1
0       -1q array has       1 entries.
0        0q array has       4 entries.
0        1q array has      12 entries.
0select  5 nuclides from the master  library on logical  1
        65 nuclides from the working library on logical  3
         0 nuclides from the working library on logical  0
           to create the new working library on logical  4

         1 resonance calculations have been requested
         0 output option for ampx formatted cross section data
0the storage allocated for this case is 200000 words
0        2q array has      70 entries.
0        3q array has      15 entries.
0        4q array has       5 entries.
0 general information concerning cross section library
    tape identification number                  4349
    number of nuclides on tape                    65
    number of neutron energy groups               27
    first thermal neutron energy group            15
    number of gamma energy groups                  0
0   direct access unit number  9 requires  72 blocks of length  1484 words
- xsdrn tape   4321
                        scale 4.2 - 27 group neutron bump library
                           based on endf-b version 4 data with endf-b version 5 fission products
                              compiled for nrc      1/27/89
                                 last updated       9/16/93
                                    l.mupetrie   -   ornl
-  work tape   4349
```

xsdrn weighted tape--parent case entitled-- 880 d, sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp

0 nuclides from xsdrn tape

1	hydrogen	endf/b-iv mat 1269/thrmf1002	updated 10/13/89	202
2	b-10 1273 218ngp 042375 p-3 295k			205
3	boron-11	endf/b-iv mat 1160	updated 10/13/89	204
4	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	201
5	zircalloy	endf/b-iv mat 1284	updated 10/13/89	205

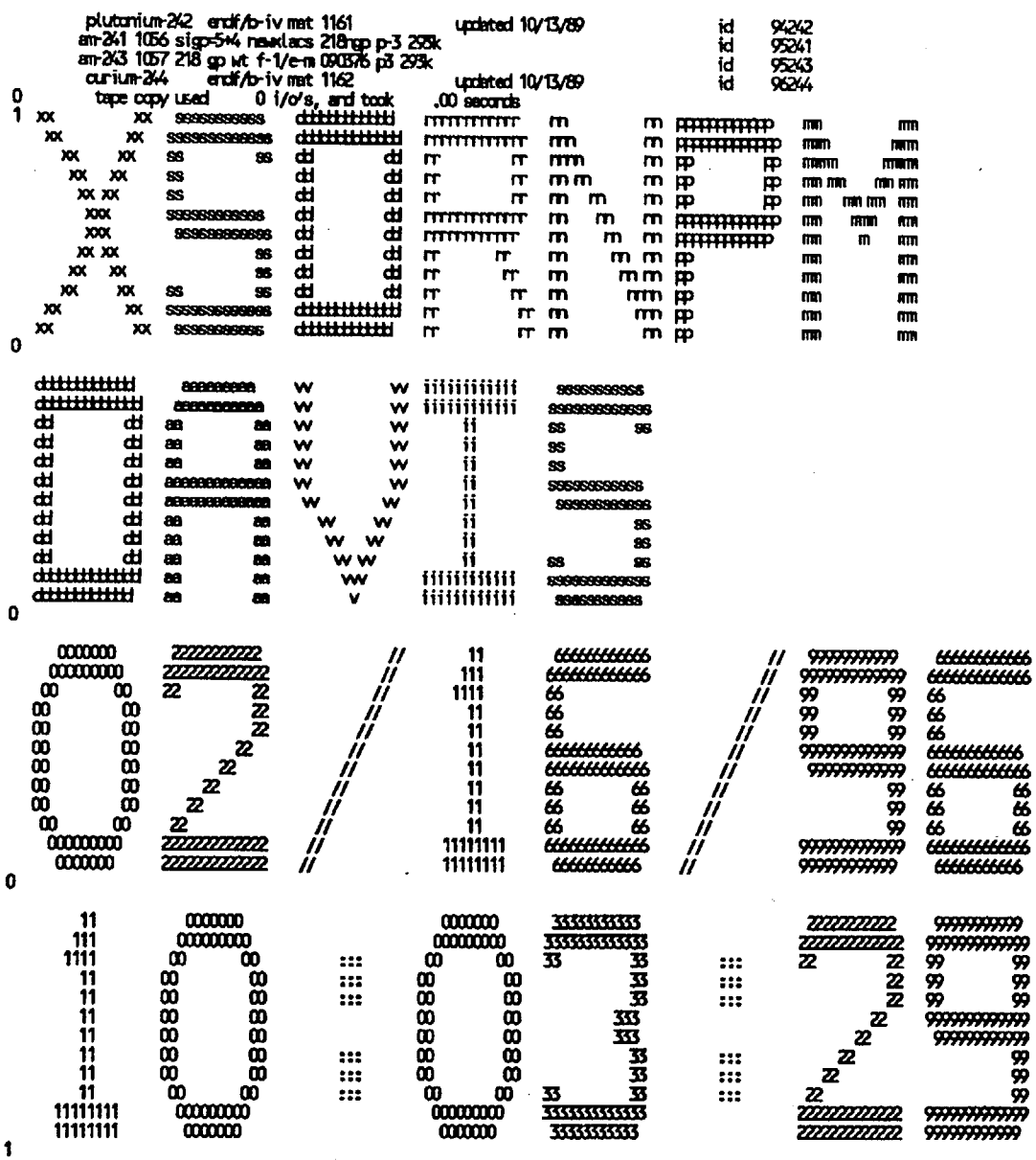
0 nuclides from work tape

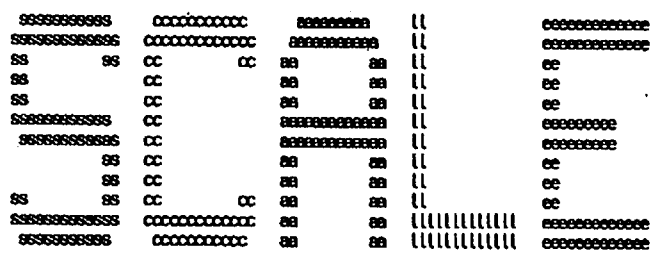
6	1/v cross sections normalized to 1.0 at 0.0253 ev			999
7	hydrogen	endf/b-iv mat 1269/thrmf1002	updated 10/13/89	1001
8	b-10 1273 218ngp 042375 p-3 295k			5010
9	boron-11	endf/b-iv mat 1160	updated 10/13/89	5011
10	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	8016
11	oxygen-16	endf/b-iv mat 1276	updated 10/13/89	6
12	kr-83	mt=102,103,103,105,106,107	updated 10/13/89	36083
13	kr-85	mt= 102		36085
14	sr-90	mt=102	updated 10/13/89	38090
15	y-89	mt=102	updated 10/13/89	39089
16	zr-93	mt= 102		40093
17	zr-94	mt=102	updated 10/13/89	40094
18	zr-95	mt=102	updated 10/13/89	40095
19	zircalloy	endf/b-iv mat 1284	updated 10/13/89	40302
20	rb-94	mt=102	updated 10/13/89	41094
21	mo-95	mt=102	updated 10/13/89	42095
22	tc-99	mt=102	updated 10/13/89	43099
23	ru-101	mt=102	updated 10/13/89	44101
24	ru-106	mt=102	updated 10/13/89	44106
25	rh-103	mt=102	updated 10/13/89	45103
26	rh-105	mt= 102		45105
27	pd-105	mt=102	updated 10/13/89	46105
28	pd-108	mt=102	updated 10/13/89	46108
29	silver-109	endf/b-iv mat 1139	updated 10/13/89	47109
30	sb-124	mt=102	updated 10/13/89	51124
31	xe-131	mt=102,103,104,105,106	updated 10/13/89	54131
32	xe-132	mt=102,103,104,105,106	updated 10/13/89	54132
33	xenon-135	endf/b-iv mat 1294	updated 10/13/89	54135
34	xe-136	mt= 102, 103, 104, 105, 107		54136
35	cesium-133	endf/b-iv mat 1141	updated 10/13/89	55133
36	cs-134	mt=102	updated 10/13/89	55134
37	cs-135	mt= 102		55135
38	cs-137	mt=102	updated 10/13/89	55137
39	ba-136	mt=102	updated 10/13/89	56136
40	la-139	mt=102	updated 10/13/89	57139
41	ce-144	mt= 102		58144
42	pr-141	mt=102,103,104,105,106,107	updated 10/13/89	59141
43	pr-143	mt=102	updated 10/13/89	59143
44	nd-143	mt=102	updated 10/13/89	60143
45	nd-145	mt=102	updated 10/13/89	60145
46	nd-147	mt=102	updated 10/13/89	60147
47	pm-147	mt=102	updated 10/13/89	61147
48	pm-148	mt= 102		61148
49	sm-147	endf/b-v fission product	updated 10/13/89	62147
50	sm-149	mt=102,103,107	updated 10/13/89	62149
51	sm-150	mt=102	updated 10/13/89	62150
52	sm-151	mt=102,103,104,105,106,107	updated 10/13/89	62151

```
    53    sm-152          mt=102,103,104,105,106,107    updated 10/13/89          62152
    54    eu-153          mt=102,103,104,105,106,107    updated 10/13/89          63153
    55    eu-154          mt=102,103,104,105,106,107    updated 10/13/89          63154
    56    eu-155          mt=102,103,104,105,106,107    updated 10/13/89          63155
    57    gd-155          mt=102                        updated 10/13/89          64155
    58    u-234 1043 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     92234
    59    uranium-235     endf/b-iv mat 1261            updated 10/13/89          92235
    60    u-236 1163 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                     92236
    61    uranium-238     endf/b-iv mat 1262            updated 10/13/89          92238
    62    neptunium-237   endf/b-iv mat 1263            updated 10/13/89          93237
    63    pu-238 1050 sigo=5+4 newxlacs p-3 293k f-1/e-m(1.+5)                    94238
    64    plutonium-239   endf/b-iv mat 1264            updated 10/13/89          94239
    65    plutonium-240   endf/b-iv mat 1265            updated 10/13/89          94240
    66    plutonium-241   endf/b-iv mat 1266            updated 10/13/89          94241
    67    plutonium-242   endf/b-iv mat 1161            updated 10/13/89          94242
    68    am-241 1056 sigo=5+4 newxlacs 218ngp p-3 293k                           95241
    69    am-243 1057 218 gp wt f-1/e-m 090576 p3 293k                            95243
    70    curium-244      endf/b-iv mat 1162            updated 10/13/89          96244
0 hydrogen      endf/b-iv mat 1269/thmf1002   updated 10/13/89          202    temperature=  607.60
                        thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0b-10 1273 218ngp 042375 p-3 293k                                         203    temperature=  607.60
                        thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 boron-11      endf/b-iv mat 1160            updated 10/13/89          204    temperature=  607.60
                        thermal scattering matrix number   2 at a temperature of   550.00 was selected.
0 oxygen-16     endf/b-iv mat 1276            updated 10/13/89          201    temperature=  607.60
0 zircalloy     endf/b-iv mat 1284            updated 10/13/89          205    temperature=  650.00
0resonance data for this nuclide
0mass number (a)          =   90.436          temperature(kelvin)       =  650.000
0potential scatter sigma  =    6.385          lumped nuclear density    = 4.2515602E-02
0spin factor (g)          =    1.099          lump dimension (a-bar)    = 6.7309999E-01
0inner radius             = 6.3246000E-01     dancoff correction (c)    = 1.6805907E-01
0the absorber will be treated by the nordheim integral method.
0this resonance material will be treated as a 2-dimensional object.
0volume fraction of lump in cell used to account for spatial self-shielding=1.00000
0group      res abs         res fiss        res scat
   8    -1.156752E-03    .000000E+00    -7.806083E-01
   9    -4.625978E-02    .000000E+00    -2.073270E+00
  10    -5.962230E-02    .000000E+00    -1.351984E+00
  11    -1.761672E-01    .000000E+00    -7.350731E-01
0excess resonance integrals
0               resolved
0absorption     2.9240E-01
 fission        .0000E+00
-  elapsed time    .00 min.
-  elapsed time    .02 min.
1     this xsdrn working tape was created 02/16/96 at 10:03:28
      the title of the parent case is as follows
      xsdrn weighted tape--parent case entitled--  880 d, sas2h: babcock wilcox 15x15,
       3.00wt%, 20gwd/mtu burn high temp

        tape id                    8670        number of nuclides          70
        number of neutron groups     27        number of gamma groups       0
        first thermal group          15        logical unit                 4
                              table of contents
       hydrogen      endf/b-iv mat 1269/thmf1002   updated 10/13/89          id    202
      b-10 1273 218ngp 042375 p-3 293k                                       id    203
       boron-11      endf/b-iv mat 1160            updated 10/13/89          id    204
       oxygen-16     endf/b-iv mat 1276            updated 10/13/89          id    201
       zircalloy     endf/b-iv mat 1284            updated 10/13/89          id    205
      1/v cross sections normalized to 1.0 at 0.0253 ev                       id    999
```

```
 hydrogen       endf/b-iv mat 1269/thrm1002    updated 10/13/89          id    1001
b-10 1273 218ngp 042375 p-3 293k                                        id    5010
 boron-11       endf/b-iv mat 1160             updated 10/13/89          id    5011
 oxygen-16      endf/b-iv mat 1276             updated 10/13/89          id    8016
 oxygen-16      endf/b-iv mat 1276             updated 10/13/89          id       6
 kr-83          mt=102,103,103,105,106,107     updated 10/13/89          id   36083
 kr-85            mt=  102                                               id   36085
 sr-90          mt=102                         updated 10/13/89          id   38090
  y-89          mt=102                         updated 10/13/89          id   39089
 zr-93            mt=  102                                               id   40093
 zr-94          mt=102                         updated 10/13/89          id   40094
 zr-95          mt=102                         updated 10/13/89          id   40095
 zircalloy      endf/b-iv mat 1284             updated 10/13/89          id   40802
 nb-94          mt=102                         updated 10/13/89          id   41094
 mo-95          mt=102                         updated 10/13/89          id   42095
 tc-99          mt=102                         updated 10/13/89          id   43099
 ru-101         mt=102                         updated 10/13/89          id   44101
 ru-106         mt=102                         updated 10/13/89          id   44106
 rh-103         mt=102                         updated 10/13/89          id   45103
 rh-105           mt=  102                                               id   45105
 pd-105         mt=102                         updated 10/13/89          id   46105
 pd-108         mt=102                         updated 10/13/89          id   46108
 silver-109     endf/b-iv mat 1139             updated 10/13/89          id   47109
 sb-124         mt=102                         updated 10/13/89          id   51124
 xe-131         mt=102,103,104,105,106         updated 10/13/89          id   54131
 xe-132         mt=102,103,104,105,106         updated 10/13/89          id   54132
 xenon-135      endf/b-iv mat 1294             updated 10/13/89          id   54135
 xe-136           mt=  102, 103, 104, 105, 107                           id   54136
 cesium-133     endf/b-iv mat 1141             updated 10/13/89          id   55133
 cs-134         mt=102                         updated 10/13/89          id   55134
 cs-135           mt=  102                                               id   55135
 cs-137         mt=102                         updated 10/13/89          id   55137
 ba-136         mt=102                         updated 10/13/89          id   56136
 la-139         mt=102                         updated 10/13/89          id   57139
 ce-144           mt=  102                                               id   58144
 pr-141         mt=102,103,104,105,106,107     updated 10/13/89          id   59141
 pr-143         mt=102                         updated 10/13/89          id   59143
 nd-143         mt=102                         updated 10/13/89          id   60143
 nd-145         mt=102                         updated 10/13/89          id   60145
 nd-147         mt=102                         updated 10/13/89          id   60147
 pm-147         mt=102                         updated 10/13/89          id   61147
 pm-148           mt=  102                                               id   61148
 sm-147         endf/b-v fission product       updated 10/13/89          id   62147
 sm-149         mt=102,103,107                 updated 10/13/89          id   62149
 sm-150         mt=102                         updated 10/13/89          id   62150
 sm-151         mt=102,103,104,105,106,107     updated 10/13/89          id   62151
 sm-152         mt=102,103,104,105,106,107     updated 10/13/89          id   62152
 eu-153         mt=102,103,104,105,106,107     updated 10/13/89          id   63153
 eu-154         mt=102,103,104,105,106,107     updated 10/13/89          id   63154
 eu-155         mt=102,103,104,105,106,107     updated 10/13/89          id   63155
 gd-155         mt=102                         updated 10/13/89          id   64155
u-234 1043 sigo=5+4 newlacs p-3 293k f-1/e-m(1.+5)                       id   92234
 uranium-235    endf/b-iv mat 1261             updated 10/13/89          id   92235
u-236 1163 sigo=5+4 newlacs p-3 293k f-1/e-m(1.+5)                       id   92236
 uranium-238    endf/b-iv mat 1262             updated 10/13/89          id   92238
 neptunium-237  endf/b-iv mat 1263             updated 10/13/89          id   93237
pu-238 1060 sigo=5+4 newlacs p-3 293k f-1/e-m(1.+5)                      id   94238
 plutonium-239  endf/b-iv mat 1264             updated 10/13/89          id   94239
 plutonium-240  endf/b-iv mat 1265             updated 10/13/89          id   94240
 plutonium-241  endf/b-iv mat 1266             updated 10/13/89          id   94241
```


plutonium-242 endf/b-iv mat 1161 updated 10/13/89
am-241 1056 sigp=544 resklacs 218grp p-3 293k
am-243 1057 218 gp wt f-1/e-n 090376 p3 293k
curium-244 endf/b-iv mat 1162 updated 10/13/89
tape copy used 0 i/o's, and took .00 seconds
id 9242
id 95241
id 95243
id 96244



```
0
```

```
*****************************************************************
*****************************************************************
*****************************************************************
*****                                                       *****
*****                                                       *****
*****              program verification information          *****
*****                                                       *****
*****              code system:  scale  version:  4.2       *****
*****                                                       *****
*****************************************************************
*****************************************************************
*****                                                       *****
*****                                                       *****
*****                                                       *****
*****                    program:  c0c001                   *****
*****                                                       *****
*****                creation date:  04/27/95               *****
*****                                                       *****
*****                    library:  /neutronics/scale/eee    *****
*****                                                       *****
*****                                                       *****
*****           this is not a  scale  configuration controlled code
*****                                                       *****
*****                    jobname:  davis                    *****
*****                                                       *****
*****           date of execution:  02/16/96                *****
*****                                                       *****
*****           time of execution:  10:03:29                *****
*****                                                       *****
*****                                                       *****
*****************************************************************
*****************************************************************
*****************************************************************
```

```
1
                    880 d, second part of sas2h pass to make library
0       -1q array has      1 entries.
0        0q array has     11 entries.
0        1q array has     15 entries.
0        2q array has     10 entries.
0        3q array has     12 entries.
0        4q array has      9 entries.
0        5q array has     12 entries.
0direct access unit   9 requires     12 blocks of length  704 for cross section mixing.
1                    880 d, second part of sas2h pass to make library
0general problem description data block
```

0 general problem data

ige	1/2/3 = plane/cylinder/sphere	2	isn	quadrature order	8
izm	number of zones	4	isct	order of scattering	3
im	number of special intervals	28	ievt	0/1/2/3/4/5/6=q/k/alpha/c/z/r/h	1
ibl	0/1/2/3 = vacuum/refl/per/white	1	iim	inner iteration maximum	20
ibr	right boundary condition	3	iom	outer iteration maximum	25
mx	number of mixtures	3	iclc	-1/0/n--flat res/sn/cpt	0
ms	mixing table length	70	ith	0/1 = forward/adjoint	0
igm	number of energy groups	27	iflu	not used(always wgtd)	0
nrg	number of neutron groups	27	iprt	-2/-1/0/n=mixture xsec print	-2
ngg	number of gamma groups	0	idf	0/1/2/3=no/prt nd/pch n/both	14
iftg	number of first thermal group	15	ipbt	-1/0/1=none/fine/all bal. prt	0

0 special options

ifg	0/1 = none/weighting calculation	1	ipn	0/1/2 diff. coef. param	0
iqm	volumetric sources (0/n=no/yes)	0	idfm	0/1 = none/density factors 38*	0
ipm	boundary sources (0/n=no/yes)	0	iaz	0/n = none/n activities by zone	0
ifn	0/1/2 = input 33*/34*/use last	14	iai	0/1=none/activities by interval	0
itmx	maximum time (minutes)	10	ifct	0/1=no/yes upscatter scaling	0
idt1	0/1/2/3=no/xsect/srce/flux--out	0	ipvt	0/1/2=no/k/alpha parametric srch	0
isx	broad group fluxes	0	isen	outer iteration acceleration	0
ibln	activity data unit	0	nbnd	band rebaln parameter	0
jbkl	0/1/2 buckling geometry	0			

0 weighting data (ifg=1)

icon	-1/0/1=cell/zone/region weight	-1	ihtf	total xsect pan in brd gp tables	3
igmf	number of broad groups	3	ndsf	pan g-g or file number	4
itp	0/10/20/30/40 0/c/e/ac/a	0	nusf	table length or max order	6
ipp	-2/-1/0/n=wgted xsect print	-2	mcon	extra 1-d x-sect positions	0
iap	-1/n anisn xsect print	-1			

0 floating point parameters

eps	overall convergence	1.00000E-04	dy	cyl/pla ht for buckling	.00000E+00
ptc	point convergence	1.00000E-04	dz	plane depth for buckling	2.00000E+02
xnf	normalization factor	1.00000E+00	vac	void streaming correction	.00000E+00
ev	eigenvalue guess	.00000E+00	pv	ipvt=1/2--k/alpha	1.00000E+00
evm	eigenvalue modifier	.00000E+00	eql	ev change eps for search	1.00000E-03
bf	buckling factor=1.420892	1.42089E+00	xpm	new param mod for search	7.50000E-01

this case will require 2611 locations for mixing
this case has been allocated 200000 locations

1 880 d, second part of sas2h pass to make library
0 13q array has 70 entries.
0 14q array has 70 entries.
0 15q array has 70 entries.
0 data block 2 (mixing table, etc.)

0	nuclides on tape	cccc identification	mixing table mixture	component	atom density	extra xsect id's
1	202		3	201	2.09710E-02	
2	203		3	202	4.19420E-02	
3	204		3	203	3.81515E-06	
4	201		3	204	1.54884E-05	
5	205		2	205	4.25156E-02	
6	999		1	92235	1.33198E-04	
7	1001		1	92234	1.47781E-06	
8	5010		1	92236	1.82298E-05	
9	5011		1	92238	7.21946E-03	
10	8016		1	8016	1.50611E-02	
11	6		1	6	1.15315E-02	
12	36083		1	36083	4.72043E-07	

13	36085		1	36085	2.27030E-07
14	38090		1	38090	5.16852E-06
15	39089		1	39089	4.09755E-06
16	40093		1	42095	5.47657E-06
17	40094		1	40093	4.12208E-06
18	40095		1	40094	6.47876E-06
19	40802		1	40095	6.60885E-07
20	41094		1	41094	3.21149E-12
21	42095		1	43099	6.33732E-06
22	43099		1	45103	3.47568E-06
23	44101		1	45105	7.39443E-09
24	44106		1	44101	5.75136E-06
25	45103		1	44106	8.69130E-07
26	45105		1	46105	2.26913E-06
27	46105		1	46108	6.36851E-07
28	46108		1	47109	4.45102E-07
29	47109		1	51124	1.00830E-10
30	51124		1	54131	2.90271E-06
31	54131		1	54132	5.45567E-06
32	54132		1	54135	2.20848E-09
33	54135		1	54136	1.09418E-05
34	54136		1	55134	3.16663E-07
35	55133		1	55135	3.47362E-06
36	55134		1	55137	6.78821E-06
37	55135		1	56136	6.38766E-08
38	55137		1	57139	6.72223E-06
39	56136		1	59141	5.82082E-06
40	57139		1	59143	1.22771E-07
41	58144		1	58144	2.21790E-06
42	59141		1	60143	5.26395E-06
43	59143		1	60145	3.88111E-06
44	60143		1	61147	1.33040E-06
45	60145		1	61148	3.89552E-09
46	60147		1	60147	4.29701E-08
47	61147		1	62147	4.63565E-07
48	61148		1	62149	2.87617E-08
49	62147		1	62150	1.38277E-06
50	62149		1	62151	1.32930E-07
51	62150		1	62152	6.63045E-07
52	62151		1	64155	7.21936E-10
53	62152		1	63153	3.98698E-07
54	63153		1	63154	8.34053E-08
55	63154		1	63155	4.31432E-08
56	63155		1	40802	4.42681E-05
57	64155		1	1001	2.30630E-02
58	92234		1	5010	2.09787E-06
59	92235		1	5011	8.51673E-06
60	92236		1	55133	6.95263E-06
61	92238		1	95237	1.23390E-06
62	95237		1	94238	1.76797E-07
63	94238		1	94239	3.56856E-05
64	94239		1	94240	6.95688E-06
65	94240		1	94241	3.76425E-06
66	94241		1	94242	4.23205E-07
67	94242		1	95241	1.12643E-07
68	95241		1	95243	3.90711E-08
69	95243		1	96244	3.73748E-09
70	96244		1	999	3.30953E-21

- elapsed time .00 min.
0 24259 locations will be used

0 35q array has 29 entries.
0 36q array has 28 entries.
0 39q array has 4 entries.
0 40q array has 4 entries.
0 47q array has 27 entries.
0 51q array has 27 entries.
1 880 d, second part of sas2h pass to make library

neutron group parameters

0

gp	energy boundaries	lethargy boundaries	weighted velocities	broad gp numbers	calc type	group band	right albedo	left albedo
1	2.00000E+07	-6.95147E-01	4.60681E+09	1	0	1	1.00000E+00	
2	6.43400E+06	4.40989E-01	2.88737E+09	1	0	2	1.00000E+00	
3	3.00000E+06	1.20397E+00	2.12201E+09	1	0	3	1.00000E+00	
4	1.85000E+06	1.68740E+00	1.75673E+09	1	0	4	1.00000E+00	
5	1.40000E+06	1.96611E+00	1.46535E+09	1	0	5	1.00000E+00	
6	9.00000E+05	2.40795E+00	1.06620E+09	2	0	6	1.00000E+00	
7	4.00000E+05	3.21888E+00	6.07557E+08	2	0	7	1.00000E+00	
8	1.00000E+05	4.60517E+00	2.72415E+08	2	0	8	1.00000E+00	
9	1.70000E+04	6.37713E+00	1.13526E+08	2	0	9	1.00000E+00	
10	3.00000E+03	8.11173E+00	4.82126E+07	2	0	10	1.00000E+00	
11	5.50000E+02	9.80818E+00	2.05946E+07	2	0	11	1.00000E+00	
12	1.00000E+02	1.15129E+01	1.01036E+07	2	0	12	1.00000E+00	
13	3.00000E+01	1.27169E+01	5.69595E+06	2	0	13	1.00000E+00	
14	1.00000E+01	1.38155E+01	3.20957E+06	2	0	14	1.00000E+00	
15	3.04999E+00	1.50030E+01	2.10601E+06	2	0	15	1.00000E+00	
16	1.77000E+00	1.55471E+01	1.70522E+06	2	0	16	1.00000E+00	
17	1.29999E+00	1.58657E+01	1.52545E+06	2	0	17	1.00000E+00	
18	1.12999E+00	1.59959E+01	1.42867E+06	2	0	18	1.00000E+00	
19	1.00000E+00	1.61181E+01	1.31002E+06	2	0	19	1.00000E+00	
20	8.00000E-01	1.63412E+01	9.05898E+05	2	0	20	1.00000E+00	
21	4.00000E-01	1.70344E+01	8.17974E+05	3	0	21	1.00000E+00	
22	3.25000E-01	1.72420E+01	6.90070E+05	3	0	22	1.00000E+00	
23	2.25000E-01	1.76098E+01	4.86583E+05	3	0	23	1.00000E+00	
24	9.99999E-02	1.84207E+01	3.57766E+05	3	0	24	1.00000E+00	
25	5.00000E-02	1.91138E+01	2.71895E+05	3	0	25	1.00000E+00	
26	3.00000E-02	1.96247E+01	1.87283E+05	3	0	26	1.00000E+00	
27	1.00000E-02	2.07233E+01	8.88201E+04	3	0	27	1.00000E+00	
28	1.00000E-05	2.76310E+01						

1 880 d, second part of sas2h pass to make library

0

	mixture by zone	order p(l) by zone	activity table matl no.	activity table reaction	quadrature constants weights	quadrature constants directions	quadrature constants refl direc	quadrature constants wt x cos
1	3	3			0	-2.79004E-01	3	0
2	2	3			5.06143E-02	-1.97286E-01	3	-9.98548E-03
3	3	3			5.06143E-02	1.97286E-01	2	9.98548E-03
4	1	3			0	-6.04419E-01	8	0
5					5.55953E-02	-5.58410E-01	8	-3.10450E-02
6					5.55953E-02	-2.31301E-01	7	-1.28595E-02
7					5.55953E-02	2.31301E-01	6	1.28595E-02
8					5.55953E-02	5.58410E-01	5	3.10450E-02
9					0	-8.50774E-01	15	0
10					5.22814E-02	-8.21784E-01	15	-4.29665E-02
11					5.22814E-02	-6.01588E-01	14	-3.14537E-02
12					5.22814E-02	-2.20196E-01	13	-1.15128E-02
13					5.22814E-02	2.20196E-01	12	1.15128E-02
14					5.22814E-02	6.01588E-01	11	3.14537E-02
15					5.22814E-02	8.21784E-01	10	4.29665E-02
16					0	-9.83032E-01	24	0
17					4.53356E-02	-9.64143E-01	24	-4.37099E-02
18					4.53356E-02	-8.17361E-01	23	-3.70655E-02
19					4.53356E-02	-5.46143E-01	22	-2.47597E-02

20					4.53365E-02	-1.91780E-01	21	-8.69444E-03
21					4.53365E-02	1.91780E-01	20	8.69444E-03
22					4.53365E-02	5.46143E-01	19	2.47597E-02
23					4.53365E-02	8.17361E-01	18	3.70555E-02
24					4.53365E-02	9.64143E-01	17	4.37099E-02

0constants for p(3) scattering

0angl	set 1	set 2	set 3	set 4	set 5
1	-2.79004E-01	8.83236E-01	6.74143E-02	-6.16919E-01	-1.71701E-02
2	-1.97286E-01	8.83236E-01	.00000E+00	-4.36228E-01	1.21411E-02
3	1.97286E-01	8.83236E-01	.00000E+00	4.36228E-01	-1.21411E-02
4	-6.04419E-01	4.52016E-01	3.16379E-01	-8.04435E-01	-1.74564E-01
5	-5.58410E-01	4.52016E-01	2.23714E-01	-7.43201E-01	-6.68088E-02
6	-2.31301E-01	4.52016E-01	-2.23713E-01	-3.07844E-01	1.61278E-01
7	2.31301E-01	4.52016E-01	-2.23713E-01	3.07844E-01	-1.61278E-01
8	5.58410E-01	4.52016E-01	2.23713E-01	7.43201E-01	6.68088E-02
9	-8.50774E-01	-8.57236E-02	6.26843E-01	-1.98456E-01	-4.86835E-01
10	-8.21784E-01	-8.57236E-02	5.42862E-01	-1.91694E-01	-3.44245E-01
11	-6.01588E-01	-8.57236E-02	.00000E+00	-1.40330E-01	3.44244E-01
12	-2.20196E-01	-8.57236E-02	-5.42862E-01	-5.13643E-02	3.44245E-01
13	2.20196E-01	-8.57236E-02	-5.42862E-01	5.13643E-02	-3.44245E-01
14	6.01588E-01	-8.57236E-02	.00000E+00	1.40330E-01	-3.44245E-01
15	8.21784E-01	-8.57236E-02	5.42862E-01	1.91694E-01	3.44245E-01
16	-9.89082E-01	-4.49528E-01	8.36886E-01	5.00708E-01	-7.51005E-01
17	-9.64143E-01	-4.49528E-01	7.73181E-01	4.91083E-01	-6.24438E-01
18	-8.17361E-01	-4.49528E-01	3.20862E-01	4.16320E-01	1.46514E-01
19	-5.46143E-01	-4.49528E-01	-3.20862E-01	2.78178E-01	7.36575E-01
20	-1.91780E-01	-4.49528E-01	-7.73181E-01	9.76834E-02	4.17236E-01
21	1.91780E-01	-4.49528E-01	-7.73181E-01	-9.76834E-02	-4.17236E-01
22	5.46143E-01	-4.49528E-01	-3.20862E-01	-2.78178E-01	-7.36575E-01
23	8.17361E-01	-4.49528E-01	3.20862E-01	-4.16320E-01	-1.46514E-01
24	9.64143E-01	-4.49528E-01	7.73181E-01	-4.91083E-01	6.24438E-01

1 int	radii	mid pts	zone no.	areas	volumes	dens fact	radius mod	spec(int)
1	0	1.97644E-02	1	0	4.90881E-03		0	
2	3.95287E-02	5.92851E-02	1	2.48366E-01	1.47264E-02		0	
3	7.90575E-02	1.18586E-01	1	4.96733E-01	5.89057E-02		0	
4	1.58115E-01	1.97644E-01	1	9.93466E-01	9.81762E-02		0	
5	2.37172E-01	2.76701E-01	1	1.49020E+00	1.37447E-01			
6	3.16230E-01	3.55759E-01	1	1.98693E+00	1.76717E-01			
7	3.95288E-01	4.34816E-01	1	2.48366E+00	2.15988E-01			
8	4.74345E-01	5.13874E-01	1	2.98040E+00	2.55258E-01			
9	5.53403E-01	5.73167E-01	1	3.47713E+00	1.42355E-01			
10	5.92931E-01	6.12698E-01	1	3.72550E+00	1.52173E-01			
11	6.32460E-01	6.42620E-01	2	3.97386E+00	8.20460E-02			
12	6.52780E-01	6.62940E-01	2	4.10154E+00	8.46405E-02			
13	6.73100E-01	6.96688E-01	3	4.22921E+00	2.05562E-01			
14	7.20067E-01	7.43550E-01	3	4.52431E+00	2.19422E-01			
15	7.67033E-01	7.90517E-01	3	4.81941E+00	2.33282E-01			
16	8.14000E-01	8.62795E-01	4	5.11451E+00	5.29051E-01			
17	9.11591E-01	9.60886E-01	4	5.72769E+00	5.88991E-01			
18	1.00918E+00	1.10577E+00	4	6.34088E+00	1.35731E+00			
19	1.20436E+00	1.30195E+00	4	7.56724E+00	1.59667E+00			
20	1.39955E+00	1.49714E+00	4	8.79360E+00	1.83603E+00			
21	1.59473E+00	1.69232E+00	4	1.00200E+01	2.07540E+00			
22	1.78991E+00	1.88750E+00	4	1.12463E+01	2.31476E+00			
23	1.98509E+00	2.08268E+00	4	1.24727E+01	2.55412E+00			
24	2.18027E+00	2.27786E+00	4	1.36991E+01	2.79348E+00			
25	2.37545E+00	2.47305E+00	4	1.49254E+01	3.05285E+00			
26	2.57064E+00	2.66823E+00	4	1.61518E+01	3.27221E+00			
27	2.76582E+00	2.81461E+00	4	1.73781E+01	1.72587E+00			
28	2.86341E+00	2.91220E+00	4	1.79913E+01	1.78571E+00			

29 2.96100E+00 1.86045E+01

- elapsed time .00 min.

outer iter	inner iters	1 - balance	eigenvalue	1 - source ratio	1 - scatter ratio	1 - upscat ratio	search parameter	time (min)
1	172	-8.63675E-06	1.03791E+00	-4.15808E-02	1.00000E+00	-1.29586E-02	.00000E+00	.0000
2	251	5.65640E-06	1.04195E+00	-9.95511E-04	-5.16134E-03	-2.02897E-03	.00000E+00	.0000
3	314	-3.70457E-07	1.04265E+00	-1.59963E-04	-7.56361E-04	-4.78958E-04	.00000E+00	.0167
4	361	-1.31994E-06	1.04280E+00	-3.61601E-05	-1.80436E-04	-1.10090E-04	.00000E+00	.0167

grp to grp	inner iters	mfd int.	max. flux difference	msf int.	max. scale factor	coarse mesh
1	1	17	1.37258E-06	28	1.00000E+00	1
2	1	17	1.66859E-06	28	1.00000E+00	1
3	1	17	1.54704E-06	28	1.00000E+00	1
4	1	17	1.51222E-06	28	1.00000E+00	1
5	1	17	1.59874E-06	28	1.00000E+00	1
6	1	17	1.09978E-06	28	1.00000E+00	1
7	1	24	1.17530E-06	28	1.00000E+00	2
8	1	23	7.98609E-08	20	1.00000E+00	2
9	1	27	1.50382E-05	28	9.99986E-01	3
10	1	28	9.83594E-07	28	1.00000E+00	3
11	1	26	4.76753E-06	28	9.99996E-01	3
12	1	25	8.77948E-07	28	9.99999E-01	3
13	1	26	4.85440E-06	28	9.99995E-01	3
14	1	25	8.47489E-07	28	9.99999E-01	3
15	2	28	3.36890E-05	28	1.00000E+00	2
16	2	28	4.08855E-05	28	1.00001E+00	2
17	2	26	9.14355E-05	28	1.00010E+00	3
18	2	28	4.33017E-05	28	1.00002E+00	3
19	2	26	8.20417E-05	28	1.00009E+00	3
20	2	25	2.21060E-05	28	1.00002E+00	3
21	2	28	5.23589E-05	28	1.00001E+00	3
22	1	14	8.38734E-05	28	9.99920E-01	3
23	1	27	4.27573E-05	28	1.00004E+00	4
24	1	1	3.70277E-05	9	1.00008E+00	4
25	1	1	4.36447E-05	28	1.00008E+00	5
26	1	1	3.11988E-05	6	1.00002E+00	6
27	1	1	2.80956E-05	5	1.00002E+00	8

5 395 1.90825E-06 1.04280E+00 -8.50867E-06 -4.18172E-05 -2.48051E-05 .00000E+00 .0167

final monitor

lambda 1.04283E+00 production/absorption 1.05648E+00 angular flux on 16

- elapsed time .02 min.

1 880 d, second part of search pass to make library

0 int.	zone number	radius	int. midpoint	area	volume	prod density
1	1	.00000E+00	1.97644E-02	.00000E+00	4.90881E-03	.00000E+00
2	1	3.95287E-02	5.92951E-02	2.48366E-01	1.47264E-02	.00000E+00
3	1	7.90575E-02	1.18586E-01	4.96733E-01	5.89057E-02	.00000E+00
4	1	1.58115E-01	1.97644E-01	9.93466E-01	9.81762E-02	.00000E+00
5	1	2.37172E-01	2.76701E-01	1.49020E+00	1.37447E-01	.00000E+00
6	1	3.16230E-01	3.55759E-01	1.98692E+00	1.76717E-01	.00000E+00
7	1	3.95288E-01	4.34816E-01	2.48366E+00	2.15988E-01	.00000E+00
8	1	4.74345E-01	5.13874E-01	2.98040E+00	2.55258E-01	.00000E+00
9	1	5.53403E-01	5.73167E-01	3.47713E+00	1.42355E-01	.00000E+00
10	1	5.92931E-01	6.12698E-01	3.72550E+00	1.52173E-01	.00000E+00
11	2	6.32460E-01	6.42620E-01	3.97386E+00	8.20460E-02	.00000E+00
12	2	6.52780E-01	6.62940E-01	4.10154E+00	8.46405E-02	.00000E+00
13	3	6.73100E-01	6.96883E-01	4.22921E+00	2.05562E-01	.00000E+00
14	3	7.20067E-01	7.43550E-01	4.52431E+00	2.19422E-01	.00000E+00
15	3	7.67033E-01	7.90517E-01	4.81941E+00	2.33282E-01	.00000E+00
16	4	8.14000E-01	8.62795E-01	5.11451E+00	5.29051E-01	2.38059E-02
17	4	9.11591E-01	9.60386E-01	5.72760E+00	5.88871E-01	2.59056E-02

18	4	1.00918E+00	1.10677E+00	6.34088E+00	1.35731E+00	5.84708E-02
19	4	1.20436E+00	1.30195E+00	7.56724E+00	1.59667E+00	6.73591E-02
20	4	1.39955E+00	1.49714E+00	8.79860E+00	1.85603E+00	7.63332E-02
21	4	1.59473E+00	1.69232E+00	1.00200E+01	2.07540E+00	8.53572E-02
22	4	1.78991E+00	1.88750E+00	1.12463E+01	2.31478E+00	9.44350E-02
23	4	1.98509E+00	2.08268E+00	1.24727E+01	2.55412E+00	1.03575E-01
24	4	2.18027E+00	2.27786E+00	1.36991E+01	2.79349E+00	1.12792E-01
25	4	2.37545E+00	2.47305E+00	1.49254E+01	3.03286E+00	1.22108E-01
26	4	2.57064E+00	2.66823E+00	1.61518E+01	3.27221E+00	1.31540E-01
27	4	2.76582E+00	2.81461E+00	1.73781E+01	1.72587E+00	6.95567E-02
28	4	2.86341E+00	2.91220E+00	1.79913E+01	1.78571E+00	7.17984E-02
29		2.96100E+00		1.86045E+01		

1 880 d, second part of ses2h pass to make library

0 total flux

0 int.	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.25528E-02	9.08020E-02	1.12533E-01	6.90100E-02	1.02732E-01	1.92768E-01	1.98078E-01	1.47004E-01
2	1.29478E-02	9.07508E-02	1.12468E-01	6.89718E-02	1.02679E-01	1.92681E-01	1.98066E-01	1.46998E-01
3	1.29483E-02	9.07638E-02	1.12485E-01	6.89889E-02	1.02714E-01	1.92751E-01	1.98089E-01	1.47009E-01
4	1.29550E-02	9.08145E-02	1.12602E-01	6.90582E-02	1.02843E-01	1.92994E-01	1.98245E-01	1.47088E-01
5	1.29673E-02	9.09864E-02	1.12798E-01	6.92011E-02	1.03059E-01	1.93392E-01	1.98473E-01	1.47082E-01
6	1.29841E-02	9.11817E-02	1.13067E-01	6.93844E-02	1.03357E-01	1.93941E-01	1.98852E-01	1.47138E-01
7	1.30052E-02	9.14316E-02	1.13413E-01	6.96224E-02	1.03745E-01	1.94657E-01	1.94273E-01	1.47208E-01
8	1.30307E-02	9.17437E-02	1.13853E-01	6.99297E-02	1.04250E-01	1.95595E-01	1.94845E-01	1.47291E-01
9	1.30523E-02	9.20182E-02	1.14247E-01	7.02116E-02	1.04718E-01	1.96461E-01	1.95385E-01	1.47360E-01
10	1.30669E-02	9.22335E-02	1.14578E-01	7.04598E-02	1.05139E-01	1.97246E-01	1.95871E-01	1.47409E-01
11	1.30792E-02	9.24118E-02	1.14851E-01	7.06682E-02	1.05490E-01	1.97922E-01	1.96289E-01	1.47454E-01
12	1.30925E-02	9.25446E-02	1.15025E-01	7.07765E-02	1.05662E-01	1.98259E-01	1.96492E-01	1.47497E-01
13	1.31206E-02	9.27865E-02	1.15295E-01	7.09140E-02	1.05851E-01	1.98598E-01	1.96685E-01	1.47566E-01
14	1.31618E-02	9.31719E-02	1.15749E-01	7.11692E-02	1.06225E-01	1.99256E-01	1.97062E-01	1.47668E-01
15	1.32102E-02	9.36678E-02	1.16374E-01	7.15558E-02	1.06822E-01	2.00328E-01	1.97690E-01	1.47759E-01
16	1.32656E-02	9.44619E-02	1.17391E-01	7.22008E-02	1.07836E-01	2.02168E-01	1.98781E-01	1.47929E-01
17	1.33999E-02	9.52521E-02	1.18407E-01	7.28480E-02	1.08866E-01	2.04060E-01	1.99922E-01	1.48126E-01
18	1.34189E-02	9.58923E-02	1.19240E-01	7.33963E-02	1.09731E-01	2.05695E-01	2.00938E-01	1.48330E-01
19	1.34703E-02	9.64605E-02	1.19988E-01	7.38695E-02	1.10521E-01	2.07221E-01	2.01904E-01	1.48542E-01
20	1.35004E-02	9.68017E-02	1.20445E-01	7.41670E-02	1.11015E-01	2.08208E-01	2.02542E-01	1.48697E-01
21	1.35193E-02	9.70209E-02	1.20743E-01	7.43634E-02	1.11344E-01	2.08873E-01	2.02986E-01	1.48813E-01
22	1.35314E-02	9.71639E-02	1.20942E-01	7.44944E-02	1.11568E-01	2.09338E-01	2.03300E-01	1.48900E-01
23	1.35389E-02	9.72568E-02	1.21071E-01	7.45805E-02	1.11712E-01	2.09654E-01	2.03517E-01	1.48962E-01
24	1.35433E-02	9.73105E-02	1.21150E-01	7.46331E-02	1.11808E-01	2.09855E-01	2.03658E-01	1.49004E-01
25	1.35452E-02	9.73356E-02	1.21187E-01	7.46582E-02	1.11848E-01	2.09959E-01	2.03732E-01	1.49025E-01
26	1.35448E-02	9.73324E-02	1.21186E-01	7.46570E-02	1.11848E-01	2.09964E-01	2.03738E-01	1.49025E-01
27	1.35430E-02	9.73123E-02	1.21159E-01	7.46395E-02	1.11819E-01	2.09911E-01	2.03701E-01	1.49012E-01
28	1.35405E-02	9.72826E-02	1.21119E-01	7.46130E-02	1.11775E-01	2.09821E-01	2.03638E-01	1.48992E-01

0 int.	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.15956E-01	1.07187E-01	1.00969E-01	6.54718E-02	5.59086E-02	5.32164E-02	2.85961E-02	1.60417E-02
2	1.15957E-01	1.07185E-01	1.00973E-01	6.54788E-02	5.59035E-02	5.32235E-02	2.85984E-02	1.60428E-02
3	1.15955E-01	1.07180E-01	1.00952E-01	6.54529E-02	5.58809E-02	5.31902E-02	2.85919E-02	1.60391E-02
4	1.15951E-01	1.07159E-01	1.00903E-01	6.53954E-02	5.58266E-02	5.31100E-02	2.85757E-02	1.60301E-02
5	1.15944E-01	1.07126E-01	1.00828E-01	6.53077E-02	5.57441E-02	5.29880E-02	2.85514E-02	1.60166E-02
6	1.15935E-01	1.07082E-01	1.00726E-01	6.51885E-02	5.56325E-02	5.28225E-02	2.85198E-02	1.59986E-02
7	1.15923E-01	1.07029E-01	1.00597E-01	6.50329E-02	5.54868E-02	5.26060E-02	2.84797E-02	1.59756E-02
8	1.15909E-01	1.06964E-01	1.00442E-01	6.48263E-02	5.52961E-02	5.23214E-02	2.84259E-02	1.59461E-02
9	1.15900E-01	1.06870E-01	1.00244E-01	6.46342E-02	5.51190E-02	5.20562E-02	2.83788E-02	1.59191E-02
10	1.15901E-01	1.06800E-01	1.00088E-01	6.44595E-02	5.49588E-02	5.18154E-02	2.83442E-02	1.58950E-02
11	1.15906E-01	1.06746E-01	9.99662E-02	6.43221E-02	5.48316E-02	5.16254E-02	2.83095E-02	1.58748E-02
12	1.15902E-01	1.06726E-01	9.99008E-02	6.42684E-02	5.47795E-02	5.15488E-02	2.86904E-02	1.58651E-02
13	1.15857E-01	1.06699E-01	9.98577E-02	6.41862E-02	5.47045E-02	5.14358E-02	2.86743E-02	1.58550E-02
14	1.15787E-01	1.06637E-01	9.97146E-02	6.40080E-02	5.45463E-02	5.11925E-02	2.86477E-02	1.58357E-02
15	1.15711E-01	1.06532E-01	9.94808E-02	6.37275E-02	5.42986E-02	5.08112E-02	2.86078E-02	1.58055E-02
16	1.15607E-01	1.06361E-01	9.90930E-02	6.32655E-02	5.38895E-02	5.01788E-02	2.85346E-02	1.57539E-02

17	1.15513E-01	1.06191E-01	9.87054E-02	6.28037E-02	5.34751E-02	4.95426E-02	2.84473E-02	1.56977E-02
18	1.15447E-01	1.06047E-01	9.85795E-02	6.24095E-02	5.31127E-02	4.89984E-02	2.83531E-02	1.56427E-02
19	1.15394E-01	1.05915E-01	9.80647E-02	6.20423E-02	5.27697E-02	4.84907E-02	2.82532E-02	1.55869E-02
20	1.15370E-01	1.05851E-01	9.78648E-02	6.18052E-02	5.25436E-02	4.81621E-02	2.81784E-02	1.55468E-02
21	1.15357E-01	1.05773E-01	9.77259E-02	6.16405E-02	5.23842E-02	4.79331E-02	2.81211E-02	1.55167E-02
22	1.15351E-01	1.05733E-01	9.76270E-02	6.15233E-02	5.22694E-02	4.77697E-02	2.80775E-02	1.54941E-02
23	1.15348E-01	1.05705E-01	9.75567E-02	6.14400E-02	5.21873E-02	4.76534E-02	2.80453E-02	1.54775E-02
24	1.15346E-01	1.05686E-01	9.75089E-02	6.13832E-02	5.21312E-02	4.75742E-02	2.80233E-02	1.54662E-02
25	1.15344E-01	1.05674E-01	9.74803E-02	6.13494E-02	5.20982E-02	4.75272E-02	2.80108E-02	1.54598E-02
26	1.15342E-01	1.05670E-01	9.74712E-02	6.13385E-02	5.20885E-02	4.75128E-02	2.80088E-02	1.54587E-02
27	1.15340E-01	1.05672E-01	9.74764E-02	6.13452E-02	5.20962E-02	4.75230E-02	2.80141E-02	1.54613E-02
28	1.15337E-01	1.05677E-01	9.74919E-02	6.13637E-02	5.21158E-02	4.75497E-02	2.80259E-02	1.54662E-02

0 int.	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	6.99978E-03	5.26373E-03	1.05900E-02	3.52499E-02	1.09386E-02	2.23971E-02	7.57264E-02	6.21490E-02
2	7.00052E-03	5.26524E-03	1.05913E-02	3.52526E-02	1.09396E-02	2.23989E-02	7.57195E-02	6.21346E-02
3	6.99729E-03	5.25695E-03	1.05852E-02	3.52383E-02	1.09289E-02	2.23639E-02	7.56051E-02	6.20099E-02
4	6.98948E-03	5.23698E-03	1.05706E-02	3.52044E-02	1.09031E-02	2.22840E-02	7.53472E-02	6.17416E-02
5	6.97759E-03	5.20623E-03	1.05484E-02	3.51538E-02	1.08647E-02	2.21640E-02	7.49678E-02	6.13446E-02
6	6.96147E-03	5.16406E-03	1.05185E-02	3.50860E-02	1.08126E-02	2.20018E-02	7.44619E-02	6.08158E-02
7	6.94088E-03	5.10817E-03	1.04796E-02	3.49988E-02	1.07446E-02	2.17906E-02	7.38175E-02	6.01437E-02
8	6.91264E-03	5.03350E-03	1.04289E-02	3.48866E-02	1.06553E-02	2.15148E-02	7.30052E-02	5.92999E-02
9	6.88576E-03	4.96309E-03	1.03819E-02	3.47837E-02	1.05720E-02	2.12593E-02	7.22709E-02	5.85468E-02
10	6.85317E-03	4.89835E-03	1.03395E-02	3.46919E-02	1.04958E-02	2.10282E-02	7.16342E-02	5.78998E-02
11	6.81447E-03	4.84881E-03	1.03056E-02	3.46180E-02	1.04374E-02	2.08542E-02	7.11707E-02	5.74486E-02
12	6.85698E-03	4.85123E-03	1.02915E-02	3.45864E-02	1.04170E-02	2.07961E-02	7.10275E-02	5.73339E-02
13	6.82606E-03	4.79869E-03	1.02729E-02	3.45462E-02	1.03885E-02	2.06894E-02	7.07517E-02	5.70489E-02
14	6.80256E-03	4.72549E-03	1.02336E-02	3.44644E-02	1.03072E-02	2.04477E-02	7.01395E-02	5.63995E-02
15	6.76534E-03	4.60961E-03	1.01721E-02	3.43384E-02	1.01860E-02	2.00716E-02	6.92446E-02	5.54712E-02
16	6.70403E-03	4.40664E-03	1.00698E-02	3.41300E-02	9.98748E-03	1.94515E-02	6.78671E-02	5.40931E-02
17	6.64270E-03	4.20615E-03	9.96401E-03	3.39108E-02	9.79106E-03	1.88370E-02	6.64665E-02	5.27168E-02
18	6.59002E-03	4.05544E-03	9.85791E-03	3.37022E-02	9.62549E-03	1.83261E-02	6.51270E-02	5.13972E-02
19	6.54066E-03	3.92705E-03	9.77531E-03	3.34945E-02	9.47172E-03	1.78557E-02	6.37816E-02	5.00666E-02
20	6.50834E-03	3.85355E-03	9.71287E-03	3.33482E-02	9.37240E-03	1.75547E-02	6.28230E-02	4.91165E-02
21	6.48561E-03	3.80536E-03	9.66851E-03	3.32405E-02	9.30286E-03	1.73448E-02	6.21049E-02	4.84048E-02
22	6.46927E-03	3.77483E-03	9.63594E-03	3.31598E-02	9.25290E-03	1.71943E-02	6.15611E-02	4.78666E-02
23	6.45760E-03	3.75339E-03	9.61284E-03	3.31007E-02	9.21697E-03	1.70857E-02	6.11532E-02	4.74630E-02
24	6.44864E-03	3.73911E-03	9.59663E-03	3.30596E-02	9.19215E-03	1.70102E-02	6.08584E-02	4.71701E-02
25	6.44496E-03	3.73041E-03	9.58707E-03	3.30350E-02	9.17665E-03	1.69621E-02	6.06639E-02	4.69758E-02
26	6.44361E-03	3.72671E-03	9.58407E-03	3.30282E-02	9.17047E-03	1.69405E-02	6.05897E-02	4.68682E-02
27	6.44524E-03	3.72705E-03	9.58669E-03	3.30337E-02	9.17174E-03	1.69409E-02	6.05886E-02	4.68445E-02
28	6.44800E-03	3.73028E-03	9.59197E-03	3.30477E-02	9.17816E-03	1.69569E-02	6.06100E-02	4.68777E-02

0 int.	grp. 25	grp. 26	grp. 27
1	2.81217E-02	2.02933E-02	3.85498E-03
2	2.81110E-02	2.02814E-02	3.85212E-03
3	2.80442E-02	2.02229E-02	3.84012E-03
4	2.79023E-02	2.00993E-02	3.81469E-03
5	2.76920E-02	1.99151E-02	3.77623E-03
6	2.74114E-02	1.96672E-02	3.72358E-03
7	2.70550E-02	1.93497E-02	3.65472E-03
8	2.66095E-02	1.89498E-02	3.56892E-03
9	2.62144E-02	1.85931E-02	3.48563E-03
10	2.58796E-02	1.82889E-02	3.41665E-03
11	2.56557E-02	1.80930E-02	3.37492E-03
12	2.56077E-02	1.80533E-02	3.37213E-03
13	2.54486E-02	1.79169E-02	3.33282E-03
14	2.50658E-02	1.75694E-02	3.23808E-03
15	2.45809E-02	1.70788E-02	3.09726E-03
16	2.38500E-02	1.63782E-02	2.89161E-03
17	2.31323E-02	1.57165E-02	2.71461E-03
18	2.24490E-02	1.51197E-02	2.58104E-03

19	2.17641E-02	1.45404E-02	2.46055E-03
20	2.12802E-02	1.41490E-02	2.38726E-03
21	2.09215E-02	1.38691E-02	2.33791E-03
22	2.06531E-02	1.36661E-02	2.30572E-03
23	2.04535E-02	1.35186E-02	2.27948E-03
24	2.03094E-02	1.34140E-02	2.26261E-03
25	2.02119E-02	1.33437E-02	2.25142E-03
26	2.01574E-02	1.33052E-02	2.24497E-03
27	2.01415E-02	1.32888E-02	2.24254E-03
28	2.01520E-02	1.32919E-02	2.24244E-03

- elapsed time .02 min.

1fine group summary for zone 1 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	5.04510E-04	6.67761E-04	5.56019E-05	-7.23528E-04	9.99953E-01
2	.00000E+00	.00000E+00	3.85148E-04	6.16418E-03	8.10169E-03	1.76150E-04	-7.89438E-03	9.99963E-01
3	.00000E+00	.00000E+00	3.84799E-03	5.46598E-03	1.42214E-02	9.28018E-05	-1.04659E-02	9.99978E-01
4	.00000E+00	.00000E+00	5.59086E-03	3.60098E-03	1.25726E-02	4.20252E-05	-6.82364E-03	9.99988E-01
5	.00000E+00	.00000E+00	1.02687E-02	1.15287E-02	2.08865E-02	4.96820E-05	-1.06571E-02	9.99992E-01
6	.00000E+00	.00000E+00	2.15106E-02	3.45000E-02	4.10034E-02	8.42975E-05	-1.95771E-02	9.99993E-01
7	.00000E+00	.00000E+00	4.22446E-02	6.09745E-02	5.41408E-02	6.12258E-05	-1.19568E-02	9.99988E-01
8	.00000E+00	.00000E+00	5.63661E-02	7.83630E-02	5.87581E-02	3.64106E-05	-2.42325E-03	9.99912E-01
9	.00000E+00	.00000E+00	5.77976E-02	7.26404E-02	5.75244E-02	2.92873E-05	2.50246E-04	9.99870E-01
10	.00000E+00	.00000E+00	5.71018E-02	6.92160E-02	5.56253E-02	3.60861E-05	1.44639E-03	9.99894E-01
11	.00000E+00	.00000E+00	5.59047E-02	6.56589E-02	5.24190E-02	5.52110E-05	3.43382E-03	9.99939E-01
12	.00000E+00	.00000E+00	4.54492E-02	3.51301E-02	4.13349E-02	6.06084E-05	4.05481E-03	9.99978E-01
13	.00000E+00	.00000E+00	4.06014E-02	2.85832E-02	3.66561E-02	8.46726E-05	3.86204E-03	9.99970E-01
14	.00000E+00	.00000E+00	3.94906E-02	2.81708E-02	3.36515E-02	1.35950E-04	5.70361E-03	9.99988E-01
15	.00000E+00	.00000E+00	2.16591E-02	1.08422E-02	2.03118E-02	1.12496E-04	1.23565E-03	9.99961E-01
16	.00000E+00	.00000E+00	1.42107E-02	4.56608E-03	1.34521E-02	7.61473E-05	6.82897E-04	9.99972E-01
17	.00000E+00	.00000E+00	7.29140E-03	1.28544E-03	6.68810E-03	3.67973E-05	5.66708E-04	9.99972E-01
18	.00000E+00	.00000E+00	6.45842E-03	9.19768E-04	5.02580E-03	2.87800E-05	1.40390E-03	9.99990E-01
19	.00000E+00	.00000E+00	1.05662E-02	2.87901E-03	9.55519E-03	6.44814E-05	1.03678E-03	9.99977E-01
20	.00000E+00	.00000E+00	2.60612E-02	2.07213E-02	2.34283E-02	2.70250E-04	2.36309E-03	9.99986E-01
21	.00000E+00	.00000E+00	1.24522E-02	4.10951E-03	1.06907E-02	1.08060E-04	1.65858E-03	9.99983E-01
22	.00000E+00	.00000E+00	2.45964E-02	1.25329E-02	1.95089E-02	2.40734E-04	4.85135E-03	1.00002E+00
23	.00000E+00	.00000E+00	6.35762E-02	7.65644E-02	5.02779E-02	1.11145E-03	1.21889E-02	1.00005E+00
24	.00000E+00	.00000E+00	6.78364E-02	7.24320E-02	5.59109E-02	1.31778E-03	1.06050E-02	1.00004E+00
25	.00000E+00	.00000E+00	4.51868E-02	3.07501E-02	3.95600E-02	7.81536E-04	4.84419E-03	1.00002E+00
26	.00000E+00	.00000E+00	3.61066E-02	3.43883E-02	3.17622E-02	7.95286E-04	3.54856E-03	1.00002E+00
27	.00000E+00	.00000E+00	1.22538E-02	7.46532E-03	1.13726E-02	2.84159E-04	5.97017E-04	1.00000E+00
28	.00000E+00	.00000E+00	7.84903E-01	7.79957E-01	7.84903E-01	6.22283E-03	-6.20259E-03	9.99975E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rxn rate	fiss rate	flux*dv**2	total flux
1	1.30740E-02	-7.23528E-04	1.23571E-02	.00000E+00	3.69291E-11	.00000E+00	2.00132E-05	1.63473E-02
2	9.23472E-02	-7.89438E-03	9.08455E-02	.00000E+00	.00000E+00	.00000E+00	8.98467E-05	1.14988E-01
3	1.14755E-01	-1.04659E-02	1.12588E-01	.00000E+00	.00000E+00	.00000E+00	9.25722E-05	1.42631E-01
4	7.05999E-02	-6.82364E-03	6.90441E-02	.00000E+00	.00000E+00	.00000E+00	4.17695E-05	8.75769E-02
5	1.05379E-01	-1.06571E-02	1.02781E-01	.00000E+00	.00000E+00	.00000E+00	4.93889E-05	1.30518E-01
6	1.97896E-01	-1.95771E-02	1.92851E-01	.00000E+00	.00000E+00	.00000E+00	8.34278E-05	2.44892E-01
7	1.96151E-01	-1.19568E-02	1.95118E-01	.00000E+00	.00000E+00	.00000E+00	5.92818E-05	2.44303E-01
8	1.47433E-01	-2.42325E-03	1.47011E-01	.00000E+00	.00000E+00	.00000E+00	3.27300E-05	1.85001E-01
9	1.15904E-01	2.50246E-04	1.15956E-01	.00000E+00	.00000E+00	.00000E+00	2.16822E-05	1.45675E-01
10	1.06760E-01	1.44639E-03	1.07184E-01	.00000E+00	.00000E+00	.00000E+00	1.91735E-05	1.34465E-01
11	9.99594E-02	3.43382E-03	1.00961E-01	.00000E+00	.00000E+00	.00000E+00	1.79254E-05	1.26353E-01
12	6.43590E-02	4.05481E-03	6.54629E-02	.00000E+00	.00000E+00	.00000E+00	1.05224E-05	8.16613E-02
13	5.48571E-02	3.86204E-03	5.58900E-02	.00000E+00	.00000E+00	.00000E+00	8.74912E-06	6.98722E-02
14	5.16774E-02	5.70361E-03	5.32088E-02	.00000E+00	.00000E+00	.00000E+00	8.45942E-06	6.60231E-02
15	2.87205E-02	1.23565E-03	2.89915E-02	.00000E+00	.00000E+00	.00000E+00	4.46673E-06	3.62800E-02
16	1.58805E-02	6.82897E-04	1.60393E-02	.00000E+00	.00000E+00	.00000E+00	2.23451E-06	2.00681E-02
17	6.84927E-03	5.66708E-04	6.99815E-03	.00000E+00	.00000E+00	.00000E+00	8.91884E-07	8.71339E-03
18	4.86091E-03	1.40390E-03	5.26061E-03	.00000E+00	.00000E+00	.00000E+00	6.38681E-07	6.39540E-03

19	1.03147E-02	1.03678E-03	1.05871E-02	.00000E+00	.00000E+00	.00000E+00	1.37643E-06	1.31547E-02
20	3.46379E-02	2.36807E-03	3.52632E-02	.00000E+00	.00000E+00	.00000E+00	5.15148E-06	4.39514E-02
21	1.04515E-02	1.65856E-03	1.09349E-02	.00000E+00	.00000E+00	.00000E+00	1.23561E-06	1.34758E-02
22	2.08960E-02	4.85135E-03	2.25888E-02	.00000E+00	.00000E+00	.00000E+00	2.49604E-06	2.73040E-02
23	7.12707E-02	1.21839E-02	7.57016E-02	.00000E+00	.00000E+00	.00000E+00	7.63495E-06	9.25676E-02
24	5.75309E-02	1.06050E-02	6.21325E-02	.00000E+00	.00000E+00	.00000E+00	4.62083E-06	7.53854E-02
25	2.56907E-02	4.84419E-03	2.81161E-02	.00000E+00	.00000E+00	.00000E+00	1.60526E-06	3.38995E-02
26	1.81170E-02	3.54856E-03	2.02911E-02	.00000E+00	.00000E+00	.00000E+00	8.47061E-07	2.42219E-02
27	3.37776E-03	5.97017E-04	3.85506E-03	.00000E+00	.00000E+00	.00000E+00	9.98282E-08	4.56914E-03
28	1.73960E+00	-6.20296E-03	1.74639E+00	.00000E+00	3.69291E-11	.00000E+00	5.88141E-04	2.19007E+00

1fine group summary for zone 2 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.23088E-04	1.67253E-04	2.50875E-06	-1.63778E-04	1.00001E+00
2	.00000E+00	.00000E+00	2.92068E-05	1.46077E-03	1.04817E-03	1.40698E-05	-1.05305E-03	1.00000E+00
3	.00000E+00	.00000E+00	1.50721E-04	2.77156E-03	8.76337E-04	2.02812E-05	-7.45839E-04	9.99995E-01
4	.00000E+00	.00000E+00	2.87481E-04	2.30685E-03	2.98658E-04	1.31034E-05	-2.41627E-05	9.99997E-01
5	.00000E+00	.00000E+00	6.18142E-04	4.41802E-03	2.79406E-04	1.68695E-05	3.21851E-04	1.00000E+00
6	.00000E+00	.00000E+00	1.02416E-03	1.24062E-02	1.69503E-04	2.70708E-05	8.27594E-04	1.00000E+00
7	.00000E+00	.00000E+00	6.73362E-04	1.25960E-02	6.33138E-05	2.68188E-05	5.85290E-04	1.00000E+00
8	.00000E+00	.00000E+00	1.17530E-04	9.20975E-03	4.43464E-04	2.21164E-05	-3.48079E-04	1.00001E+00
9	.00000E+00	.00000E+00	4.45309E-04	6.36202E-03	5.30344E-05	7.67387E-05	3.15545E-04	9.99987E-01
10	.00000E+00	.00000E+00	5.30996E-05	4.99152E-03	4.95246E-05	5.93821E-05	-5.58123E-05	1.00000E+00
11	.00000E+00	.00000E+00	4.95279E-05	4.45974E-03	5.03662E-05	9.01200E-05	-9.09623E-05	1.00000E+00
12	.00000E+00	.00000E+00	5.03665E-05	2.76454E-03	5.14333E-05	5.67973E-06	-6.74743E-06	1.00000E+00
13	.00000E+00	.00000E+00	5.14334E-05	2.35753E-03	4.80920E-05	6.31695E-06	-2.97604E-06	1.00000E+00
14	.00000E+00	.00000E+00	4.80921E-05	2.22465E-03	4.19259E-05	8.49585E-06	-2.32784E-06	1.00000E+00
15	.00000E+00	.00000E+00	4.45078E-05	1.21206E-03	4.98056E-05	6.27696E-06	-1.13790E-05	1.00000E+00
16	.00000E+00	.00000E+00	5.55508E-05	6.41699E-04	5.55914E-05	3.80525E-06	-3.84680E-06	1.00000E+00
17	.00000E+00	.00000E+00	6.03665E-05	2.41195E-04	5.95707E-05	1.79259E-06	-7.95196E-07	9.99994E-01
18	.00000E+00	.00000E+00	6.23429E-05	1.60750E-04	5.19055E-05	1.33852E-06	9.10077E-06	9.99999E-01
19	.00000E+00	.00000E+00	5.37654E-05	3.94315E-04	5.81778E-05	3.05978E-06	-7.46769E-06	9.99996E-01
20	.00000E+00	.00000E+00	7.09580E-05	1.45834E-03	6.19994E-05	1.25378E-05	-3.53763E-06	9.99997E-01
21	.00000E+00	.00000E+00	8.15144E-05	3.69810E-04	8.83341E-05	4.58408E-06	-1.13980E-05	9.99997E-01
22	.00000E+00	.00000E+00	1.16403E-04	8.07126E-04	1.07869E-04	1.04215E-05	-1.82679E-06	9.99988E-01
23	.00000E+00	.00000E+00	1.66569E-04	2.91009E-03	2.13649E-04	4.75308E-05	-9.46401E-05	1.00000E+00
24	.00000E+00	.00000E+00	2.75410E-04	2.21755E-03	3.04325E-04	5.44330E-05	-8.34102E-05	1.00001E+00
25	.00000E+00	.00000E+00	2.81808E-04	8.95630E-04	2.30623E-04	3.16952E-05	1.95573E-05	1.00001E+00
26	.00000E+00	.00000E+00	1.19951E-04	7.01566E-04	9.27138E-05	3.14948E-05	-4.27151E-06	1.00000E+00
27	.00000E+00	.00000E+00	2.68854E-05	1.48149E-04	7.65516E-08	1.09919E-05	1.58114E-05	1.00001E+00
28	.00000E+00	.00000E+00	5.01450E-03	8.07095E-02	5.01450E-03	6.09531E-04	-6.08612E-04	1.00001E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	n2n rate	fiss rate	flux*dd**2	total flux
1	1.31006E-02	-8.87104E-04	1.30740E-02	-7.25328E-04	5.97500E-06	.00000E+00	1.65175E-06	2.18126E-03
2	9.26127E-02	-8.92743E-03	9.23472E-02	-7.89438E-03	.00000E+00	.00000E+00	1.11676E-05	1.54150E-02
3	1.15103E-01	-1.12117E-02	1.14755E-01	-1.04689E-02	.00000E+00	.00000E+00	1.27008E-05	1.91588E-02
4	7.08166E-02	-6.84780E-03	7.05999E-02	-6.82364E-03	.00000E+00	.00000E+00	7.44280E-06	1.17886E-02
5	1.05718E-01	-1.03452E-02	1.05379E-01	-1.06571E-02	.00000E+00	.00000E+00	8.68880E-06	1.75985E-02
6	1.98369E-01	-1.87495E-02	1.97698E-01	-1.95771E-02	.00000E+00	.00000E+00	1.01766E-05	3.30194E-02
7	1.96556E-01	-1.13736E-02	1.96151E-01	-1.19568E-02	.00000E+00	.00000E+00	8.35461E-06	3.27359E-02
8	1.47521E-01	-2.77132E-03	1.47433E-01	-2.42525E-03	.00000E+00	.00000E+00	5.27569E-06	2.45822E-02
9	1.15894E-01	5.65790E-04	1.15904E-01	2.50246E-04	.00000E+00	.00000E+00	4.58652E-06	1.93196E-02
10	1.06721E-01	1.39058E-03	1.06760E-01	1.44639E-03	.00000E+00	.00000E+00	4.91381E-06	1.77914E-02
11	9.99075E-02	3.34286E-03	9.99994E-02	3.43382E-03	.00000E+00	.00000E+00	4.76975E-06	1.66591E-02
12	6.42518E-02	4.04806E-03	6.43590E-02	4.05481E-03	.00000E+00	.00000E+00	3.21888E-06	1.07171E-02
13	5.47628E-02	3.85906E-03	5.48671E-02	3.86204E-03	.00000E+00	.00000E+00	2.73753E-06	9.13528E-03
14	5.15252E-02	5.70129E-03	5.16774E-02	5.70861E-03	.00000E+00	.00000E+00	2.57040E-06	8.59881E-03
15	2.86823E-02	1.22427E-03	2.87205E-02	1.23565E-03	.00000E+00	.00000E+00	1.40948E-06	4.78587E-03
16	1.58612E-02	6.79050E-04	1.58805E-02	6.82897E-04	.00000E+00	.00000E+00	7.79422E-07	2.66530E-03
17	6.85429E-03	5.66915E-04	6.84927E-03	5.66708E-04	.00000E+00	.00000E+00	3.35803E-07	1.14025E-03
18	4.82575E-03	1.41300E-03	4.86091E-03	1.40890E-03	.00000E+00	.00000E+00	2.37513E-07	8.06744E-04
19	1.02866E-02	1.02951E-03	1.03147E-02	1.03678E-03	.00000E+00	.00000E+00	5.05165E-07	1.71661E-03

20	3.45746E-02	2.35955E-03	3.46379E-02	2.36309E-03	.00000E+00	.00000E+00	1.69494E-06	5.76768E-03
21	1.04109E-02	1.64718E-03	1.04515E-02	1.66858E-03	.00000E+00	.00000E+00	5.09913E-07	1.73805E-03
22	2.07798E-02	4.84952E-03	2.08960E-02	4.85135E-03	.00000E+00	.00000E+00	1.01706E-06	3.47119E-03
23	7.09863E-02	1.20890E-02	7.12707E-02	1.21839E-02	.00000E+00	.00000E+00	3.46012E-06	1.18511E-02
24	5.73016E-02	1.05216E-02	5.75309E-02	1.06050E-02	.00000E+00	.00000E+00	2.77605E-06	9.56620E-03
25	2.55947E-02	4.86374E-03	2.56907E-02	4.84419E-03	.00000E+00	.00000E+00	1.25246E-06	4.27240E-03
26	1.80577E-02	3.54429E-03	1.81170E-02	3.54856E-03	.00000E+00	.00000E+00	8.60109E-07	3.01335E-03
27	3.37218E-03	6.12888E-04	3.37778E-03	5.97017E-04	.00000E+00	.00000E+00	1.55587E-07	5.62318E-04
28	1.74042E+00	-6.80663E-03	1.75960E+00	-6.20296E-03	5.97506E-06	.00000E+00	1.03178E-04	2.90036E-01

1fine group summary for zone 3 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	.00000E+00	.00000E+00	2.67474E-04	3.54023E-04	2.94782E-05	-3.83484E-04	9.99985E-01
2	.00000E+00	.00000E+00	2.08132E-04	3.29036E-03	4.32458E-03	9.40226E-05	-4.21532E-03	9.99988E-01
3	.00000E+00	.00000E+00	2.05364E-03	2.92198E-03	7.60225E-03	4.96089E-05	-5.59809E-03	9.99991E-01
4	.00000E+00	.00000E+00	2.98767E-03	1.92785E-03	6.62392E-03	2.24979E-05	-3.65867E-03	9.99994E-01
5	.00000E+00	.00000E+00	5.49275E-03	6.18193E-03	1.11998E-02	2.66405E-05	-5.73358E-03	9.99996E-01
6	.00000E+00	.00000E+00	1.15223E-02	1.84943E-02	2.19806E-02	4.51850E-05	-1.05085E-02	1.00000E+00
7	.00000E+00	.00000E+00	2.26408E-02	3.23952E-02	2.87627E-02	3.25267E-05	-6.15459E-03	9.99991E-01
8	.00000E+00	.00000E+00	2.99989E-02	4.11733E-02	3.08725E-02	1.91308E-05	-8.92048E-04	9.99919E-01
9	.00000E+00	.00000E+00	3.04304E-02	3.80044E-02	3.00960E-02	1.53227E-05	3.22407E-04	9.99895E-01
10	.00000E+00	.00000E+00	2.99079E-02	3.61271E-02	2.90339E-02	1.88350E-05	8.58774E-04	9.99900E-01
11	.00000E+00	.00000E+00	2.91981E-02	3.40957E-02	2.72207E-02	2.86705E-05	1.95049E-03	9.99946E-01
12	.00000E+00	.00000E+00	2.36271E-02	1.81134E-02	2.13127E-02	3.11988E-05	2.28369E-03	9.99982E-01
13	.00000E+00	.00000E+00	2.09890E-02	1.47201E-02	1.88778E-02	4.36057E-05	2.06864E-03	9.99974E-01
14	.00000E+00	.00000E+00	2.03649E-02	1.43616E-02	1.71560E-02	6.95090E-05	3.13986E-03	9.99991E-01
15	.00000E+00	.00000E+00	1.10848E-02	5.63445E-03	1.05556E-02	5.84617E-05	4.71198E-04	9.99962E-01
16	.00000E+00	.00000E+00	7.32652E-03	2.37109E-03	6.98545E-03	3.95420E-05	2.98753E-04	9.99972E-01
17	.00000E+00	.00000E+00	3.76259E-03	6.60092E-04	3.43412E-03	1.88942E-05	3.09684E-04	9.99975E-01
18	.00000E+00	.00000E+00	3.33065E-03	4.45638E-04	2.43506E-03	1.39442E-05	8.81677E-04	9.99994E-01
19	.00000E+00	.00000E+00	5.45331E-03	1.47294E-05	4.88858E-03	3.29899E-05	5.31881E-04	9.99979E-01
20	.00000E+00	.00000E+00	1.33362E-02	1.08900E-02	1.20864E-02	1.39420E-04	1.11058E-03	9.99985E-01
21	.00000E+00	.00000E+00	6.35607E-03	2.06524E-03	5.37266E-03	5.17930E-05	9.31733E-04	9.99986E-01
22	.00000E+00	.00000E+00	1.24484E-02	6.16087E-03	9.58764E-03	1.18534E-04	2.74224E-03	1.00001E+00
23	.00000E+00	.00000E+00	3.14738E-02	3.81199E-02	2.50325E-02	5.53369E-04	5.88688E-03	1.00003E+00
24	.00000E+00	.00000E+00	3.33394E-02	3.55915E-02	2.74734E-02	6.47516E-04	5.21752E-03	1.00003E+00
25	.00000E+00	.00000E+00	2.20652E-02	1.48598E-02	1.92201E-02	3.79707E-04	2.46298E-03	1.00002E+00
26	.00000E+00	.00000E+00	1.75554E-02	1.63585E-02	1.51093E-02	3.78817E-04	2.06758E-03	1.00001E+00
27	.00000E+00	.00000E+00	5.92781E-03	3.46074E-03	5.27208E-03	1.31729E-04	5.23982E-04	1.00000E+00
28	.00000E+00	.00000E+00	4.02870E-01	4.00043E-01	4.02870E-01	3.09006E-03	-3.07884E-03	9.99973E-01

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	r2h rate	fiss rate	flux*dv**2	total flux
1	1.32375E-02	-1.27059E-03	1.31006E-02	-8.87104E-04	1.95785E-11	.00000E+00	1.06103E-05	8.66678E-03
2	9.39521E-02	-1.31427E-02	9.26127E-02	-8.92743E-03	.00000E+00	.00000E+00	4.76921E-05	6.13683E-02
3	1.16757E-01	-1.68078E-02	1.15108E-01	-1.12117E-02	.00000E+00	.00000E+00	4.95792E-05	7.62459E-02
4	7.17846E-02	-1.05065E-02	7.08166E-02	-6.84780E-03	.00000E+00	.00000E+00	2.23621E-05	4.68860E-02
5	1.07178E-01	-1.60788E-02	1.05718E-01	-1.03452E-02	.00000E+00	.00000E+00	2.64834E-05	6.99857E-02
6	2.00970E-01	-2.92530E-02	1.98369E-01	-1.87495E-02	.00000E+00	.00000E+00	4.47228E-05	1.31278E-01
7	1.98066E-01	-1.75281E-02	1.96556E-01	-1.13736E-02	.00000E+00	.00000E+00	3.14895E-05	1.29788E-01
8	1.47814E-01	-3.66337E-03	1.47521E-01	-2.77135E-03	.00000E+00	.00000E+00	1.71969E-05	9.72027E-02
9	1.15670E-01	8.88198E-04	1.15894E-01	5.65790E-04	.00000E+00	.00000E+00	1.13438E-05	7.62153E-02
10	1.06469E-01	2.24755E-03	1.05721E-01	1.35058E-03	.00000E+00	.00000E+00	1.00076E-05	7.01838E-02
11	9.93399E-02	5.29335E-03	9.99075E-02	3.34286E-03	.00000E+00	.00000E+00	9.30847E-06	6.56136E-02
12	6.35597E-02	6.33178E-03	6.42518E-02	4.04806E-03	.00000E+00	.00000E+00	5.42544E-06	4.21054E-02
13	5.41511E-02	5.92770E-03	5.47628E-02	3.85906E-03	.00000E+00	.00000E+00	4.50573E-06	3.58807E-02
14	5.05852E-02	8.84118E-03	5.15252E-02	5.70129E-03	.00000E+00	.00000E+00	4.31272E-06	3.36994E-02
15	2.85838E-02	1.69546E-03	2.86823E-02	1.22427E-03	.00000E+00	.00000E+00	2.32126E-06	1.88639E-02
16	1.57870E-02	9.77808E-04	1.58612E-02	6.79050E-04	.00000E+00	.00000E+00	1.16034E-06	1.04210E-02
17	6.74270E-03	8.75598E-04	6.83429E-03	5.65915E-04	.00000E+00	.00000E+00	4.57927E-07	4.47404E-03
18	4.53947E-03	2.29468E-03	4.82575E-03	1.61300E-03	.00000E+00	.00000E+00	3.09399E-07	3.09864E-03
19	1.01351E-02	1.56119E-03	1.02866E-02	1.02931E-03	.00000E+00	.00000E+00	7.04202E-07	6.73015E-03
20	3.42629E-02	3.47013E-03	3.45744E-02	2.35955E-03	.00000E+00	.00000E+00	2.65761E-06	2.26742E-02

21	1.01129E-02	2.57891E-03	1.04109E-02	1.64718E-03	.00000E+00	.00000E+00	6.20959E-07	6.77228E-03
22	1.98472E-02	7.59177E-03	2.07798E-02	4.84952E-03	.00000E+00	.00000E+00	1.22699E-06	1.34220E-02
23	6.87225E-02	1.79761E-02	7.09843E-02	1.20892E-02	.00000E+00	.00000E+00	3.80129E-06	4.60875E-02
24	5.49520E-02	1.57389E-02	5.73016E-02	1.05216E-02	.00000E+00	.00000E+00	2.27057E-06	3.70427E-02
25	2.42893E-02	7.32672E-03	2.55947E-02	4.86574E-03	.00000E+00	.00000E+00	7.79912E-07	1.64699E-02
26	1.67988E-02	5.61187E-03	1.80577E-02	3.54423E-03	.00000E+00	.00000E+00	4.02947E-07	1.15223E-02
27	3.01148E-03	1.13681E-03	3.37218E-03	6.12828E-04	.00000E+00	.00000E+00	4.62779E-08	2.11814E-03
28	1.73727E+00	-9.88547E-03	1.74042E+00	-6.80663E-03	1.95785E-11	.00000E+00	3.11604E-04	1.14477E+00

1fine group summary for zone 4 by group including sum for all groups in line 28

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.32907E-02	.00000E+00	2.15981E-02	2.05148E-02	3.79999E-03	1.27058E-03	9.98905E-01
2	.00000E+00	1.94883E-01	7.10288E-03	2.51726E-01	1.73507E-01	1.53489E-02	1.31427E-02	1.00002E+00
3	.00000E+00	2.16031E-01	7.17082E-02	2.57985E-01	2.54706E-01	1.62264E-02	1.68097E-02	9.99989E-01
4	.00000E+00	1.23708E-01	1.05777E-01	1.78962E-01	2.11241E-01	7.73803E-03	1.05064E-02	1.00000E+00
5	.00000E+00	1.63830E-01	1.92374E-01	4.44771E-01	3.34967E-01	5.16145E-03	1.60787E-02	9.99990E-01
6	.00000E+00	1.76584E-01	3.91392E-01	1.19114E+00	5.30580E-01	8.13540E-03	2.92529E-02	1.00001E+00
7	.00000E+00	8.71951E-02	5.95645E-01	1.56400E+00	6.55240E-01	8.07672E-03	1.75290E-02	9.99989E-01
8	.00000E+00	1.34264E-02	6.89554E-01	1.57558E+00	6.86290E-01	1.30835E-02	3.66342E-03	9.99920E-01
9	.00000E+00	9.74272E-04	6.78380E-01	1.37263E+00	6.58684E-01	2.16521E-02	-8.97595E-04	9.99906E-01
10	.00000E+00	7.23618E-05	6.55693E-01	1.24970E+00	6.25453E-01	3.26288E-02	-2.24891E-03	9.99868E-01
11	.00000E+00	5.69290E-06	6.29467E-01	1.16485E+00	5.81327E-01	5.34754E-02	-5.29615E-03	9.99947E-01
12	.00000E+00	3.99716E-07	5.06309E-01	6.36473E-01	4.54183E-01	5.84704E-02	-6.33213E-03	9.99975E-01
13	.00000E+00	6.35030E-08	4.48841E-01	5.05227E-01	3.99411E-01	5.53707E-02	-5.92953E-03	9.99974E-01
14	.00000E+00	1.25845E-08	4.31265E-01	4.68528E-01	3.60429E-01	7.96850E-02	-8.84148E-03	9.99991E-01
15	.00000E+00	1.42220E-09	2.36698E-01	2.14619E-01	2.30514E-01	8.01925E-03	-1.69317E-03	1.00026E+00
16	.00000E+00	4.17607E-10	1.61569E-01	9.87491E-02	1.56194E-01	6.30966E-03	-9.76291E-04	1.00026E+00
17	.00000E+00	1.34490E-10	8.63537E-02	3.04912E-02	7.88587E-02	8.35307E-03	-8.71588E-04	1.00016E+00
18	.00000E+00	9.62907E-11	7.67666E-02	1.83898E-02	5.19267E-02	2.71259E-02	-2.29389E-03	1.00006E+00
19	.00000E+00	1.36134E-10	1.19175E-01	5.77618E-02	1.09517E-01	1.12012E-02	-1.55591E-03	1.00010E+00
20	.00000E+00	2.21369E-10	2.85464E-01	3.38006E-01	2.61112E-01	2.77545E-02	-3.46472E-03	1.00022E+00
21	.00000E+00	3.24012E-11	1.40025E-01	6.63100E-02	1.17220E-01	2.53680E-02	-2.57710E-03	1.00010E+00
22	.00000E+00	3.75988E-11	2.64641E-01	1.69534E-01	1.97581E-01	7.46177E-02	-7.59884E-03	1.00015E+00
23	.00000E+00	3.59429E-11	6.30940E-01	9.50673E-01	5.11078E-01	1.37696E-01	-1.79617E-02	1.00020E+00
24	.00000E+00	9.78320E-12	6.67393E-01	8.27379E-01	5.51983E-01	1.31057E-01	-1.57348E-02	1.00016E+00
25	.00000E+00	2.86388E-12	4.42915E-01	3.36617E-01	3.78280E-01	7.19151E-02	-7.32404E-03	1.00010E+00
26	.00000E+00	2.00817E-12	3.43672E-01	3.38860E-01	2.84041E-01	6.52141E-02	-5.61219E-03	1.00008E+00
27	.00000E+00	4.78557E-13	1.13558E-01	6.85610E-02	9.60378E-02	1.86526E-02	-1.13482E-03	1.00004E+00
28	.00000E+00	1.00000E+00	8.97067E+00	1.43969E+01	8.97067E+00	9.92100E-01	9.90674E-03	1.00008E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rdn rate	fiss rate	flux**2	total flux
1	1.35389E-02	-7.77195E-09	1.32575E-02	-1.27059E-05	2.26664E-03	2.52141E-03	2.98674E-04	3.44153E-01
2	9.72642E-02	-6.45417E-08	9.39521E-02	-1.31427E-02	1.57678E-05	1.10427E-02	1.59890E-03	2.46984E+00
3	1.21094E-01	-9.77021E-08	1.16737E-01	-1.68098E-02	.00000E+00	1.33204E-02	1.85303E-03	3.07408E+00
4	7.45965E-02	-8.01678E-08	7.17846E-02	-1.05065E-02	.00000E+00	5.70815E-03	8.85254E-04	1.89534E+00
5	1.11747E-01	-8.22760E-08	1.07178E-01	-1.60788E-02	.00000E+00	1.62672E-02	1.05252E-03	2.85516E+00
6	2.09764E-01	-6.88761E-08	2.00970E-01	-2.92530E-02	.00000E+00	1.33034E-02	1.73166E-03	5.32001E+00
7	2.08598E-01	8.54238E-07	1.98066E-01	-1.75281E-02	.00000E+00	1.25877E-03	1.22666E-03	5.17023E+00
8	1.48979E-01	5.02141E-08	1.47814E-01	-3.66337E-03	.00000E+00	1.25771E-03	6.98434E-04	3.79007E+00
9	1.15338E-01	-9.39736E-06	1.15670E-01	8.88198E-04	.00000E+00	1.66411E-03	4.71514E-04	2.95747E+00
10	1.05681E-01	4.43340E-07	1.05469E-01	2.24985E-03	.00000E+00	3.55418E-03	4.28867E-04	2.69800E+00
11	9.75028E-02	-2.80511E-06	9.95399E-02	5.29536E-03	.00000E+00	7.68478E-03	3.87139E-04	2.48761E+00
12	6.13761E-02	-3.70669E-07	6.35597E-02	6.33176E-03	.00000E+00	1.03455E-02	2.27659E-04	1.56867E+00
13	5.21291E-02	-1.63153E-06	5.41511E-02	5.92770E-03	.00000E+00	1.17766E-02	1.94428E-04	1.33287E+00
14	4.75678E-02	-3.01591E-07	5.05832E-02	8.84118E-03	.00000E+00	7.40263E-03	1.73396E-04	1.21925E+00
15	2.80285E-02	2.29467E-06	2.85638E-02	1.69546E-03	.00000E+00	1.73351E-03	1.10520E-04	7.15444E-01
16	1.54689E-02	1.51225E-06	1.57870E-02	9.77808E-04	.00000E+00	1.22133E-03	5.70208E-05	3.94820E-01
17	6.44890E-03	4.01001E-06	6.74270E-03	8.75598E-04	.00000E+00	1.40452E-03	2.10229E-05	1.69011E-01
18	3.75240E-03	7.91146E-07	4.53947E-03	2.29468E-03	.00000E+00	9.99567E-04	8.52702E-06	9.69296E-02
19	9.59424E-03	5.28060E-06	1.01351E-02	1.56119E-03	.00000E+00	2.24225E-03	3.20494E-05	2.45872E-01
20	3.30550E-02	5.40600E-06	3.42629E-02	3.47013E-03	.00000E+00	1.40957E-02	1.21869E-04	8.45408E-01
21	9.18212E-03	1.81122E-06	1.01129E-02	2.57891E-03	.00000E+00	1.46585E-02	2.55259E-05	2.36449E-01

22	1.69691E-02	-7.07403E-06	1.98472E-02	7.59177E-03	.00000E+00	4.34662E-02	4.33571E-05	4.40348E-01
23	6.08425E-02	1.43647E-05	6.87225E-02	1.79761E-02	.00000E+00	7.66330E-02	1.62200E-04	1.57315E+00
24	4.69019E-02	4.10178E-06	5.49520E-02	1.57389E-02	.00000E+00	7.14206E-02	9.90571E-05	1.22418E+00
25	2.01605E-02	2.68412E-06	2.42893E-02	7.32672E-03	.00000E+00	4.08034E-02	3.40254E-05	5.28740E-01
26	1.32954E-02	-3.23816E-07	1.67928E-02	5.61187E-03	.00000E+00	3.75268E-02	1.68204E-05	3.50725E-01
27	2.24254E-03	-9.92357E-09	3.01148E-03	1.13681E-03	.00000E+00	1.05782E-02	1.73149E-06	5.95197E-02
28	1.72590E+00	2.13532E-05	1.73727E+00	-9.88547E-03	2.28340E-03	3.97176E-01	1.19219E-02	4.40122E+01

1fine group summary for system

0 grp.	fix source	fiss source	in scatter	slf scatter	out scatter	absorption	leakage	balance
1	.00000E+00	2.32907E-02	.00000E+00	2.25952E-02	2.17088E-02	3.88758E-03	-7.77195E-09	9.98903E-01
2	.00000E+00	1.94883E-01	7.71857E-03	2.62641E-01	1.86981E-01	1.56328E-02	-6.45417E-08	1.00002E+00
3	.00000E+00	2.16031E-01	7.77606E-02	2.69145E-01	2.77406E-01	1.63891E-02	-9.77021E-08	9.99987E-01
4	.00000E+00	1.23708E-01	1.14663E-01	1.84797E-01	2.30636E-01	7.81568E-03	-8.01678E-08	9.99995E-01
5	.00000E+00	1.63830E-01	2.08753E-01	4.66895E-01	3.67333E-01	5.25464E-03	-8.22760E-08	9.99990E-01
6	.00000E+00	1.76584E-01	4.25450E-01	1.25654E+00	5.98734E-01	8.29198E-03	-6.88761E-08	1.00001E+00
7	.00000E+00	8.71931E-02	6.59208E-01	1.66997E+00	7.38207E-01	8.19729E-03	8.54258E-07	9.99988E-01
8	.00000E+00	1.34264E-02	7.76035E-01	1.70433E+00	7.76364E-01	1.31612E-02	5.02141E-08	9.99919E-01
9	.00000E+00	9.74272E-04	7.67053E-01	1.48963E+00	7.46357E-01	2.17535E-02	-9.39736E-06	9.99904E-01
10	.00000E+00	7.23618E-05	7.42756E-01	1.36003E+00	7.10161E-01	3.27431E-02	4.43340E-07	9.99898E-01
11	.00000E+00	5.69250E-06	7.14619E-01	1.26886E+00	6.61017E-01	5.36494E-02	-2.80511E-06	9.99945E-01
12	.00000E+00	3.99916E-07	5.75435E-01	6.92681E-01	5.16882E-01	5.85678E-02	-3.70695E-07	9.99975E-01
13	.00000E+00	6.35030E-08	5.10483E-01	5.50888E-01	4.54998E-01	5.55053E-02	-1.63153E-06	9.99973E-01
14	.00000E+00	1.25846E-08	4.91166E-01	5.13284E-01	4.11272E-01	7.98988E-02	-3.01597E-07	9.99950E-01
15	.00000E+00	1.42220E-09	2.69485E-01	2.32508E-01	2.61231E-01	8.19648E-03	2.29467E-06	1.00020E+00
16	.00000E+00	4.17607E-10	1.83159E-01	1.06328E-01	1.76687E-01	6.42916E-03	1.51225E-06	1.00022E+00
17	.00000E+00	1.34490E-10	9.74680E-02	3.26779E-02	8.90403E-02	8.41055E-03	4.01001E-06	1.00014E+00
18	.00000E+00	9.62907E-11	8.66180E-02	1.99160E-02	5.94394E-02	2.71739E-02	7.91146E-07	1.00004E+00
19	.00000E+00	1.36134E-10	1.35338E-01	6.25080E-02	1.24019E-01	1.13017E-02	5.28060E-06	1.00009E+00
20	.00000E+00	2.21369E-10	3.24982E-01	3.70875E-01	2.96888E-01	2.81767E-02	5.40600E-06	1.00019E+00
21	.00000E+00	3.24012E-11	1.58915E-01	7.28546E-02	1.33372E-01	2.55274E-02	1.81122E-06	1.00009E+00
22	.00000E+00	3.75928E-11	3.01803E-01	1.89125E-01	2.26781E-01	7.49872E-02	-7.07403E-06	1.00014E+00
23	.00000E+00	3.59429E-11	7.26157E-01	1.06817E+00	5.86602E-01	1.39408E-01	1.43647E-05	1.00018E+00
24	.00000E+00	9.78520E-12	7.68844E-01	9.37620E-01	6.35671E-01	1.33057E-01	4.10178E-06	1.00015E+00
25	.00000E+00	2.86388E-12	5.10446E-01	3.83202E-01	4.37291E-01	7.31081E-02	2.68412E-06	1.00009E+00
26	.00000E+00	2.00817E-12	3.97454E-01	3.90309E-01	3.31005E-01	6.64192E-02	-3.23816E-07	1.00007E+00
27	.00000E+00	4.78557E-13	1.31766E-01	7.96352E-02	1.12883E-01	1.90795E-02	-9.92357E-09	1.00003E+00
28	.00000E+00	1.00000E+00	1.01635E+01	1.56578E+01	1.01635E+01	1.00202E+00	2.12889E-05	1.00002E+00

0 grp.	rt bdy flux	rt leakage	lft bdy flux	lft leakage	rxn rate	fiss rate	flux*db**2	total flux
1	1.35399E-02	-7.77195E-09	1.29571E-02	.00000E+00	2.27261E-03	2.52141E-03	3.30949E-04	3.71348E-01
2	9.72642E-02	-6.45417E-08	9.08456E-02	.00000E+00	1.57678E-03	1.10427E-02	1.74711E-03	2.66157E+00
3	1.21094E-01	-9.77021E-08	1.12588E-01	.00000E+00	.00000E+00	1.33204E-02	1.98748E-03	3.31211E+00
4	7.45985E-02	-8.01678E-08	6.90441E-02	.00000E+00	.00000E+00	5.70815E-03	9.56828E-04	2.03959E+00
5	1.11747E-01	-8.22760E-08	1.02781E-01	.00000E+00	.00000E+00	1.62672E-03	1.11703E-03	3.05326E+00
6	2.09764E-01	-6.88761E-08	1.98851E-01	.00000E+00	.00000E+00	1.33034E-03	1.86999E-03	5.72920E+00
7	2.08598E-01	8.54258E-07	1.95118E-01	.00000E+00	.00000E+00	1.25877E-03	1.32579E-03	5.57706E+00
8	1.48979E-01	5.02141E-08	1.47011E-01	.00000E+00	.00000E+00	1.25771E-03	7.53636E-04	4.09686E+00
9	1.15338E-01	-9.39736E-06	1.15956E-01	.00000E+00	.00000E+00	1.66411E-03	5.09126E-04	3.17868E+00
10	1.05681E-01	4.43340E-07	1.07184E-01	.00000E+00	.00000E+00	3.55418E-03	4.62962E-04	2.91544E+00
11	9.75028E-02	-2.80511E-06	1.00961E-01	.00000E+00	.00000E+00	7.68478E-03	4.19143E-04	2.69624E+00
12	6.13761E-02	-3.70695E-07	6.54629E-02	.00000E+00	.00000E+00	1.08559E-02	2.46826E-04	1.70315E+00
13	5.21291E-02	-1.63153E-06	5.58900E-02	.00000E+00	.00000E+00	1.17766E-02	2.10421E-04	1.44756E+00
14	4.75678E-02	-3.01597E-07	5.32088E-02	.00000E+00	.00000E+00	7.40263E-03	1.88738E-04	1.32757E+00
15	2.80289E-02	2.29467E-06	2.89915E-02	.00000E+00	.00000E+00	1.73351E-03	1.18718E-04	7.75362E-01
16	1.54688E-02	1.51225E-06	1.60393E-02	.00000E+00	.00000E+00	1.22133E-03	6.11950E-05	4.27956E-01
17	6.44890E-03	4.01001E-06	6.99815E-03	.00000E+00	.00000E+00	1.40452E-03	2.27084E-05	1.79539E-01
18	3.75240E-03	7.91146E-07	5.26061E-03	.00000E+00	.00000E+00	9.99567E-04	9.71251E-06	1.07230E-01
19	9.59424E-03	5.28060E-06	1.05871E-02	.00000E+00	.00000E+00	2.24225E-03	3.46352E-05	2.67473E-01
20	3.30550E-02	5.40600E-06	3.52432E-02	.00000E+00	.00000E+00	1.40957E-02	1.31373E-04	9.17802E-01
21	9.18212E-03	1.81122E-06	1.09549E-02	.00000E+00	.00000E+00	1.46585E-02	2.78964E-05	2.58435E-01
22	1.69691E-02	-7.07403E-06	2.29888E-02	.00000E+00	.00000E+00	4.34662E-02	4.81072E-05	4.84545E-01

23	6.06425E-02	1.43647E-05	7.57016E-02	.00000E+00	.00000E+00	7.66330E-02	1.77097E-04	1.72365E+00
24	4.69019E-02	4.10178E-06	6.21325E-02	.00000E+00	.00000E+00	7.14206E-02	1.08735E-04	1.34618E+00
25	2.01605E-02	2.68412E-06	2.81161E-02	.00000E+00	.00000E+00	4.08034E-02	3.76430E-05	5.83382E-01
26	1.32954E-02	-3.23816E-07	2.02911E-02	.00000E+00	.00000E+00	3.75268E-02	1.89305E-05	3.89482E-01
27	2.24254E-03	-9.92357E-09	3.85506E-03	.00000E+00	.00000E+00	1.05782E-02	2.03318E-06	6.65695E-02
28	1.72590E+00	2.13532E-05	1.74639E+00	.00000E+00	2.28838E-03	3.97176E-01	1.29248E-02	4.76371E+01

- elapsed time .02 min.
0direct access unit 9 requires 556 blocks of length 216 for cross section weighting.
1 transport cross section weighting function

0zone	grp. 1	grp. 2	grp. 3	grp. 4	grp. 5	grp. 6	grp. 7	grp. 8
1	1.15946E-03	5.07344E-03	5.30400E-03	2.51182E-03	3.18361E-03	5.52432E-03	3.71621E-03	1.74400E-03
2	7.06377E-04	5.01016E-03	5.80210E-03	3.44720E-03	4.30008E-03	6.15070E-03	4.33126E-03	2.14902E-03
3	1.18874E-03	5.49886E-03	5.88786E-03	2.91764E-03	3.86205E-03	6.77676E-03	4.37541E-03	1.82446E-03
4	8.16349E-04	4.31790E-03	4.94671E-03	2.39173E-03	2.82972E-03	4.80048E-03	3.32678E-03	1.79906E-03
5	8.40237E-04	4.38478E-03	4.99068E-03	2.41617E-03	2.85944E-03	4.88891E-03	3.37567E-03	1.79928E-03

0zone	grp. 9	grp. 10	grp. 11	grp. 12	grp. 13	grp. 14	grp. 15	grp. 16
1	1.11347E-03	1.01459E-03	1.09362E-03	8.74774E-04	7.97770E-04	1.06334E-03	3.20856E-04	1.67138E-04
2	1.79161E-03	1.95465E-03	2.04376E-03	1.60347E-03	1.42855E-03	1.71786E-03	6.28958E-04	3.47885E-04
3	1.12197E-03	1.05366E-03	1.29292E-03	1.22251E-03	1.12957E-03	1.60017E-03	3.86691E-04	2.10153E-04
4	1.19615E-03	1.09545E-03	1.08072E-03	6.78067E-04	6.01953E-04	6.43761E-04	3.11356E-04	1.61377E-04
5	1.19421E-03	1.09597E-03	1.04598E-03	7.05653E-04	6.28474E-04	6.91805E-04	3.15511E-04	1.63934E-04

0zone	grp. 17	grp. 18	grp. 19	grp. 20	grp. 21	grp. 22	grp. 23	grp. 24
1	1.06051E-04	2.28736E-04	1.89850E-04	4.89852E-04	2.82306E-04	8.12105E-04	2.11711E-03	1.81547E-03
2	1.90842E-04	3.55880E-04	3.20524E-04	8.79474E-04	4.49999E-04	1.24829E-03	3.25621E-03	2.79685E-03
3	1.59395E-04	3.92917E-04	2.84024E-04	6.73691E-04	4.52227E-04	1.32436E-03	3.22447E-03	2.80521E-03
4	7.23362E-05	8.06545E-05	1.21360E-04	3.84672E-04	1.38295E-04	3.43057E-04	1.05510E-03	8.28549E-04
5	7.66712E-05	9.65388E-05	1.29577E-04	3.99372E-04	1.54254E-04	3.95387E-04	1.16872E-03	9.32820E-04

0zone	grp. 25	grp. 26	grp. 27	grp. 28
1	8.19043E-04	5.78185E-04	8.80722E-05	4.21798E-02
2	1.27856E-03	9.28284E-04	1.59588E-04	5.52779E-02
3	1.29911E-03	9.70769E-04	1.81268E-04	5.21167E-02
4	3.45441E-04	2.05615E-04	2.60354E-05	3.45528E-02
5	3.95487E-04	2.48970E-04	3.33838E-05	3.54459E-02

1broad group parameters

grp	upper energy	mid energy	velocity	fiss spec
1	2.0000E+07	2.6594E+06	1.9694E+09	7.2174E-01
2	9.0000E+05	1.5150E+05	1.0065E+07	2.7826E-01
3	4.0000E-01	1.2516E-01	3.6496E+05	1.2107E-10
4	1.0000E-05			

1 880 d, second part of sas2h pass to make library
0cell averaged fluxes

0zone	grp. 1	grp. 2	grp. 3
1	3.91548E-01	1.13524E+00	2.15989E-01
2	3.98806E-01	1.13638E+00	2.05823E-01
3	3.99768E-01	1.13659E+00	2.02707E-01
4	4.16951E-01	1.13826E+00	1.73311E-01
5	4.15260E-01	1.13807E+00	1.76163E-01

0flux disadvantage factors (zone average/cell average-flux)

0zone	grp. 1	grp. 2	grp. 3
1	9.42899E-01	9.97518E-01	1.22607E+00
2	9.55560E-01	9.98617E-01	1.17404E+00
3	9.62694E-01	9.98703E-01	1.15057E+00
4	1.00407E+00	1.00017E+00	9.85808E-01
5	1.00000E+00	1.00000E+00	1.00000E+00

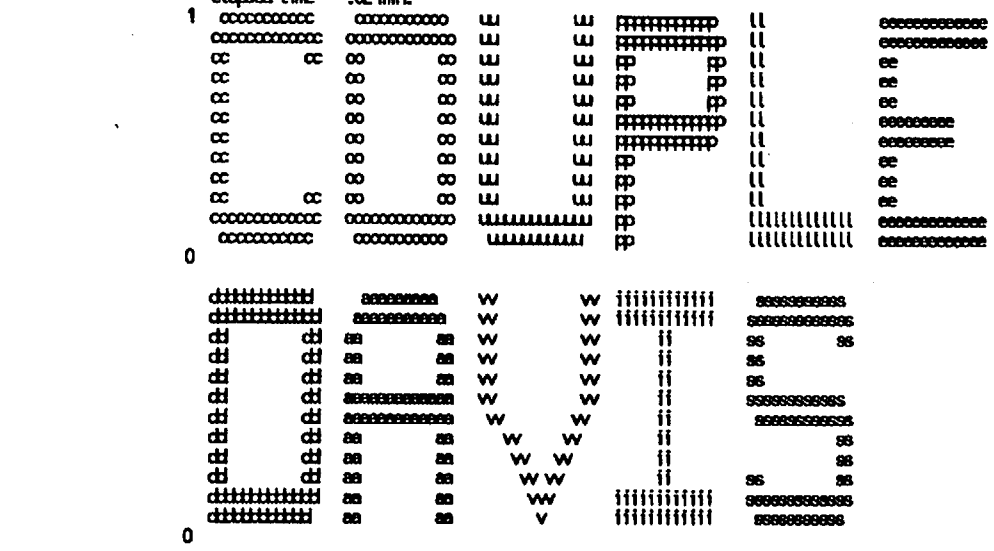
0cell averaged currents

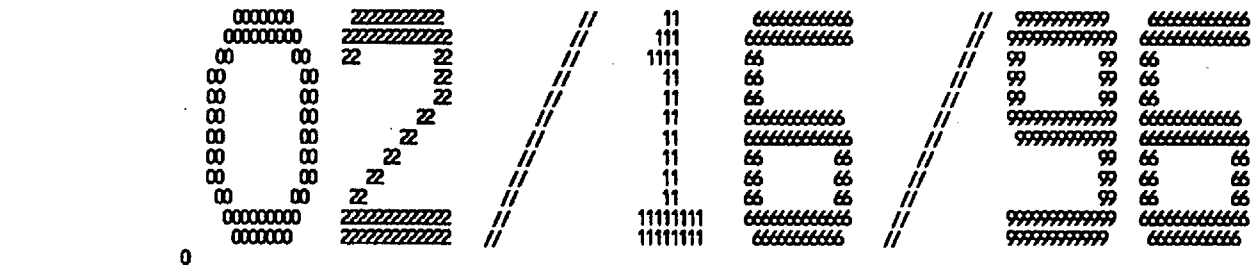
0zone	grp. 1	grp. 2	grp. 3
1	1.72323E-02	1.84346E-02	6.51229E-03

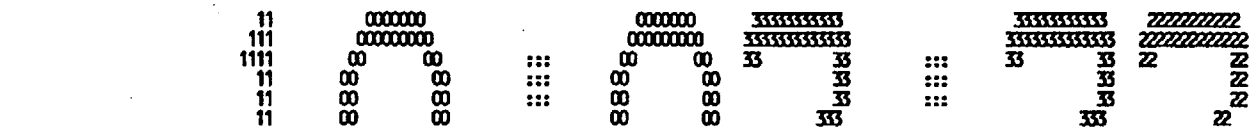
INFORMATION ONLY

```
    2 1.92659E-02 2.58942E-02 1.01178E-02
    3 1.98562E-02 2.25041E-02 1.02574E-02
    4 1.53024E-02 1.63041E-02 2.94620E-03
    5 1.55113E-02 1.66075E-02 3.32702E-03
Ozone      volume     vol. fraction

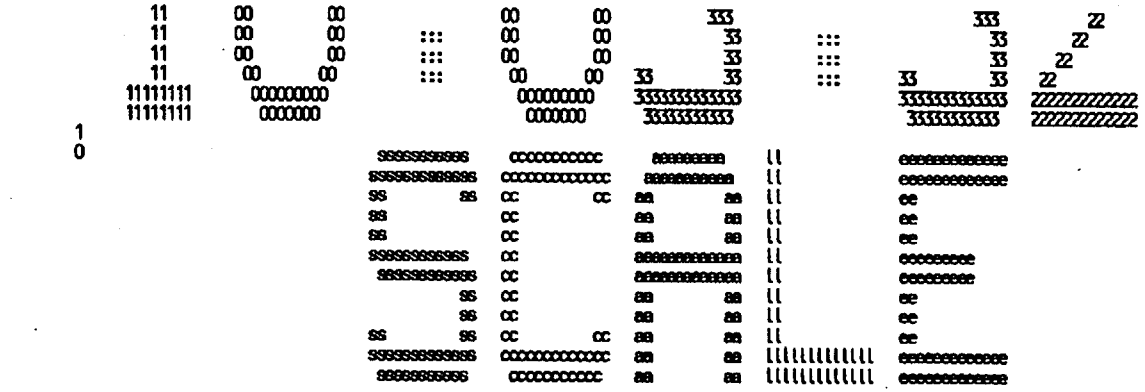
    1    1.25668E+00    4.56236E-02
    2    1.66687E-01    6.05165E-03
    3    6.58265E-01    2.38987E-02
    4    2.5462/E+01    9.24425E-01
    5    2.7544OE+01    1.00000E+00
-  elapsed time    .02 min.
```







INFORMATION ONLY



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1
0
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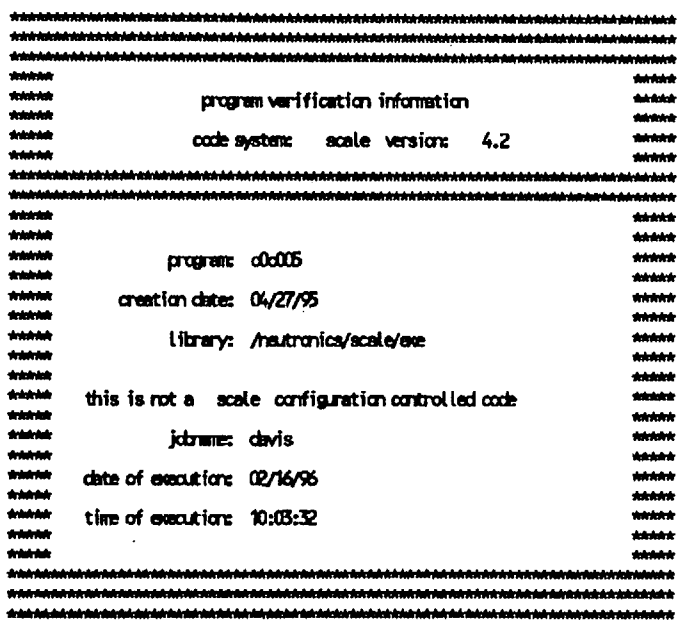



```
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       1q array has      1 entries.
```

```
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       1q array has      1 entries.
0       2q array has      1 entries.
0        * core allocated to array-data (by -t$ or default) was   20000 words. *
1         * broad 3-group flux weighting factors *
0
0               therm =    .5118
0               res   =    .4417
0               fast  =   3.4180
0 user requested (see jackl) that only the nuclide transitions presently included in
0 origen library be updated.
1cross sections, available from aapx (normalized to thermal flux), barns

                 10010 to  10020  2.86440E-01
                 10010 tot-cap    2.86440E-01
                 50100 to  40100  2.44839E-02
                 50100 to  10010  2.44839E-02
                 50100 to  40090  3.75530E-03
                 50100 to  10020  3.75530E-03
                 50100 to  30070  3.27073E+03
                 50100 to  20040  3.27091E+03
                 50100 to  10030  9.18802E-02
                 50100 tot-cap    3.27085E+03
                 50110 to  50100  1.08152E-05
                 50110 to  50120  4.33126E-03
                 50110 to  40110  1.38013E-06
                 50110 to  10010  1.38013E-06
                 50110 to  40090  1.23162E-05
                 50110 to  10030  1.23162E-05
                 50110 to  30080  1.60782E-04
                 50110 to  20040  1.60782E-04
                 50110 tot-cap    4.51653E-03
                 80160 to  80170  1.51959E-04
                 80160 to  70160  9.46311E-05
                 80160 to  10010  9.46311E-05
                 80160 to  70150  1.78473E-05
                 80160 to  10020  1.78473E-05
                 80160 to  60130  2.63247E-02
                 80160 to  20040  2.63247E-02
                 80160 to  80161  4.15019E-03
                 80160 tot-cap    2.65891E-02
                360830 to 360820  2.14844E-02
                360830 to 360810  2.26822E-09
                360830 to 360840  1.54886E+02
                360830 to 350830  8.78859E-04
                360830 to  10010  8.78859E-04
                360830 to 350820  7.09573E-06
                360830 to  10020  7.09573E-06
                360830 to 350810  2.48009E-06
                360830 to  10030  2.48009E-06
                360830 to 340810  4.01382E-08
                360830 to  20030  4.01382E-08
                360830 to 340800  4.71372E-05
                360830 to  20040  4.71372E-05
                360830 tot-cap    1.54908E+02
                360850 to 360860  1.40538E+00
                360850 tot-cap    1.40538E+00
                380900 to 380910  6.31952E-01
```

380900	tot-cap	6.31952E-01
390890	to 390900	9.92494E-01
390890	tot-cap	9.92494E-01
400930	to 400940	1.35410E+01
400930	tot-cap	1.35410E+01
400940	to 400950	1.87698E-01
400940	tot-cap	1.87698E-01
400950	to 400960	2.24580E+00
400950	tot-cap	2.24580E+00
410940	to 410950	3.88374E+01
410940	tot-cap	3.88374E+01
420950	to 420960	3.82943E+01
420950	tot-cap	3.82943E+01
430990	to 430980	6.51869E-03
430990	to 431000	8.97106E+01
430990	tot-cap	8.97171E+01
441010	to 441020	2.84705E+01
441010	tot-cap	2.84705E+01
441060	to 441070	8.74631E-01
441060	tot-cap	8.74631E-01
451030	to 451020	2.36088E-03
451030	to 451040	3.50678E+02
451030	tot-cap	3.50679E+02
451050	to 451060	8.18578E+03
451050	tot-cap	8.18578E+03
461050	to 461060	3.40985E+01
461050	tot-cap	3.40985E+01
461080	to 461090	6.89271E+01
461080	tot-cap	6.89271E+01
471090	to 471080	5.48598E-03
471090	to 471100	3.71688E+02
471090	to 461090	3.10426E-04
471090	to 10010	3.10426E-04
471090	to 451060	2.57311E-04
471090	to 20040	2.57311E-04
471090	to 471091	6.43385E-01
471090	tot-cap	3.71695E+02
511240	to 511250	1.21394E+01
511240	tot-cap	1.21394E+01
541310	to 541300	6.65676E-02
541310	to 541250	1.39194E-05
541310	to 541320	2.55972E+02
541310	to 531310	3.99220E-05
541310	to 10010	3.99220E-05
541310	to 531300	5.58236E-07
541310	to 10020	5.58236E-07
541310	to 531250	5.72615E-07
541310	to 10030	5.72615E-07
541310	to 521280	1.87034E-05
541310	to 20040	1.87034E-05
541310	tot-cap	2.56038E+02
541320	to 541310	1.07537E-02
541320	to 541300	2.28078E-05
541320	to 541330	9.32078E-01
541320	to 531320	8.19490E-06
541320	to 10010	8.19490E-06
541320	to 531310	3.46898E-07
541320	to 10020	3.46898E-07
541320	to 531300	4.66688E-08
541320	to 10030	4.66688E-08

541320	to 521290	1.01057E-06
541320	to 20040	1.01057E-06
541320	tot-cap	9.42879E-01
541350	to 541360	1.47045E+00
541350	tot-cap	1.47045E+00
541360	to 541350	1.83949E-02
541360	to 541340	5.61825E-05
541360	to 541370	1.23898E-01
541360	to 531360	3.39678E-07
541360	to 10010	3.39678E-07
541360	to 531350	1.26459E-07
541360	to 10020	1.26459E-07
541360	to 531340	2.85694E-08
541360	to 10030	2.85694E-08
541360	to 521330	2.84934E-07
541360	to 20040	2.84934E-07
541360	tot-cap	1.42350E-01
551330	to 551320	8.61399E-03
551330	to 551340	1.01647E+02
551330	to 541330	9.29567E-04
551330	to 10010	9.29567E-04
551330	to 531300	1.47174E-05
551330	to 20040	1.47174E-05
551330	tot-cap	1.01656E+02
551340	to 551350	1.29469E+02
551340	tot-cap	1.29469E+02
551350	to 551360	2.15946E+01
551350	tot-cap	2.15946E+01
551370	to 551380	2.31515E-01
551370	tot-cap	2.31515E-01
561360	to 561370	9.08765E-01
561360	tot-cap	9.08765E-01
571390	to 571400	7.98502E+00
571390	tot-cap	7.98502E+00
581440	to 581450	1.26572E+00
581440	tot-cap	1.26572E+00
591410	to 591400	6.17258E-03
591410	to 591390	1.77353E-06
591410	to 571370	2.64952E-06
591410	to 20040	5.46942E-05
591410	to 581400	1.88144E-05
591410	to 10010	5.34694E-05
591410	to 591420	1.19000E+01
591410	to 581410	5.03813E-05
591410	to 10020	1.57265E-05
591410	to 581390	1.64928E-06
591410	to 10030	1.64928E-06
591410	to 571390	1.59280E-08
591410	to 20030	1.59280E-08
591410	to 571380	5.20447E-05
591410	tot-cap	1.19063E+01
591430	to 591440	9.85435E+01
591430	tot-cap	9.85435E+01
601430	to 601420	9.44140E-02
601430	to 601410	9.63916E-06
601430	to 581390	2.07491E-05
601430	to 20040	5.80742E-04
601430	to 591420	4.03494E-06
601430	to 10010	4.14371E-05
601430	to 601440	1.99531E+02

601430	to 591430	3.99169E-05
601430	to 10020	2.51478E-06
601430	to 591410	3.62330E-06
601430	to 10080	3.62330E-06
601430	to 581410	1.74109E-08
601430	to 20080	1.74109E-08
601430	to 581400	5.59995E-04
601430	tot-cap	1.99626E+02
601450	to 601440	1.21125E-01
601450	to 601430	1.23070E-04
601450	to 581410	8.67977E-06
601450	to 20040	2.17027E-04
601450	to 591440	2.31180E-06
601450	to 10010	1.50213E-05
601450	to 601460	7.87674E+01
601450	to 591450	1.40992E-05
601450	to 10020	1.38968E-06
601450	to 591430	2.19088E-06
601450	to 10080	2.19088E-06
601450	to 581430	4.46058E-09
601450	to 20080	4.46058E-09
601450	to 581420	2.08348E-04
601450	tot-cap	7.88889E+01
601470	to 601480	1.90249E+02
601470	tot-cap	1.90249E+02
611470	to 611460	3.31614E-02
611470	to 611450	1.03469E-04
611470	to 591430	9.16700E-06
611470	to 20040	8.48670E-05
611470	to 601460	1.26718E-05
611470	to 10010	2.88523E-05
611470	to 611480	5.83713E+02
611470	to 601470	2.57036E-05
611470	to 10020	9.54306E-06
611470	to 601450	3.60310E-06
611470	to 10080	3.60310E-06
611470	to 591450	5.41737E-09
611470	to 20080	5.41737E-09
611470	to 591440	7.57000E-05
611470	tot-cap	5.83746E+02
611480	to 611490	1.20692E+04
611480	tot-cap	1.20692E+04
621470	to 621460	8.66070E-02
621470	to 621450	7.78945E-03
621470	to 601430	6.70743E-05
621470	to 20040	1.28160E-03
621470	to 611460	1.56994E-04
621470	to 10010	2.23820E-04
621470	to 621480	2.34443E+02
621470	to 611470	1.97355E-04
621470	to 10020	1.30528E-04
621470	to 611450	1.40158E-04
621470	to 10080	1.40158E-04
621470	to 601450	6.44892E-06
621470	to 20080	6.44892E-06
621470	to 601440	1.21453E-03
621470	to 621471	1.68099E+00
621470	tot-cap	2.34539E+02
621490	to 621480	4.88893E-02
621490	to 621470	3.88270E-05

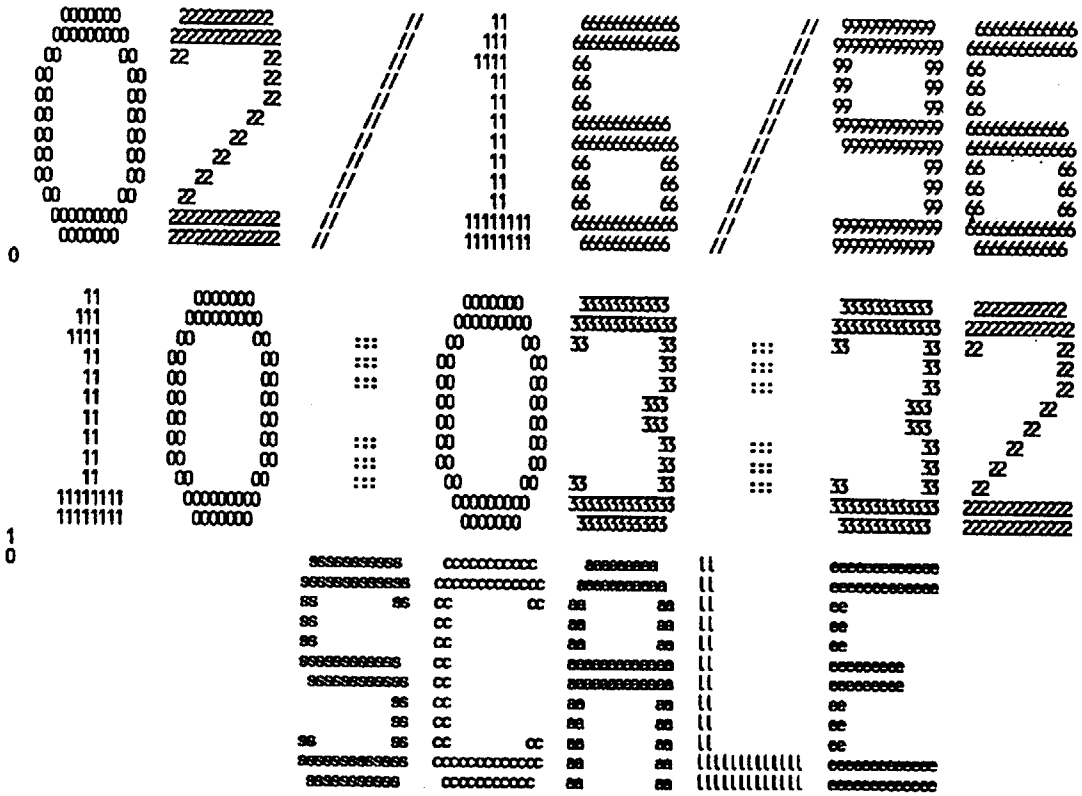
621490	to 621500	4.51610E+04
621490	to 611490	4.98298E-04
621490	to 10010	4.98298E-04
621490	to 601460	4.98298E-04
621490	to 20040	4.98298E-04
621490	tot-cap	4.51611E+04
621500	to 621510	1.34636E+02
621500	tot-cap	1.34636E+02
621510	to 621500	1.62978E-01
621510	to 621490	1.46105E-04
621510	to 601470	1.63634E-05
621510	to 20040	1.27238E-04
621510	to 611500	2.00058E-06
621510	to 10010	1.55395E-05
621510	to 621520	4.96056E+03
621510	to 611510	1.43172E-05
621510	to 10020	7.78259E-07
621510	to 611490	1.41451E-06
621510	to 10080	1.41451E-06
621510	to 601490	1.45722E-09
621510	to 20080	1.45722E-09
621510	to 601480	1.10865E-04
621510	tot-cap	4.96075E+03
621520	to 621510	1.95648E-02
621520	to 621500	1.32200E-04
621520	to 601480	2.95398E-06
621520	to 20040	1.22679E-05
621520	to 611510	8.47430E-07
621520	to 10010	2.50074E-06
621520	to 621530	7.31195E+02
621520	to 611520	2.22143E-06
621520	to 10020	5.68119E-07
621520	to 611500	1.47754E-07
621520	to 10080	1.47754E-07
621520	to 601500	4.47780E-10
621520	to 20080	4.47780E-10
621520	to 601490	9.31394E-06
621520	tot-cap	7.31215E+02
631530	to 631520	1.90020E-02
631530	to 631510	2.85759E-05
631530	to 611490	4.44449E-05
631530	to 20040	6.46822E-04
631530	to 621520	7.94486E-06
631530	to 10010	6.67364E-05
631530	to 631540	6.22530E+02
631530	to 621530	6.40848E-05
631530	to 10020	5.23328E-06
631530	to 621510	1.17306E-06
631530	to 10080	1.17306E-06
631530	to 611510	2.68175E-08
631530	to 20080	2.68175E-08
631530	to 611500	6.02377E-04
631530	tot-cap	6.22550E+02
631540	to 631530	3.03970E-02
631540	to 631520	1.09120E-05
631540	to 611500	1.06100E-10
631540	to 20040	7.77437E-04
631540	to 621530	2.38844E-06
631540	to 10010	1.26831E-05
631540	to 631550	1.07368E+03

631540	to 621540	1.26831E-03
631540	to 10020	2.38712E-06
631540	to 621520	4.04318E-06
631540	to 10080	4.04318E-06
631540	to 611520	1.71447E-08
631540	to 20080	1.71447E-08
631540	to 611510	7.77436E-04
631540	tot-cap	1.07366E+03
631550	to 631540	2.49407E-02
631550	to 631530	6.98394E-05
631550	to 611510	1.87941E-06
631550	to 20040	9.24945E-06
631550	to 621540	3.80822E-06
631550	to 10010	7.98825E-06
631550	to 631560	2.56117E+03
631550	to 621550	6.13529E-06
631550	to 10020	1.95526E-06
631550	to 621530	6.47259E-07
631550	to 10080	6.47259E-07
631550	to 611530	1.46704E-10
631550	to 20080	1.46704E-10
631550	to 611520	7.37004E-06
631550	tot-cap	2.56119E+03
641550	to 641560	1.70609E+04
641550	tot-cap	1.70609E+04
922340	to 922330	6.53411E-03
922340	fission	4.49894E+00
922340	nu-sigf	1.18286E+01
922340	to 922320	9.47408E-05
922340	to 922350	1.87219E+02
922340	to 922341	3.01266E+00
922340	tot-cap	1.91725E+02
922350	to 922340	2.97957E-02
922350	fission	3.62536E+02
922350	nu-sigf	8.77960E+02
922350	to 922330	2.85390E-05
922350	to 922360	8.63216E+01
922350	to 922351	8.56857E-02
922350	tot-cap	4.48887E+02
922360	to 922350	3.32861E-02
922360	fission	1.95115E+00
922360	nu-sigf	5.30249E+00
922360	to 922340	4.43594E-04
922360	to 922370	7.20576E+01
922360	to 922361	3.29586E+00
922360	tot-cap	7.40225E+01
922380	to 922370	6.64767E-02
922380	fission	9.68614E-01
922380	nu-sigf	2.72801E+00
922380	to 922360	4.29632E-04
922380	to 922390	8.55442E+00
922380	tot-cap	9.58994E+00
952370	to 952360	1.51552E-02
952370	fission	5.21673E+00
952370	nu-sigf	1.57137E+01
952370	to 952350	5.79792E-05
952370	to 952380	3.01354E+02
952370	to 952371	7.72698E-01
952370	tot-cap	3.06586E+02
942380	to 942370	2.43600E-03

```
                942380 fission    2.24679E+01
                942380 nu-sigf    6.37163E+01
                942380 to 942360  1.36331E-05
                942380 to 942390  2.66029E+02
                942380 to 942381  3.02734E+00
                942380 tot-cap    2.88499E+02
                942390 to 942380  1.28918E-02
                942390 fission    8.36076E+02
                942390 nu-sigf    2.40898E+03
                942390 to 942370  2.19486E-05
                942390 to 942360  2.17579E-08
                942390 to 942400  4.67858E+02
                942390 tot-cap    1.30895E+03
                942400 to 942390  6.06672E-03
                942400 fission    5.90498E+00
                942400 nu-sigf    1.85024E+01
                942400 to 942380  5.92015E-05
                942400 to 942410  1.39534E+03
                942400 tot-cap    1.39925E+03
                942410 to 942400  7.63800E-02
                942410 fission    8.96700E+02
                942410 nu-sigf    2.63112E+03
                942410 to 942390  1.26675E-04
                942410 to 942420  2.92817E+02
                942410 tot-cap    1.18959E+03
                942420 to 942410  2.47305E-02
                942420 fission    4.52350E+00
                942420 nu-sigf    1.41737E+01
                942420 to 942400  3.00558E-04
                942420 to 942430  3.33458E+02
                942420 tot-cap    3.38006E+02
                952410 fission    1.24977E+01
                952410 nu-sigf    4.04062E+01
                952410 to 952420  1.01282E+03
                952410 tot-cap    1.02531E+03
                952430 fission    3.49225E+00
                952430 nu-sigf    1.17422E+01
                952430 to 952440  4.22109E+02
                952430 tot-cap    4.25601E+02
                952440 to 952430  5.94350E-03
                952440 fission    1.55149E+01
                952440 nu-sigf    5.19995E+01
                952440 to 952420  5.92708E-05
                952440 to 952450  1.42507E+02
                952440 to 952441  3.86081E+00
                952440 tot-cap    1.58028E+02
Othe reaction  50100 to  30070 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  50100 to  40090 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  50110 to  40090 was not used, because  50110 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  50100 to  40100 was not used, because  50100 is not in library., (in subr pool)
                                    in the search of library number 3
Othe reaction  80160 to  80161 was not used, because  80161 is not in library., (in subr pool)
Othe reaction 621470 to 621471 was not used, because 621471 is not in library., (in subr pool)
Othe fission product transitions for  922340 were not used.  library fissile nuclides are
   922330  922350  942410  922380  942390
Ouse substitute nuclide in block 8 data.  or, update with new fission yield data.
Othe reaction  922340 to 922341 was not used, because  922341 is not in library., (in subr pool)
```

```
0the reaction  922350 to 922351 was not used, because  922351 is not in library., (in subr pool)
0the fission product transitions for  922340 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  922360 to 922361 was not used, because  922361 is not in library., (in subr pool)
0the fission product transitions for  952370 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  952370 to 952371 was not used, because  952371 is not in library., (in subr pool)
0the fission product transitions for  942380 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  942380 to 942381 was not used, because  942381 is not in library., (in subr pool)
0the fission product transitions for  942400 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  942420 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952410 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  952430 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the fission product transitions for  962440 were not used.  library fissile nuclides are
   922330   922350   942410   922380   942390
0use substitute nuclide in block 8 data.  or, update with new fission yield data.
0the reaction  962440 to 962441 was not used, because  962441 is not in library., (in subr pool)
1
0                    case completed.  date,  2/16/1996
0 * normal termination *
1   ccccccccccc    rrrrrrrrrrr    iiiiiiiiiiii     ggggggggggg    eeeeeeeeeeee   mm         mm   ssssssssss
    ccccccccccccc  rrrrrrrrrrrr   iiiiiiiiiiii     ggggggggggggg  eeeeeeeeeeee   mm         mm   ssssssssssss
    cc         cc  rr         rr       ii         gg         gg  ee             mmm        mm   ss        ss
    cc         cc  rr         rr       ii         gg         gg  ee             mmmm       mm   ss
    cc         cc  rr         rr       ii         gg         gg  ee             mm mm      mm   ss
    cc         cc  rrrrrrrrrrrr        ii         gg         gg  eeeeeeeee      mm  mm     mm   ssssssssss
    cc         cc  rrrrrrrrrrr         ii         gg         gg  eeeeeeeee      mm   mm    mm   ssssssssss
    cc         cc  rr      rr          ii         gg         gg  ee             mm    mm   mm           ss
    cc         cc  rr       rr         ii         gg         gg  ee             mm     mm  mm           ss
    cc         cc  rr        rr        ii         gg         gg  ee             mm      mmm  ss        ss
    ccccccccccccc  rr         rr  iiiiiiiiiiii     ggggggggggggg  eeeeeeeeeeee   mm       mm   ssssssssss
     ccccccccccc   rr         rr  iiiiiiiiiiii      ggggggggggg  eeeeeeeeeeee   mm         mm   ssssssssss
0

   dddddddddddd     aaaaaaaa     w         w  iiiiiiiiiiii     ssssssssss
   dddddddddddddd   aaaaaaaaaa   w         w  iiiiiiiiiiii   ssssssssssss
   dd         dd   aa        aa  w         w      ii         ss         ss
   dd         dd   aa        aa  w         w      ii         ss
   dd         dd   aa        aa  w         w      ii         ss
   dd         dd   aaaaaaaaaaaa  w         w      ii         ssssssssss
   dd         dd   aaaaaaaaaaaa   w       w       ii          ssssssssss
   dd         dd   aa        aa    w   w         ii                   ss
   dd         dd   aa        aa     w w          ii                   ss
   dd         dd   aa        aa      w w         ii         ss        ss
   dddddddddddd    aa        aa       w          iiiiiiiiiiii  ssssssssss
   dddddddddddd    aa        aa       v          iiiiiiiiiiii   ssssssss
0
```



program verification information

code system: scale version: 4.2

program: c0c004

creation date: 04/27/95

```
                    ******          library:  /neutronics/scale/exe                ******
                    ******                                                         ******
                    ******                                                         ******
                    ******    this is not a   scale  configuration controlled code ******
                    ******                                                         ******
                    ******          jobname:  davis                                ******
                    ******                                                         ******
                    ******    date of execution:  02/16/96                         ******
                    ******                                                         ******
                    ******    time of execution:  10:03:32                         ******
                    ******                                                         ******
                    ******                                                         ******
                    ****************************************************************
                    ****************************************************************
                    ****************************************************************
1
0      -1q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0       0q array has      1 entries.
0        dbl. prec. machine word applied has, at least, a 16 significant figure accuracy.
0            short-lived split test fraction, qn =    9.1188E-04
0            half-norm of matrix used, ann =    7.0000E+00
0            4-place-accuracy-retention ratio, ratio4 =    6.4516E-13
0       1q array has     20 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       3q array has      1 entries.
0       4q array has      1 entries.
0      54q array has     12 entries.
1library information...

        cross-section data taken from position number  1 of library on unit 15.

        pass   6
        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependant neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densities
          pass n applies mid time densities of nth library interval
        first library updated was...
        pass   1
        pass   0
        *scale-system control module sas2 library*
        used a time-dependant neutron spectrum, for each of the above passes
          pass 0 applies start-up fuel densities
          pass n applies mid time densities of nth library interval
        first library updated was...
        ****************************************************************
        *                                                              *
        *          prelim lwr origen-s binary working library--id = 1143 *
        *        made from modified card-image origen-s libraries of scale 4.2 *
        *      data from the light element, actinide, and fission product libraries *
        *        decay data, including gamma and total energy, are from endf/b-vi *
        *                                                              *
        *     neutron flux spectrum factors and cross sections were produced from *
        *    the 'presas2' case updating all nuclides on the scale 'burnup' library *
        *                                                              *
```

```
      *                  fission product yields are from endf/b-v                  *
      *                                                                            *
      *              photon libraries use an 18-energy-group structure             *
      *             the photon data are from the master photon data base,          *
      *              produced to include bremsstrahlung from uo2 matrix            *
      *                                                                            *
      *          see information above this box (if present) for later updates     *
      *                                                                            *
      ******************************************************************************
      *                                                                            *
0     ******************************************************************************
0               .other identification and sizes of library.
0                 data set name:  ft15f001
0              2/16/1996     date library was produced
0                  1697      total number of nuclides in library
                    689      number of light-element nuclides
                    129      number of actinide nuclides
                    879      number of fission product nuclides
0                  7955      number of nonzero off-diagonal matrix elements
0     ******************************************************************************
1
```

sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 1
power= 8.466E-05mw, burnup=2.0318E-03mwd, flux= 1.61E+13n/cm**2-sec

0 nuclide concentrations, gram atoms
basis = converted to atoms/(barn-cm)

	charge	840.1 d	880.1 d	920.1 d	960.1 d	960.1 d	1000.1 d	1040.1 d
he 4	3.05E-08	3.70E-08	4.44E-08	5.34E-08	6.33E-08	6.33E-08	7.46E-08	8.72E-08
u230	7.98E-21	9.22E-21	1.06E-20	1.19E-20	1.33E-20	1.33E-20	1.49E-20	1.67E-20
u231	1.58E-19	1.84E-19	2.07E-19	2.32E-19	2.59E-19	2.58E-19	2.85E-19	3.21E-19
u232	2.10E-12	2.38E-12	2.68E-12	3.02E-12	3.37E-12	3.37E-12	3.78E-12	4.17E-12
u233	3.62E-11	3.75E-11	3.87E-11	3.99E-11	4.10E-11	4.10E-11	4.21E-11	4.31E-11
u234	4.56E-06	4.51E-06	4.47E-06	4.42E-06	4.37E-06	4.37E-06	4.33E-06	4.28E-06
u235	4.23E-04	4.13E-04	4.03E-04	3.93E-04	3.83E-04	3.83E-04	3.74E-04	3.64E-04
u236	5.14E-05	5.34E-05	5.51E-05	5.68E-05	5.84E-05	5.84E-05	6.00E-05	6.14E-05
u237	6.85E-08	7.10E-08	7.28E-08	7.46E-08	7.64E-08	7.61E-08	7.81E-08	7.98E-08
u238	2.19E-02	2.18E-02	2.18E-02	2.18E-02	2.18E-02	2.18E-02	2.18E-02	2.18E-02
u239	1.53E-09	6.08E-09	6.09E-09	6.10E-09	6.11E-09	1.19E-09	6.12E-09	6.13E-09
u240	.00E+00	1.25E-32	2.03E-32	3.23E-32	5.04E-32	5.04E-32	7.71E-32	1.16E-31
u241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
np235	5.69E-14	6.36E-14	7.05E-14	7.77E-14	8.52E-14	8.52E-14	9.30E-14	1.01E-13
np236m	6.50E-14	7.35E-14	7.88E-14	8.37E-14	8.90E-14	8.68E-14	9.44E-14	9.98E-14
np236	5.53E-12	6.27E-12	7.05E-12	7.90E-12	8.79E-12	8.79E-12	9.74E-12	1.07E-11
np237	3.27E-06	3.50E-06	3.73E-06	3.97E-06	4.21E-06	4.21E-06	4.45E-06	4.70E-06
np238	4.07E-09	4.45E-09	4.75E-09	5.07E-09	5.39E-09	5.32E-09	5.71E-09	6.04E-09
np239	8.60E-07	8.78E-07	8.79E-07	8.80E-07	8.82E-07	8.77E-07	8.83E-07	8.85E-07
np240m	.00E+00	1.06E-34	1.73E-34	2.76E-34	4.30E-34	4.30E-34	6.58E-34	9.88E-34
np240	9.30E-12	1.61E-11	1.62E-11	1.62E-11	1.63E-11	8.77E-12	1.64E-11	1.64E-11
np241	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
pu236	6.38E-12	7.18E-12	8.02E-12	8.91E-12	9.84E-12	9.84E-12	1.08E-11	1.19E-11
pu237	2.62E-13	2.83E-13	3.02E-13	3.22E-13	3.41E-13	3.41E-13	3.61E-13	3.82E-13
pu238	4.23E-07	4.77E-07	5.35E-07	5.98E-07	6.64E-07	6.64E-07	7.34E-07	8.09E-07
pu239	1.03E-04	1.06E-04	1.08E-04	1.11E-04	1.13E-04	1.13E-04	1.15E-04	1.17E-04
pu240	1.87E-05	2.00E-05	2.12E-05	2.23E-05	2.35E-05	2.35E-05	2.46E-05	2.57E-05
pu241	9.57E-06	1.04E-05	1.12E-05	1.20E-05	1.29E-05	1.29E-05	1.38E-05	1.48E-05
pu242	9.75E-07	1.12E-06	1.27E-06	1.44E-06	1.62E-06	1.62E-06	1.81E-06	2.01E-06
pu243	1.19E-10	1.54E-10	1.76E-10	1.99E-10	2.24E-10	1.97E-10	2.51E-10	2.79E-10
pu244	3.72E-22	6.20E-22	1.01E-21	1.61E-21	2.51E-21	2.51E-21	3.84E-21	5.78E-21
pu245	2.53E-28	4.44E-28	7.24E-28	1.16E-27	1.81E-27	1.70E-27	2.77E-27	4.17E-27
pu246	1.00E-30	1.69E-30	2.80E-30	4.51E-30	7.12E-30	7.11E-30	1.10E-29	1.67E-29
am239	4.18E-18	5.09E-18	5.78E-18	6.46E-18	7.21E-18	6.83E-18	8.00E-18	8.82E-18

am240	1.87E-15	2.20E-15	2.49E-15	2.80E-15	3.12E-15	3.08E-15	3.46E-15	3.82E-15
am241	2.64E-07	3.01E-07	3.40E-07	3.80E-07	4.23E-07	4.23E-07	4.69E-07	5.16E-07
am242m	5.47E-09	6.38E-09	7.36E-09	8.42E-09	9.56E-09	9.56E-09	1.08E-08	1.20E-08
am242	2.90E-10	3.40E-10	3.85E-10	4.32E-10	4.82E-10	4.63E-10	5.34E-10	5.90E-10
am243	8.11E-08	9.86E-08	1.18E-07	1.41E-07	1.66E-07	1.66E-07	1.94E-07	2.25E-07
am244m	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00	.00E+00
am244	2.69E-11	3.49E-11	4.21E-11	5.01E-11	5.92E-11	5.56E-11	6.94E-11	8.07E-11
am245	2.29E-26	3.82E-26	6.20E-26	9.81E-26	1.52E-25	1.52E-25	2.30E-25	3.42E-25
am246	.00E+00	4.24E-33	6.99E-33	1.13E-32	1.78E-32	1.78E-32	2.75E-32	4.17E-32
cm241	3.66E-18	4.67E-18	5.82E-18	7.14E-18	8.65E-18	8.64E-18	1.03E-17	1.23E-17
cm242	2.99E-08	3.51E-08	4.09E-08	4.72E-08	5.40E-08	5.40E-08	6.13E-08	6.92E-08
cm243	4.28E-10	5.30E-10	6.48E-10	7.83E-10	9.35E-10	9.36E-10	1.11E-09	1.29E-09
cm244	6.95E-09	8.95E-09	1.14E-08	1.42E-08	1.76E-08	1.76E-08	2.16E-08	2.62E-08
cm245	1.36E-10	1.83E-10	2.43E-10	3.17E-10	4.09E-10	4.09E-10	5.20E-10	6.54E-10
cm246	5.12E-12	7.28E-12	1.02E-11	1.40E-11	1.90E-11	1.90E-11	2.53E-11	3.34E-11
cm247	3.30E-14	4.96E-14	7.30E-14	1.05E-13	1.49E-13	1.49E-13	2.08E-13	2.85E-13

1
sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp actinides page 2
power= 8.466E-05mw, burnup=2.0318E-02mwd, flux= 1.61E+13n/cm**2-sec
0 nuclide concentrations, gram atoms
basis = converted to atoms/(barn-cm)

	charge	840.1 d	880.1 d	920.1 d	960.1 d	960.1 d	1000.1 d	1040.1 d
cm248	9.52E-16	1.52E-15	2.35E-15	3.58E-15	5.32E-15	5.32E-15	7.78E-15	1.12E-14
cm249	3.88E-21	1.04E-20	1.61E-20	2.46E-20	3.66E-20	2.02E-20	5.37E-20	7.74E-20
cm250	9.60E-25	1.62E-24	2.66E-24	4.26E-24	6.68E-24	6.68E-24	1.03E-23	1.55E-23
cm251	.00E+00	3.86E-32	6.35E-32	1.02E-31	1.60E-31	1.63E-32	2.46E-31	3.73E-31
totals	2.25E-02	2.25E-02	2.24E-02	2.24E-02	2.24E-02	2.24E-02	2.24E-02	2.24E-02
0 flux		1.60E+13	1.61E+13	1.61E+13	1.61E+13	.00E+00	1.62E+13	1.62E+13

0 .results on logical unit no. 71, position 1, for time step 7, subcase 1. (run position 1, case position 1)
title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 .results on logical unit no. 71, position 2, for time step 5, subcase 1. (run position 1, case position 1)
title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 .results on logical unit no. 71, position 3, for time step 4, subcase 1. (run position 1, case position 1)
title: sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0 .terminated logical unit no. 71 with zero flag record.
1 * normal termination of execution *
0 table of contents for material tables
0 case or subcase printed page

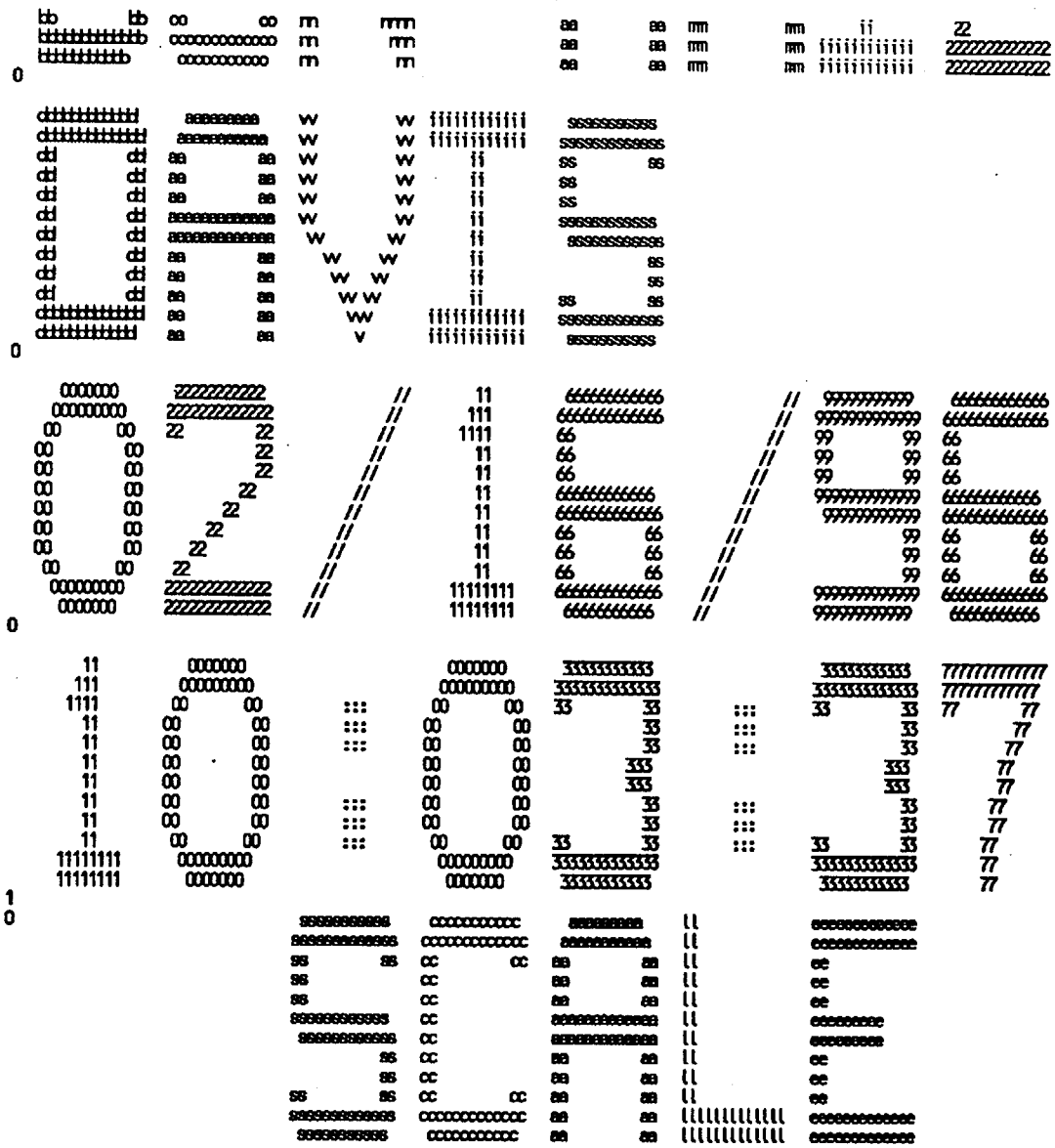
1 1

Ondset 33

15	4	1	27	6	0	0	0	0	0
0	0	0	0	0	0	-1	1698	690	130
880	7985	0	5	99	2	16	96	18	18
18	0	71							

0 56q array has 2 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 56q array has 1 entries.
0 57q array has 3 entries.
0 1q array has 20 entries.
0 1q array has 10 entries.
l90 97376
l116 60826
l32 33663 nudata (library) storage size
l44 33734
l103 79953

```
0       58q array has       4 entries.
0       60q array has       7 entries.
0       58q array has       7 entries.
0       66q array has       1 entries.
0       73q array has    1697 entries.
0       74q array has    1697 entries.
0       75q array has    1697 entries.
     1140  66991
     used   101044 in size   200000
0jqpt          12
             0          0          0          0          0          0          0          0          0          0
             0          0
0therm          4
  5.117607E-01 4.416862E-01 3.418002E+00 1.000000E-31
0non            5
          7935         20          6         18       1697
0mm            19
             7          7          0          0          1          1          0          0          0          0
            21        100       1697          4          3         74          4          1          0
0tconst         5
  8.640000E+04 8.000961E+02  .000000E+00  .000000E+00 1.000000E-08
0nzero          4
             0        689        129        879
0pow            3
   .000000E+00  .000000E+00  .000000E+00
0 lirp          9
             6          0         51         26          2       3000       1000       1697         94
 n-gamma, fission and total nev/fission =          7.0320E+00 1.9653E+02 2.0356E+02
 start of interval flux =        1.60012E+13
 n-gamma, fission and total nev/fission =          7.1140E+00 1.9661E+02 2.0372E+02
 start of interval flux =        1.60313E+13
 n-gamma, fission and total nev/fission =          7.2102E+00 1.9669E+02 2.0390E+02
 start of interval flux =        1.60621E+13
 n-gamma, fission and total nev/fission =          7.3057E+00 1.9677E+02 2.0407E+02
 start of interval flux =        1.60956E+13
 start of interval flux =         .00000E+00
 n-gamma, fission and total nev/fission =          7.4184E+00 1.9684E+02 2.0426E+02
 start of interval flux =        1.61298E+13
 n-gamma, fission and total nev/fission =          7.4947E+00 1.9692E+02 2.0441E+02
 start of interval flux =        1.61696E+13
0 case or subcase    1  sas2h: babcock wilcox 15x15, 3.00wt%, 20gwd/mtu burn high temp
0       56q array has      20 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has      20 entries.
0       56q array has       1 entries.
0       56q array has       1 entries.
0       56q array has      20 entries.
0       56q array has      20 entries.
0requested parm=halt8,skipcellut,skipshipdata
  pass= 7, exec halts after pass  8
1 bbbbbbbbbbb    ooooooooooo   m        m              aaaaaaaa    mm        mm  iiiiiiiiiii   zzzzzzzzzz
  bbbbbbbbbbb    ooooooooooo   mm       m              aaaaaaaaa   mmm       mm  iiiiiiiiiii   zzzzzzzzzz
  bb       bb    oo       oo  mmm      m             aa      aa   mmmm     mmmm      ii            22
  bb       bb    oo       oo  mm mm    m             aa      aa   mm mm   mm mm      ii           22
  bb       bb    oo       oo  m  m  m   m             aa      aa   mm  mm mm  mm      ii          22
  bbbbbbbbbbb    oo       oo  m   mm   m ----------  aaaaaaaaaaa  mm   mmm  mm      ii        22
  bbbbbbbbbbb    oo       oo  m    m   m ----------  aaaaaaaaaaa  mm    m   mm      ii      22
  bb       bb    oo       oo  m     m  m             aa      aa   mm        mm      ii    22
  bb       bb    oo       oo  m      mm             aa      aa   mm        mm      ii  22
```



```
*********************************************************************
*********************************************************************
*********************************************************************
*****                                                           *****
*****                 program verification information           *****
*****                                                           *****
*****                 code system:  scale  version:  4.2        *****
*****                                                           *****
*********************************************************************
*********************************************************************
*****                                                           *****
*****                                                           *****
*****            program:  c0c008                               *****
*****                                                           *****
*****       creation date:  04/27/95                            *****
*****                                                           *****
*****            library:  /neutronics/scale/exe                *****
*****                                                           *****
*****                                                           *****
*****  this is not a  scale  configuration controlled code      *****
*****                                                           *****
*****            jobname:  davis                                *****
*****                                                           *****
*****  date of execution:  02/16/96                             *****
*****                                                           *****
*****  time of execution:  10:03:37                             *****
*****                                                           *****
*****                                                           *****
*********************************************************************
*********************************************************************
*********************************************************************
```

```
1
0      -1q array has      1 entries.
0       0q array has      4 entries.
0       1q array has      6 entries.
0       2q array has      2 entries.
1logical assignments
0master library   12
 working library   0
 scratch file     18
 new library       1
0p r o b l e m   d e s c r i p t i o n
0ig=--geometry (0/1/2/3--inf med/slab/cyl/sphere                2
0iam--number of zones or material regions                       4
0ms--mixing table length                                       66
0ibl--shielded cross section edit option (0/1--no/yes)          0
0ibr--bondarenko factor edit option (0/1--no/yes)               0
0isaopt--dancoff factor option                                  0
0convergence criterion   1.00000E-03
0geometry correction factor for wigner rational approximation  1.350E+00
0       3q array has     66 entries.
0       4q array has     66 entries.
0       5q array has     66 entries.
0       6q array has      4 entries.
0       7q array has      4 entries.
0       8q array has      4 entries.
0       9q array has      4 entries.
```

0 10q array has 66 entries.
0 11q array has 4 entries.
0 m i x i n g t a b l e

0entry	mixture	isotope	number density	new identifier
1	1	92235	3.64452E-04	92235
2	1	92234	4.28462E-06	92234
3	1	92236	6.15586E-06	92236
4	1	92238	2.17803E-02	92238
5	1	8016	4.55359E-02	8016
6	3	8016	2.09710E-02	6
7	1	36083	1.62790E-06	36083
8	1	36085	7.82543E-07	36085
9	1	38090	1.79089E-05	38090
10	1	39089	1.44715E-05	39089
11	1	42095	1.98509E-05	42095
12	1	40093	1.44900E-05	40093
13	1	40094	2.28864E-05	40094
14	1	40095	1.96022E-06	40095
15	1	41094	1.19775E-11	41094
16	1	43099	2.23951E-05	43099
17	1	45103	1.24431E-05	45103
18	1	45105	2.38999E-08	45105
19	1	44101	2.05378E-05	44101
20	1	44106	3.08150E-06	44106
21	1	46105	8.54907E-06	46105
22	1	46108	2.52052E-06	46108
23	1	47109	1.72865E-06	47109
24	1	51124	3.84646E-10	51124
25	1	54131	1.01675E-05	54131
26	1	54132	1.98610E-05	54132
27	1	54135	6.66599E-09	54135
28	1	54136	3.91142E-05	54136
29	1	55134	1.27988E-06	55134
30	1	55135	1.24307E-05	55135
31	1	55137	2.41337E-05	55137
32	1	56136	2.66545E-07	56136
33	1	57139	2.38740E-05	57139
34	1	59141	2.08456E-05	59141
35	1	59143	3.65349E-07	59143
36	1	58144	6.85967E-06	58144
37	1	60143	1.82864E-05	60143
38	1	60145	1.36331E-05	60145
39	1	61147	4.30510E-06	61147
40	1	61148	1.28358E-08	61148
41	1	60147	1.29256E-07	60147
42	1	62147	1.79999E-06	62147
43	1	62149	8.91136E-08	62149
44	1	62150	5.01078E-06	62150
45	1	62151	4.32635E-07	62151
46	1	62152	2.36311E-06	62152
47	1	64155	2.83530E-09	64155
48	1	63153	1.53061E-06	63153
49	1	63154	3.59468E-07	63154
50	1	63155	1.67707E-07	63155
51	2	40802	4.25156E-02	40802
52	3	1001	4.19420E-02	1001
53	3	5010	3.81515E-06	5010
54	3	5011	1.54884E-05	5011
55	1	55133	2.45710E-05	55133
56	1	95237	4.70039E-06	95237

57	1	94238	8.09288E-07	94238
58	1	94239	1.16852E-04	94239
59	1	94240	2.56808E-05	94240
60	1	94241	1.47624E-05	94241
61	1	94242	2.01045E-06	94242
62	1	95241	5.15913E-07	95241
63	1	95243	2.25204E-07	95243
64	1	96244	2.62419E-08	96244
65	1	999	1.00000E-20	999
66	4	999	1.00000E-20	66

Ogeometry and material description

Ozone	mixture	outer dimension	temperature	extra xs	type (0/1--fuel/mod)
1	1	4.68122E-01	9.75000E+02	9.05814E-01	0
2	4	4.78790E-01	2.98000E+02	5.49010E-01	0
3	2	5.46100E-01	6.50000E+02	.00000E+00	0
4	3	8.13968E-01	6.07600E+02	.00000E+00	0

7711 locations of 200000 available are required to make a new master containing the self-shielded values
Ono nuclides in your problem have bondarenko factor data**boremi will copy from logical 12 to logical 1

Ocopy	999	1/v cross sectio	from log 12	to log 18	bondarenko trigger 0
Ocopy	999	1/v cross sectio	from log 18	to log 1	bondarenko trigger 0
Ocopy	999	1/v cross sectio	from log 18	to log 1	bondarenko trigger 0
Ocopy	1001	hydrogen	from log 12	to log 1	bondarenko trigger 0
Ocopy	5010	b-10 1273 218ngp	from log 12	to log 1	bondarenko trigger 0
Ocopy	5011	boron-11	from log 12	to log 1	bondarenko trigger 0
Ocopy	8016	oxygen-16	from log 12	to log 18	bondarenko trigger 0
Ocopy	8016	oxygen-16	from log 18	to log 1	bondarenko trigger 0
Ocopy	8016	oxygen-16	from log 18	to log 1	bondarenko trigger 0
Ocopy	36083	kr-83	from log 12	to log 1	bondarenko trigger 0
Ocopy	36085	kr-85	from log 12	to log 1	bondarenko trigger 0
Ocopy	38090	sr-90	from log 12	to log 1	bondarenko trigger 0
Ocopy	39089	y-89	from log 12	to log 1	bondarenko trigger 0
Ocopy	40093	zr-93	from log 12	to log 1	bondarenko trigger 0
Ocopy	40094	zr-94	from log 12	to log 1	bondarenko trigger 0
Ocopy	40095	zr-95	from log 12	to log 1	bondarenko trigger 0
Ocopy	40302	zircalloy	from log 12	to log 1	bondarenko trigger 0
Ocopy	41094	nb-94	from log 12	to log 1	bondarenko trigger 0
Ocopy	42095	mo-95	from log 12	to log 1	bondarenko trigger 0
Ocopy	43099	tc-99	from log 12	to log 1	bondarenko trigger 0
Ocopy	44101	ru-101	from log 12	to log 1	bondarenko trigger 0
Ocopy	44106	ru-106	from log 12	to log 1	bondarenko trigger 0
Ocopy	45103	rh-103	from log 12	to log 1	bondarenko trigger 0
Ocopy	45105	rh-105	from log 12	to log 1	bondarenko trigger 0
Ocopy	46105	pd-105	from log 12	to log 1	bondarenko trigger 0
Ocopy	46108	pd-108	from log 12	to log 1	bondarenko trigger 0
Ocopy	47109	silver-109	from log 12	to log 1	bondarenko trigger 0
Ocopy	51124	sb-124	from log 12	to log 1	bondarenko trigger 0
Ocopy	54131	xe-131	from log 12	to log 1	bondarenko trigger 0
Ocopy	54132	xe-132	from log 12	to log 1	bondarenko trigger 0
Ocopy	54135	xenon-135	from log 12	to log 1	bondarenko trigger 0
Ocopy	54136	xe-136	from log 12	to log 1	bondarenko trigger 0
Ocopy	55133	cesium-133	from log 12	to log 1	bondarenko trigger 0
Ocopy	55134	cs-134	from log 12	to log 1	bondarenko trigger 0
Ocopy	55135	cs-135	from log 12	to log 1	bondarenko trigger 0
Ocopy	55137	cs-137	from log 12	to log 1	bondarenko trigger 0
Ocopy	56136	ba-136	from log 12	to log 1	bondarenko trigger 0
Ocopy	57139	la-139	from log 12	to log 1	bondarenko trigger 0
Ocopy	58144	ce-144	from log 12	to log 1	bondarenko trigger 0
Ocopy	59141	pr-141	from log 12	to log 1	bondarenko trigger 0
Ocopy	59143	pr-143	from log 12	to log 1	bondarenko trigger 0
Ocopy	60143	nd-143	from log 12	to log 1	bondarenko trigger 0

```
0copy    60145  nd-145          from log 12 to log  1   bondarenko trigger 0
0copy    60147  nd-147          from log 12 to log  1   bondarenko trigger 0
0copy    61147  pm-147          from log 12 to log  1   bondarenko trigger 0
0copy    61148  pm-148          from log 12 to log  1   bondarenko trigger 0
0copy    62147  sm-147          from log 12 to log  1   bondarenko trigger 0
0copy    62149  sm-149          from log 12 to log  1   bondarenko trigger 0
0copy    62150  sm-150          from log 12 to log  1   bondarenko trigger 0
0copy    62151  sm-151          from log 12 to log  1   bondarenko trigger 0
0copy    62152  sm-152          from log 12 to log  1   bondarenko trigger 0
0copy    63153  eu-153          from log 12 to log  1   bondarenko trigger 0
0copy    63154  eu-154          from log 12 to log  1   bondarenko trigger 0
0copy    63155  eu-155          from log 12 to log  1   bondarenko trigger 0
0copy    64155  gd-155          from log 12 to log  1   bondarenko trigger 0
0copy    92234  u-234 1043 sigc= from log 12 to log  1   bondarenko trigger 0
0copy    92235  uranium-235     from log 12 to log  1   bondarenko trigger 0
0copy    92236  u-236 1163 sigc= from log 12 to log  1   bondarenko trigger 0
0copy    92238  uranium-238     from log 12 to log  1   bondarenko trigger 0
0copy    93237  neptunium-237   from log 12 to log  1   bondarenko trigger 0
0copy    94238  pu-238 1050 sigc from log 12 to log  1   bondarenko trigger 0
0copy    94239  plutonium-239   from log 12 to log  1   bondarenko trigger 0
0copy    94240  plutonium-240   from log 12 to log  1   bondarenko trigger 0
0copy    94241  plutonium-241   from log 12 to log  1   bondarenko trigger 0
0copy    94242  plutonium-242   from log 12 to log  1   bondarenko trigger 0
0copy    95241  am-241 1056 sigc from log 12 to log  1   bondarenko trigger 0
0copy    95243  am-243 1057 218  from log 12 to log  1   bondarenko trigger 0
0copy    96244  curium-244      from log 12 to log  1   bondarenko trigger 0
1     scale 4.2 - 27 group neutron burnup library
        based on endf-b version 4 data with endf-b version 5 fission products
           compiled for nrc     1/27/89
             last updated      9/16/93
                l.m.petrie  -  ornl
        tape id                          4321        number of nuclides          66
        number of neutron groups           27        number of gamma groups       0
        first thermal group                15        logical unit                 1
                                  table of contents
      1/v cross sections normalized to 1.0 at 0.0253 ev                    id    999
      1/v cross sections normalized to 1.0 at 0.0253 ev                    id     66
       hydrogen       endf/b-iv mat 1269/thrml002   updated 10/13/89      id   1001
      b-10 1273 218ngp 04375 p-3 293k                                      id   5010
       boron-11       endf/b-iv mat 1160            updated 10/13/89      id   5011
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89      id   8016
       oxygen-16      endf/b-iv mat 1276            updated 10/13/89      id      6
       kr-83          mt=102,103,105,105,106,107    updated 10/13/89      id  36083
       kr-85            mt=  102                                           id  36085
       sr-90          mt=102                        updated 10/13/89      id  38090
        y-89          mt=102                        updated 10/13/89      id  39089
       zr-93            mt=  102                                           id  40093
       zr-94          mt=102                        updated 10/13/89      id  40094
       zr-95          mt=102                        updated 10/13/89      id  40095
       zircalloy      endf/b-iv mat 1284            updated 10/13/89      id  40802
       nb-94          mt=102                        updated 10/13/89      id  41094
       mo-95          mt=102                        updated 10/13/89      id  42095
       tc-99          mt=102                        updated 10/13/89      id  43099
       ru-101         mt=102                        updated 10/13/89      id  44101
       ru-106         mt=102                        updated 10/13/89      id  44106
       rh-103         mt=102                        updated 10/13/89      id  45103
       rh-105           mt=  102                                           id  45105
       pd-105         mt=102                        updated 10/13/89      id  46105
       pd-108         mt=102                        updated 10/13/89      id  46108
       silver-109     endf/b-iv mat 1139            updated 10/13/89      id  47109
```